
ITRI

**INFORMATIONAL TEXT
READING INVENTORY**

Grade 5

Teacher Guide

Developed by the Center for
Innovation in Assessment in
conjunction with the Indiana
Department of Education

What's In This Booklet

The Grade 5 Informational Text Reading Inventory (ITRI) was developed to address the specific reading challenges that grade 5 students encounter when reading their textbooks and other informational text. In fifth grade, students are expected not only to comprehend difficult passages, but also to extend their comprehension through drawing inferences and critically evaluating the materials they read.

This booklet contains all the information teachers need to use the Grade 5 ITRI materials, including assessments, lessons, concluding projects, answer keys, student scoring sheets, and a survey of the scientifically-based reading research that is foundational to ITRI.

Because all Grade 5 ITRI content comes from *Indiana's Standards* for grade 5, the ITRI materials will enhance the subject matter teachers already teach. Students learn the reading skills within the context of their content area curriculum.

For a detailed list of all items, please go to the Table of Contents on page iii.

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About the Grade 5 Informational Text Reading Inventory (ITRI)

For a quick overview of how to get started, please turn to page 2.

How Grade 5 ITRI Works

Grade 5 ITRI will help students learn how to read their content area textbooks better. These research-based materials will:

- help teachers identify whole class and individual student strengths/weaknesses in reading informational text.
- encourage students to engage with a variety of informational texts mirroring a variety of textbook designs and lesson formats.
- increase student ability, confidence, and performance in the content areas.
- encourage student development of critical thinking skills.
- reinforce the critical content identified in *Indiana's Academic Standards* for social studies, science, health, and mathematics.

Grade 5 ITRI lessons were written and designed to model Indiana's adopted textbooks. Because the lessons model the textbook syntactically, conceptually, and graphically, and because textbooks are not perfect, Grade 5 ITRI lessons also include:

- grammatically incorrect phrases occasionally (And then...).
- graphics that do not always illustrate the topic at hand.
- vocabulary words that are sometimes used before they are defined.

For an outline of the titles, subject matter, or the standards indicators addressed in each lesson, please see Appendix B.

Four Components of Grade 5 ITRI

ITRI allows teachers to gather data to continually monitor student progress. ITRI has four distinct components:

1. **Diagnostic Assessment:** Grade 5 ITRI begins with an initial assessment, which identifies student reading ability in six critical skill areas.
2. **Lessons:** Grade 5 ITRI lessons model how proficient readers read. The lessons emphasize the six reading skill areas, and promote critical thinking skills.
3. **Concluding Projects:** Each set of Grade 5 ITRI lessons ends with an optional inquiry-based concluding project, which helps students apply the skills that they have learned.
4. **Follow-Up Assessment:** Grade 5 ITRI ends with a final assessment, which allows the teacher to quantify reading improvement and to identify students who are continuing to have difficulty.

Overview of Grade 5 ITRI Assessments

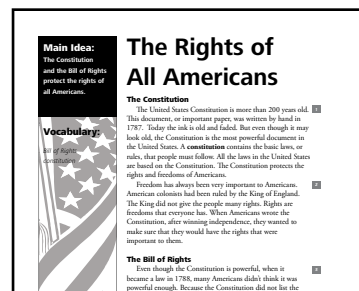
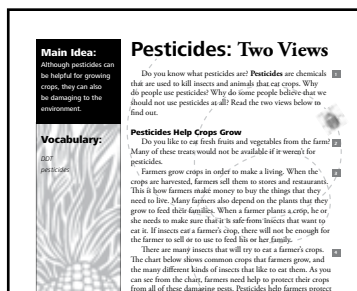
There are two Grade 5 ITRI assessments. **The Diagnostic Assessment** is used to obtain baseline data about how well students read their textbooks before they complete the Grade 5 ITRI lessons. **The Follow-Up Assessment** is used after the completion of the Grade 5 ITRI lessons and projects to monitor student achievement. Each assessment tests the following reading skill areas:

1. Main Idea & Supporting Details
2. Sequential Order
3. Interpreting Graphics
4. Making Inferences
5. Fact & Opinion
6. Word Knowledge

1

Students Take a Two-Part Diagnostic Assessment

The assessment uses the structure of textbook passages to evaluate student comprehension and critical thinking skills. Students read two pages of material and answer twelve multiple-choice questions about each passage.



2

Teachers Score Assessment and Collect Data

There are 24 questions total in each assessment. Each of the six reading skill areas is assessed by four questions. In order to simplify scoring, reading skill areas are always assessed in the same order (questions 1 and 7 will always assess Main Idea and Supporting Details, questions 2 and 8 will always assess Sequential Order, etc.). The assessment scoring sheet shown here is included as Appendix C.

Class Averages identify the strengths and weaknesses of the class as a whole.

Teachers award one point for a correct response and zero points for an incorrect response.

Appendix C **Scoring Sheet: ITRI Assessments**

		Diagnostic				Follow-Up							
CLASS Average		2.6		3.1		3.1		2.2		3.3		3.4	
Student Name	Multiple Choice Question Numbers	#1	#7	#2	#8	#3	#9	#4	#10	#5	#11	#6	#12
Kelly	Vinland	1	1	0	1	1	1	0	0	0	1	1	0
	Earliest Americans	0	1	1	1	1	1	1	1	1	1	1	1
	TOTAL	3		3									
Shayla	Vinland	0	0	0	0	1	1	1	1	1	1	1	1
	Earliest Americans	0	1	0	1	1	1	1	1	1	1	1	1
	TOTAL	1		2									
Mario	Vinland	1	1	1	1	0	0	1	1	1	1	1	1
	Earliest Americans	1	1	1	1	1	1	1	1	1	1	1	1
	TOTAL	4		3									

Answer keys and specific instructions for administering and scoring the Diagnostic and Follow-Up Assessments can be found on page 12–13.

Students who are unable to read the the diagnostic passages or who struggle to complete the questions may need assistance to complete ITRI lessons. Teachers may want to arrange for these students to work in small groups with the assistance of a teacher or classroom assistant.

Overview of Grade 5 ITRI Lessons

There are six sets of Grade 5 ITRI lessons. Each set contains a Reading Skill Introduction, five lessons (a biography, an activity, a math application, and two traditional lessons), and a Concluding Project. Each of the sets focuses on one of the six reading skill areas noted on page 2.

1

Students Read the Reading Skill Introduction

The Reading Skill Introduction helps students focus on the reading skill they will practice in the lessons. Students should have access to these introductions as they work through the lessons. Teachers may want to model certain strategies, make overheads of the Reading Skill Introductions, and pace learning as appropriate to student ability.

Sequential Order
.....
What is sequential order?

Many lessons in your textbooks are written to emphasize **sequential order**. This means that they are written to describe events in the order in which they happened. **Sequential order** is also used to write instructions, such as those you might find in a science experiment or recipe.

If a text is organized to emphasize **sequential order**, the author wants you to pay careful attention to the order in which events or steps take place. You may be asked questions about that order.

How can you tell if a text is organized sequentially?
Recognizing that a text is written to emphasize **sequential order** can help you read the text better. To identify **sequential order**, look for:

- headings/subheadings that describe specific events or steps. These headings will usually begin with a verb (action word).
- special signal words (*before*, *after*, *next*, *then*, etc.) that are used to indicate sequence.
- timelines or illustrations that indicate the order of events (look for arrows, etc.).
- numbers that may indicate steps.
- dates that indicate when events happened.
- a main idea that explains how events or steps are related.

What should you do if events are not presented in sequential order?
Some texts that emphasize **sequential order** may not describe the steps or events in the order they happened. Pay attention to all signal words. Sometimes the steps or events may not be described in the order in which they happened. You will need to use the sequence signal words to help you put them in order. You may want to take notes on a separate piece of paper or draw yourself a timeline. This will help you organize the information in the correct order. It will help you keep track of when events occurred.

2

Students Complete a Lesson

Each lesson contains Guided Reading Boxes that ask students to answer questions as they read. All questions relate to the particular reading skill area and to either general comprehension or critical thinking skills.

Lessons will take approximately
30 minutes to complete.

LESSON 5
.....
Sequential Order


VOCABULARY
• cotton gin
• Robert Fulton
• steamboat
• Eli Whitney

MAIN IDEA
The cotton gin and the steamboat were two inventions that changed American life in the 1800s.

The Cotton Gin and the Steamboat: Changing Life in the 1800s

Eli Whitney's Cotton Gin

In 1793, a man named **Eli Whitney** invented a machine called the **cotton gin** that changed the way that many people in the southern United States lived and worked. Whitney had worked as both a blacksmith and a teacher. But he loved to invent things. His **cotton gin** could separate cotton seeds from the cotton fiber used to make cloth. The cotton gin was simple to use. Cotton was put into the top of the machine and a handle was turned. As the handle turned, the cotton moved through wires that combed the seeds out. When the job was finished, the soft-fiber cotton was pulled off the wires.



This is what Eli Whitney's cotton gin looked like.

Before the invention of the cotton gin, it took a long time to separate the seeds from the cotton. Whitney's cotton gin could separate 50 pounds of cotton in just one day. This allowed people to make cotton cloth much more cheaply. Cotton quickly became the biggest crop in the South. It continued to be the South's biggest crop until the Civil War (1861-1865).

Standards Addressed: SCS.5.1.10.538.543.547.554.560.515.516.534.538.539

Each set is designed so that the lessons are arranged in chronological order, with the difficulty of the questions increasing throughout. Although this is the recommended order of Grade 5 ITRI materials, teachers should feel free to arrange these lessons as they fit into the existing curriculum.

3

Teachers Lead an All-Class Discussion and Scoring Session

Teachers facilitate the transfer of learning by engaging students in a discussion of their answers. Students score their own lessons. Each lesson has ten possible points. Additional discussion prompts are included to extend the discussion.

Each in-class discussion will take approximately 20-30 minutes to complete.

Fact & Opinion Lesson 3:
Measurement: Perimeter of Polygons

Discussion Points Following the Lesson

- Look at Guided Reading Box A.
 - When you think about facts and opinions, are math lessons different from social studies or science lessons?
 - A:** Yes. Math lessons usually have less text and fewer paragraphs; they are usually about numbers and not people; etc. **N:** Both can contain opinions.
- Look at Guided Reading Box E.
 - How did you answer this question?
 - A:** Answers will vary. Students might say that they looked at the picture/checked the multiplication/addition, etc.
 - Are number statements always facts?
 - A:** No. Some might not be possible; there could be errors; estimates are not facts, etc.
 - Look at Guided Reading Box F.
 - How much of this sentence is opinion?
 - A:** Only the word *beneficial*. It is a fact that some colonial women did make quilts. This can be proven. It is an opinion that the quilts were beneficial. It cannot be proven.

4

Teachers Record Scores and Review Student Answers

The way in which students answered questions informs teachers of each student's skill level and reading ability.

Students who consistently score 90% or above would likely benefit from Extension Activities.

Appendix D **Scoring Sheet: Grade 5 ITRI Lessons**

Skill Area: Sequential Order

Student Name	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Kelly	9	9	9	10	8
Shayla	6	7	7	7	7
Mario	9	10	10	9	9
Lin	8	9	9	9	9
Ta Rhonda	8	7	8	9	8
Mark	9	10	10	9	9
Casey	10	9	9	10	9
Emily	10	10	10	10	10
Quinn	6	6	5	6	6
Holly	9	9	8	9	9

Students who consistently score below 60% would likely benefit from Additional Practice Activities.

Teachers use data to identify those students who may benefit from Additional Practice or Extension Activities which are provided at the end of the answer key for each reading skill set.

5

Concluding Project

The Concluding Project for a reading skill set asks students to demonstrate mastery of the reading skill and to conduct research related to the topic of the set.

Concluding Projects will take approximately one week to complete.

CONCLUDING PROJECT

Sequential Order: Inventors

Now that you have learned about how an inventor works, you will design your own invention and demonstrate it to your classmates. You will follow the five steps you learned about in Lesson 1: observe, brainstorm, experiment, create a model, and make improvements.

Step 1: As you work, you will keep a notebook to track your observations, ideas, and experiments. You will research to make sure that your invention is unique.

Step 2: Design your invention by making a storyboard or model that shows how it will work. When you have finished designing your invention, you will demonstrate it for the class.

Step 3: Finally, you will write a brief report about your invention.

6

Teachers Score Concluding Projects

Teachers score Concluding Projects using the Concluding Project Rubric.

Sequential Order: *Inventors*
Concluding Project Rubric

The following rubric is provided to assist you in scoring the culminating project for the Inventors set. It is intended only as a guide. Feel free to adjust scoring to reflect your own teaching goals and expectations.

Step 1: Inventor's Journal and Research (30 pts.) _____

- ___ /15 points Student has correctly used the journal to record observations, ideas, and plans.
- ___ /5 points Student has carried out research using appropriate research materials.
- ___ /5 points Student has made effective use of his or her research.
- ___ /5 points Student demonstrates that his or her invention is unique to the best of his or her knowledge.

___ TOTAL

Step 2: The Invention (depiction and demonstration) (35 pts.) _____

- ___ /10 points Student has done a reasonable job of depicting or constructing the invention.
- ___ /5 points The invention could function or functions as described.
- ___ /10 points Student's presentation is clear and well organized.
- ___ /10 points Student is able to answer questions about the invention.

___ TOTAL

Step 3: The Written Report (35 pts.) _____

- ___ /5 points Student has used sequence signal words appropriately throughout the report.

Key to Lesson Layout

The pages below have been reproduced from the Grade 5 ITRI lessons. See page 7 of this document for a description of each lettered item below.

Traditional Lesson Format

LESSON 5

SEQUENTIAL ORDER

VOCABULARY

- cotton gin
- Robert Fulton
- steamboat
- Eli Whitney


MAIN IDEA

Cotton gin and steamboat are inventions that changed American life in the 1800s.

The Cotton Gin and the Steamboat: Changing Life in the 1800s

Eli Whitney's Cotton Gin

In 1793, a man named **Eli Whitney** invented a machine called the cotton gin that changed the way that many people in the southern United States lived and worked. Whitney had worked as both a blacksmith and a teacher, but he loved to invent things. His **cotton gin** could separate cotton seeds from the cotton fiber used to make cloth. The cotton gin was simple to use. Cotton was put into the top of the machine and a handle was turned. As the handle turned, the cotton moved through wires that combed the seeds out. When the job was finished, the seed-free cotton was pulled off the wires. Before the invention of the cotton gin, it took a long time to separate the seeds from the cotton. Whitney's cotton gin could separate 50 pounds of cotton in just one day. This allowed people to make cotton cloth much more cheaply. Cotton quickly became the biggest crop in the South. It continued to be the South's biggest crop until the Civil War (1861-1865).



This is what Eli Whitney's cotton gin looked like.

A This paragraph describes how the cotton gin worked. In your own words, write the four steps in sequential order.

B This picture was taken before Jennings was born. O the year Jennings was born. O after Jennings was born.

C How do you know?

D _____

E _____

Standards Addressed: Soc: 5.1.10, 5.3.8, 5.4.3, 5.4.7, 5.5.6, 5.5.13, 5.15, 5.3.4, 5.3.8

Biography Format

BIOGRAPHY

LESSON 4

SEQUENTIAL ORDER

Thomas Jennings: An African American Inventor

A Americans have always been great inventors, but it was not always easy for all Americans to get credit for their inventions. Before the Civil War, many African Americans were slaves. The law said that slaves could get patents for their inventions, but slave owners often took credit for their slaves' ideas. Although they often could not get patents, African Americans continued to invent. Thomas Jennings was one such inventor.

B Jennings was born in 1791, during the time of slavery. Although Jennings was not a slave, many of his family members were. Jennings lived in New York City, where he worked as a dry cleaner. He was always looking for new ways to make his work easier. When he was 30 years old, Jennings invented a new way of dry cleaning called "dry scouring." He asked the government for a patent. On March 3, 1821, he became the first African American patent holder.

C In your own words, describe what often happened after a slave created a new invention.

D _____

E _____

A This picture shows what the United States Patent Office looked like in the 19th century.

B This picture was taken before Jennings was born. O the year Jennings was born. O after Jennings was born.

C How do you know?

D _____

E _____

Standards Addressed: Soc: 5.1.10, 5.1.19, 5.4.3, 5.5.6, 5.5.13, 5.15

Activity Format

A Make a Polygraph

Although the polygraphs that Jefferson used were large and had a lot of parts, it is easy to make a simple polygraph. Just follow the steps below.

- Using tape, attach one of your pencils or markers to the one inch mark on your ruler. Attach it at a 45 degree angle. Use your protractor to measure the angle. The tip of the pencil or marker should be approximately one inch from the bottom of the ruler.
- Measure six inches from the first pencil or marker.
- Use tape to attach the second pencil or marker to the ruler at the seven inch mark. Use your protractor to attach it at a 45 degree angle. The tip of the pencil or marker should be slightly less than one inch from the bottom of the ruler.
- Position the polygraph so that the pencils or markers will both write on the paper, with one next to the other.
- Holding one of the pencils or markers, use the polygraph to write your name. What happened?
- Experiment. Move the pencils or markers farther apart or closer together. How does it change the result? Is it easier to write with one pencil or marker than with the other?

MATERIALS

- two pencils or markers of equal length (markers work best)
- a ruler
- a protractor
- a piece of paper
- sturdy tape, such as masking or strapping tape
- a writing surface, such as a desk or table

C Does the order in which the materials are listed matter? Write one reason why or why not.

D _____

E Why is it important to follow these steps in the order in which they are written?

D _____

E _____

Math Application Format

USING MATH

LESSON 2

SEQUENTIAL ORDER

Algebra: A Make a Scale Model

A Before you read, skim the lesson. Write at least two ways you know this lesson is written to emphasize sequential order.

B Is this paragraph written to emphasize sequential order? How do you know?

C Is this chart arranged in sequential order? Write one reason why or why not.

D _____

E _____

F _____

A Eli is studying inventions in school. He has to write a report about an invention that changed life in early America. Eli has decided to write about the windmill. He wants to build a model of a windmill as part of his report. Because he wants his windmill to look like a real windmill, but smaller, Eli wants to make a **scale model**. A scale model is a model that is bigger or smaller than a real object. A **scale** is a ratio that compares the real measurements of an object with the measurements of the model.

To make a scale model, Eli needs to follow the steps below.

1. Find the Size of the Original

Before he can begin, Eli needs to know the size of the original object. While reading, Eli found the following measurements for an early American windmill:

LENGTH	14 feet
WIDTH	12 feet
HEIGHT	30 feet

D _____

E _____

F _____

Standards Addressed: Soc: 5.2.2, 5.2.7, 5.2.10, 5.3.1, 5.7.1

Key to Lesson Layout

The following list of elements in the Grade 5 ITRI lesson layout corresponds to the lesson pages reproduced on the previous page.

- A. **Lesson Title:** The title of each lesson is listed in bold, oversized print on the student page.
- B. **Main Idea Box:** Those lessons that follow the Traditional Lesson format have a Main Idea Box in the left-hand column of the page.
- C. **Vocabulary:** These are vocabulary words that students are expected to learn as they complete the lesson.
- In the Traditional Lesson format, words that appear in bold throughout the lesson are listed in the left-hand column of the first page of the lesson.
 - In the Biography format, vocabulary words are not bolded or defined in the text. Definitions are found in arrows pointing to the relevant text.
 - In the Activity format, vocabulary words are bolded and defined in the text.
 - In the Using Math format, words that appear in bold throughout the lesson are listed in the right-hand column of the first page of the lesson.
- D. **Guided Reading Box:** These boxes appear outside or on top of the lesson's text and model the strategies that proficient readers use. The boxes contain reading skill questions. In early lessons, these questions will often relate back to the Reading Skill Introduction. Later questions will focus on comprehension and mastery of the reading skill. Dots are used to direct the students to the relevant text.
- E. **Section Icon:** There is one icon for each set of lessons. These icons allow students and teachers to quickly identify the topic area (Colonial Life, Geography, etc.).
- F. **Standards Footer:** This footer appears on the first page of every lesson. It identifies standards in social studies, science, math, and health that are addressed by the lesson.
- G. **Materials List:** In the Activity format, a list of materials appears at the top of the page (this may not be the first page of the lesson). Students are expected to read the activity, but they do not need to complete it. If teachers want to have their students complete these activities, they will want to check the availability of these materials before beginning the lesson.

Key to Teacher Manual Layout

Readability: This section lists the lesson's reading level, as calculated using the Harris Jacobson method and the number of Guided Reading Boxes that are included in the lesson.

Vocabulary: This section lists all lesson vocabulary.

Skills and Standards: This section lists the Indiana Academic Standards addressed in the lesson.

Background Prompt: This section provides a prompt to help teachers activate student thinking about the topic of the lesson.

Answer Keys: The Answer Key lists correct responses for each Guided Reading Box. Use these during the all-class scoring session.

Sequential Order Lesson 1: How Does an Inventor Work?

Reading Difficulty: 5.4 Guided Reading Boxes: 5

Vocabulary

Morse code, observation, telegraph

Skills and Standards

English/Language Arts Focus:

5.2.2 Analyze text that is organized in sequential or chronological order.

Social Studies Standards Addressed:

5.4.3 Trace the development of technology and the impact of major inventions on business productivity during the early development of the United States.

5.5.6 Read accounts of how scientific and technological innovations have affected the way people lived in the early United States and make predictions about how future scientific and technological developments may change cultural life.

Science Standards Addressed:

5.1.1 Recognize and describe that results of similar scientific investigations may turn out differently because of inconsistencies in methods, materials, and observations.

5.1.3 Explain that doing science involves many different kinds of work and engages men, women, and children of all ages and backgrounds.

5.1.7 Give examples of materials not present in nature, such as cloth, plastic, and concrete, that have become available because of science and technology.

5.5.8 Realize and explain that predictions may be more accurate if they are based on large collections of objects or events.

Background Prompt

How many famous inventors can you name? How do you think a person becomes an inventor?

Sequential Order Lesson 1: How Does an Inventor Work?

LESSON 1
Sequential Order

How Does an Inventor Work?

A Before you read, look at the headings in the lesson. How do the headings give you a clue that the text is organized in sequential order?

1 pt. They begin with verbal action words, each heading describes a step, or any other appropriate response.

Sequential Order Lesson 1: How Does an Inventor Work?

Discussion Prompts Following the Lesson

- Look at Guided Reading Box C.

Are all texts that include sequence signal words written to emphasize sequential order?
A: No. Almost all texts include at least some sequence signal words.

How can you tell that the sequence signal words do indicate that the passage is organized sequentially?
A: There will be a lot of sequence signal words; the passage may contain a lot of dates or timelines or other illustrations that show sequence; the main idea and/or the headings will indicate that sequence is important to the lesson, etc.
- Look at Guided Reading Box E.

Do you think Morse could have left out any of the steps and been successful?
A: Answers will vary. Ask students to explain their answers.

Where else do you read steps you need to accomplish in order to be successful?
A: Assessment directions, recipes, models, game rules, model directions, etc.

Discussion Prompts: These prompts encourage continued class discussion of the lesson and the reading skill.

Standards Links: This section includes optional activities incorporating additional Indiana Standards across the curriculum. Internet links are provided for some activities as indicated.

Sequential Order Lesson 1: How Does an Inventor Work?

Standards Links

English/Language Arts 5.4.3 - Write informational pieces with multiple paragraphs.

Suggested Activity: After reading about an invention or inventor, write a sequentially organized report that presents information in order.

Science 5.2.7 - Read and follow step-by-step instructions when learning new procedures.

Suggested Activity: Follow a recipe such as one for peanut soup like inventor George Washington Carver made. See <http://georgecarver.com> for peanut recipes.

English/Language Arts 5.6.1 - Identify and correctly use prepositional phrases (for school or In the beginning), appositives (We played the Cougars, the team from Newport), main clauses (words that express a complete thought), and subordinate clauses (clauses attached to the main clause in a sentence).

- We began our canoe trip on the White River (prepositional phrase) when it stopped raining (subordinate clause).
- Famous for their first flight at Kitty Hawk (appositive), the Wright brothers are legendary in aviation (main clause).

Suggested Activity: Using inventor biographies and step by step instructions, have students identify prepositional phrases in the text.

Key to Teacher Manual Layout

Concluding Project and Rubric

NOTE: There is one Concluding Project/Rubric for each reading skill set.

CONCLUDING PROJECT

Sequential Order: Inventors

Now that you have learned about how an inventor works, you will design your own invention and demonstrate it to your classmates. You will follow the five steps you learned about in Lesson 1. You will research, experiment, create a model, and make improvements.

Step 1: As you work, you will keep a notebook of ideas, and experiments. You will research to make your invention unique.

Step 2: Design your invention by making a sketch of how it will work. When you have finished designing, you will demonstrate it for the class.

Step 3: Finally, you will write a brief report about your invention.



The Concluding Project Rubric is included to help teachers assess their students' concluding projects. Teachers are encouraged to adapt this rubric to reflect their own goals for their classrooms.

Sequential Order: Inventors Concluding Project Rubric

The following rubric is provided to assist you in scoring the culminating project for the Inventors set. It is intended only as a guide. Feel free to adjust scoring to reflect your own teaching goals and expectations.

Step 1: Inventor's Journal and Research (30 pts.)

- ___ /15 points Student has correctly used the journal to record observations, ideas, and plans.
- ___ /5 points Student has carried out research using appropriate research materials.
- ___ /5 points Student has made effective use of his or her research.
- ___ /5 points Student demonstrates that his or her invention is unique to the best of his or her knowledge.
- ___ TOTAL

Step 2: The Invention (depiction and demonstration) (35 pts.)

- ___ /10 points Student has done a reasonable job of depicting or constructing the invention.
- ___ /5 points The invention could function or functions as described.
- ___ /10 points Student's presentation is clear and well organized.
- ___ /10 points Student is able to answer questions about the invention.
- ___ TOTAL

Step 3: The Written Report (35 pts.)

- ___ /5 points Student has used sequence signal words appropriately throughout the report.
- ___ /10 points The student's report is presented in sequential order and is easy to follow.
- ___ /10 points The report is complete, including all required information.
- ___ /5 points Student's report reflects an understanding of the invention process as well as the product.
- ___ /5 points The student's report addresses if improvements to the invention should be made.
- ___ TOTAL
- ___ / 100 TOTAL

Key to Teacher Manual Layout

Teacher Tools

NOTE: There is one set of Teacher Tools for each reading skill set.

Additional Practice Activities:

This section provides optional activities, including a graphic organizer, for those students who need more practice with the reading skill.

Extension Activities:

This section provides optional activities for students who have mastered the reading skill and need to be challenged.

Sequential Order: *Inventors* Teachers Tools

Additional Practice Activities:

- Graphic Organizer: Create a basic reproducible timeline or sequencing map/flow chart that students can take notes on as they read their lessons.

Timeline example:



Sequencing map/flow chart example:



- Have students practice following written instructions in sequential order. Possible projects include: origami, cooking, model building, scavenger hunts with directions at each point along the hunt, etc.
- Have students practice sequential order using learning games on the Internet (see for example <http://www.quia.com/pages/sequencingfun.html>).
- Help students understand the relationship between time that is expressed in different forms such as 19th century, 1800s, 1915, late 1900s, etc. Write dates in different forms on index cards and have students put them in chronological order.

Extension Activities:

- Have students research the race between Elisha Gray and Alexander Graham Bell to patent the telephone. Have them discuss or write about how the sequence of events affected the outcome.
- Have students relate their lives to other historical events. First, each student needs to make a list of 10 events that occurred in his/her life. Next, research to find another event that occurred on the same date in a different year. Combine these into 10 sentences such as "I was born on November 2, 1996, eight years before George Bush was elected for a second term. I learned to walk on December 7, 1991, 50 years after the bombing of Pearl Harbor. (A time line could be added to illustrate the dates.)"
- Have students write the steps necessary for a simple task, such as getting ready for school, or making a peanut butter and jelly sandwich. Have them trade instructions with a partner. The partner should then attempt to follow the instructions. If there are problems, discuss what steps are missing or out of order and how that affects the task.
- Have students select 5-10 pictures at random from a magazine, put them in order, and make up a story about the sequence. Have them share the story with the class. Have students swap pictures, put them in a different order, and make up different stories.

Sequential Order: *Inventors* Teachers Tools

Useful Web Sites:

Morse telegraph

<http://www.jls.palo-alto.ca.us/virtualmuseum/ushistory/morse/>
<http://www.wrvmuseum.org/morsecode/morsecodehistory.htm>
http://www.radio-electronics.com/info/radio_history/morse/morseteleghstry.php

Samuel B Morse

<http://www.morsehistoricsite.org/history/morse.html>

Charles Willson Peale/the polygraph

<http://www.mdarchives.state.md.us/msa/speccol/1545/html/1032.html>
http://en.wikipedia.org/wiki/Charles_Willson_Peale
<http://www.ucpress.edu/books/pages/9210/9210.ch01.html>
<http://www.nndb.com/people/443/000086185/>
<http://www.ushistory.org/independence/secondbank/peale.htm>
<http://humanitiesweb.org/human.php?s=g&p=a&a=i&lD=576>
<http://www.npg.si.edu/exh/peale/papers2.htm>
<http://www.archives.gov/nhprc/annotation/september-98/charles-willson-peale.html>
http://www.artcyclopedia.com/artists/peake_charles_willson.html

African American inventors

<http://www.enchantedlearning.com/inventors/black.shtml>
<http://www.enchantedlearning.com/inventors/1700.shtml> <http://www.bkfk.com/inventions/kidinventors.asp>
<http://www.bkfk.com/products/#2>
<http://www.si.umich.edu/CHICO/Schomburg/text/inventors.html>
<http://www.blackinventor.com/pages/history.html> (timeline)

Patents

<http://en.wikipedia.org/wiki/Patent>

Cotton gin

http://en.wikipedia.org/wiki/Cotton_gin
<http://www.eliwhitney.org/cotton.htm>
http://college.hmco.com/history/readerscomp/rcah/html/ah_021100_cottongin.htm
http://inventors.about.com/od/cstartinventions/ss/patent_X72.htm

Useful Web Sites: This section provides links to Internet materials that teachers can direct students to as they work on their concluding projects. Web sites are also listed for some of the Standards Links, as indicated. Please note that web site content may change at any time.

Instructions for Administering the Diagnostic and Follow-Up Assessments

NOTE: The intent of these tools is to gather accurate baseline and follow-up data. Teachers should not help students read or offer suggestions about how to figure out answers. Teachers should only encourage students to do their best.

Use these directions for each of the four passages.

- **Diagnostic Assessment:** “The Search for Vinland” and “Pesticides”
- **Follow-Up Assessment:** “The Rights of All Americans” and “The Earliest Americans”

Distribute the passage to the students.

Say: This is a tool that will help me know how well you can read your social studies and science textbooks. When I tell you to begin, you will have as long as you need to read the lesson and answer the questions. Remember to take your time and read carefully. Pay close attention to everything on the page. The paragraphs have been numbered for you. When you are done reading the passage, answer the questions on the next page. There are twelve questions total. Do your best to answer the questions correctly. You may look back at the lesson as you work. If you do not know an answer, choose the one that seems the most correct.

Write your name at the top of the lesson. You may now begin.

Give the students as much time as they need to read the lesson and complete the questions.

It is not necessary that both passages be given on the same day.

Answer Key: Diagnostic and Follow-Up Assessments

The Search for Vinland

Questions

- What is the main idea of the fifth paragraph?
 - The artifacts proved some information about the Vikings.
 - The artifacts made Helge Instad famous.
 - The artifacts were found in Vinland.
 - The artifacts were from the sagas.
- The United Nations gave the place where Viking artifacts were found special recognition in the _____ .
 - 1400s
 - 1500s
 - 1960s
 - 1970s
- The site where the artifacts were found in Newfoundland is called _____.
 - Iceland
 - Vinland
 - St. Lawrence Rivers
 - L'Anse aux Meadows
- Which of the following can you infer from the fourth paragraph?
 - Instad knew little about archaeology.
 - All of the details in the Viking sagas were true.
 - The artifacts found were fakes like the ones found by other scientists.
 - The homes that were found did not belong to American Indians.
- Which of the following is a fact?
 - People believed Vinland had been made up.
 - Before 1960, many early researchers were foolish.
 - Columbus should not be honored as an explorer.
 - Leif Eriksson was a more skilled explorer than Columbus.
- In the second paragraph, the term *hypothesis* means _____.
 - evidence needed
 - a clue to a solution
 - an idea to be proved
 - the answer to an experiment
- Which of the following details is most important to the main idea of the lesson?
 - Christopher Columbus kept a diary of his voyage.
 - Instad and Stine began excavations in 1962.
 - Leif Eriksson was a famous Viking explorer.
 - Vinland is also known as Wineland.
- The Vikings arrived in North America around the year _____.
 - 500
 - 1000
 - 1490
 - 1960
- One of the artifacts found by the Instad and Stine team was a(n) _____.
 - pin
 - axe
 - pot
 - helmet
- Which of the following can you infer from this lesson?
 - Most of the Viking sagas were true.
 - The diary accounts of Columbus's voyage were false.
 - American Indians used tools similar to those used by the Vikings.
 - It is possible that there are other undiscovered Viking sites in North America.
- Which of the following is an opinion?
 - Historians wondered if Columbus was the first European to reach North America.
 - Some people believed the Viking sagas might be true.
 - Scientists should have believed that Vinland was real.
 - Researchers had been tricked by fakes.
- Which of the following is closest to a *saga*?
 - a fable
 - a fairy tale
 - a story about a hero
 - an encyclopedia entry

3

Pesticides: Two Views

Questions

- What is the main idea of the third paragraph?
 - Insects often eat farmers' crops.
 - Farmers grow crops in order to make a living.
 - Many farmers depend on their crops to feed their families.
 - Although pesticides can be helpful for growing crops, they can also be damaging to the environment.
- Which of the following happened first?
 - DDT was banned.
 - People began to use DDT as a pesticide.
 - Bald eagle populations declined as people moved into new areas.
 - People discovered a link between DDT and decreased bald eagle populations.
- Which of the following pests eats tomatoes?
 - whitefly
 - peach aphid
 - garden centipede
 - European corn borer
- Which of the following can you infer from the sixth paragraph, which begins "One animal that has been greatly harmed...?"
 - Bald eagle populations would not have decreased if DDT hadn't been used.
 - There are more bald eagles in the United States today than ever before.
 - DDT was popular because it killed many different kinds of insects.
 - DDT is not harmful to people.
- Which of the following is a fact?
 - DDT harmed bald eagles.
 - Pesticides should be banned.
 - There is no reason to stop using pesticides.
 - Farmers should grow different kinds of crops.
- The word *pesticide* means _____.
 - insects that eat crops
 - a popular farm product
 - dangerous sprays that harm wildlife
 - chemicals used to kill insects and animals
- Which of the following details best supports the main idea of the lesson?
 - The bald eagle is a national symbol
 - Farmers sell crops to stores and restaurants.
 - People began to use DDT during World War II.
 - Sometimes pesticides are harmful to people and animals.
- Which of the following paragraphs is arranged in sequential order?
 - paragraph 1
 - paragraph 2
 - paragraph 5
 - paragraph 6
- Which of the following pests preys on the greatest number of different crops?
 - whitefly
 - flies beetle
 - garden centipede
 - European corn borer
- Which of the following can you infer from this lesson?
 - We need to use pesticides carefully.
 - Farmers do not care about the environment.
 - The Colorado potato beetle is the most damaging pest.
 - Americans didn't care what happened to the bald eagle.
- Which of the following is an opinion?
 - Pesticides kill pests that eat farmers' crops.
 - Farmers want to protect their crops from pests.
 - We still use pesticides that can harm the environment.
 - We need to work harder to protect both crops and the environment.
- In the sentence, "But bald eagle populations began to decline as people moved into more and more new areas..." the word *decline* means to _____.
 - deny
 - migrate
 - decrease
 - become extinct

3

The Rights of All Americans

Questions

- What is the main idea of the fifth paragraph?
 - All Americans have the right to free speech.
 - All Americans have the right to practice their religion.
 - The King of England ruled America before the Constitution.
 - The King of England did not let people say what they believed.
- The first ten amendments were added to the constitution in the _____.
 - 1570s
 - 1590s
 - 1780s
 - 1790s
- What does Amendment VI protect?
 - freedom of religion
 - the right to a fair trial
 - the rights of the accused
 - freedom from rule by kings
- Which of the following can you infer from the first paragraph?
 - The Constitution is so old that it is no longer useful.
 - America is the only country to have a constitution.
 - American colonist were strong supporters of the King of England.
 - The way the Constitution looks is less important than what it says.
- Which of the following is a fact?
 - The King of England was a bad ruler.
 - The Constitution was written by hand.
 - The Bill of Rights is more important than the Constitution.
 - Everyone should visit Washington, D.C. to see the Constitution.
- The Bill of Rights is _____.
 - another name for the Constitution.
 - the first ten amendments to the Constitution.
 - a set of laws made by the King of England.
 - an essay about religious freedom.
- Which of the following details is most important to the main idea of the lesson?
 - The Constitution is a document.
 - The Constitution is kept in a museum.
 - Freedom has always been important to Americans.
 - There have been 27 amendments to the Constitution.
- Which of the following happened one year after the Constitution was written?
 - America made the Constitution law.
 - Americans won their independence.
 - America declared its independence.
 - Americans wrote the Bill of Rights.
- The Constitution begins with the words _____.
 - "We the people..."
 - "When our freedoms..."
 - "Whereas, we seek freedom..."
 - "Because we value our rights..."
- Which of the following can you infer from this lesson?
 - Rights were very important to Americans because they had not had very many under the King of England.
 - After the Bill of Rights was written, there was no longer a need to amend the Constitution.
 - Little has been done to protect the Constitution from damage.
 - The Constitution was written to protect freedom of religion.
- Which of the following is an opinion?
 - Americans have rights.
 - The Constitution is faded.
 - The Constitution was written in 1787.
 - Americans today need to amend the Constitution.
- Which of the following best describes a *document*?
 - old
 - faded
 - important
 - hand-written

3

Who Were the First Americans?

Questions

- What is the main idea of the fourth paragraph?
 - The trapped people waited for the water to drop to cross Beringia.
 - The trapped people started new lives in North and South America.
 - The trapped people built boats and sailed to North and South America.
 - The trapped people settled down in Beringian communities and hunted.
- Which happened last according to the land theory?
 - People crossed Beringia.
 - The Bering Strait froze.
 - Ice covered the Earth.
 - The water level fell.
- The land bridge theory proposes that the earliest Americans came to North America by following _____.
 - ice
 - stars
 - currents
 - animals
- What can you infer from the sixth paragraph?
 - The ocean theory is the theory best supported by scientific evidence.
 - Americans today look more like people from Australia than Siberia.
 - Early people in different parts of the globe were likely shipbuilders.
 - Today's scientists do not believe in the land bridge theory.
- Which of the following is a fact?
 - Boats were first built 12,000-15,000 years ago.
 - The Bering Strait is between Siberia and Alaska.
 - The ocean theory is based on more scientific evidence than the land theory.
 - The first Americans were better at gathering fruits than the people of Siberia.
- The word *Beringia* means _____.
 - the capital of Siberia
 - the Bering land bridge
 - the people from the Bering Strait
 - the scientific name for land bridges
- Which of the following details best supports the main idea of the lesson?
 - Some North American cave paintings are believed to have been painted before the Ice Age that would have uncovered Beringia.
 - The land bridge theory is one of the most popular theories about how people first reached the Americas.
 - Eventually people built lasting communities in the Americas.
 - The last Ice Age occurred 12,000-15,000 years ago.
- Which paragraph is arranged in sequential order?
 - paragraph 1
 - paragraph 2
 - paragraph 4
 - paragraph 7
- The Bering Strait is located between what two bodies of water?
 - the Atlantic and Pacific Oceans
 - the Arctic Ocean and Bering Sea
 - the Bering Sea and Siberian Bay
 - the Gulf of Alaska and the Arctic Ocean
- Which of the following can you infer from this lesson?
 - There is little evidence to support the ocean theory.
 - The Bering Strait is not as deep as the Arctic Ocean.
 - The early peoples of Australia and Asia had similar skulls.
 - Ocean currents were stronger during the Ice Ages than today.
- Which of the following is an opinion?
 - Scientists do not agree about how people first reached the Americas.
 - Scientists first proposed the land bridge theory in the 1500s.
 - Scientists should not continue to support the water theory.
 - Scientists believe people built boats 30,000 years ago.
- In the sentence "Scientists who believe the first Americans arrived by ocean base their theory on several pieces of important evidence," the word *base* means _____.
 - mark
 - support
 - believe
 - bottom

3

Main Idea & Supporting Details Lesson 1: *Mississippian Culture at Cahokia*

Reading Difficulty: 6.0

Guided Reading Boxes: 5

Vocabulary

- Cahokia
- Early Mississippian Period
- Middle Mississippian Period
- Late Mississippian Period

Skills and Standards

English/Language Arts Focus:

- 5.2.3 Recognize main ideas presented in texts, identifying and assessing evidence that supports those ideas.

Social Studies Standards Addressed:

- 5.1.1 Give examples of early cultures and settlements that existed in North America prior to contact with Europeans.
- 5.3.3 Compare the locations of cities today with American Indian and colonial settlements and suggest reasons for the locations of these places, such as near bodies of water, on a lowland, along a transportation route, and near natural resources or sources of power.
- 5.3.7 Describe the major ways that land was used by American Indians and colonists in each region and explain how land use changed in the past and continues to change.
- 5.5.1 Describe basic needs that individuals have in order to survive — such as the need for food, water, shelter, and safety — and give examples of how people in early America adapted to meet basic needs.

Science Standards Addressed:

- 5.1.2 Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.

Background Prompt

What do you think life was like for the earliest American Indians?

Main Idea & Supporting Details Lesson 1: Mississippian Culture at Cahokia

A This section tells about Mississippian culture. How does it help you understand the lesson's main idea?

1 pt *The main idea says that Cahokia existed during the Mississippian Period, so you need to know what the Mississippian Period was; it helps you understand the time period in which the Cahokians lived; or any other appropriate response.*

ABULARY
okia
y
Mississippian
od
lle
Mississippian
od
Mississippian
od
MAIN IDEA
a was a
nd important
ent during
Mississippian

A This section tells about Mississippian culture. How does it help you understand the lesson's main idea?

LESSON 1

MAIN IDEA & SUPPORTING DETAILS

Mississippian Culture at Cahokia

If you visit **Cahokia**, near Collinsville, Illinois today, you will see the remains of what was once one of the largest cities in the world. Although the people who lived at Cahokia were a prehistoric people, meaning that they left no written records of their lives, scientists have been able to discover a lot about them and how they lived more than a thousand years ago.

Mississippian Culture

The people who lived at Cahokia belonged to what is known as the Mississippian culture. There were many different groups who made up the Mississippian culture. Although they lived in different parts of North America, most Mississippian peoples lived similar lives. For example, most of them were farmers, growing corn, squash, and beans. Mississippian people also developed governments, religions, and artwork. The Mississippian Period is usually divided into three smaller periods.

B The purpose of this paragraph is to explain what Mississippian culture was. How can you tell?

Write three details that the author uses to support this main idea.

B The purpose of this paragraph is to explain what Mississippian culture was. How can you tell?

1 pt *The heading signals that the paragraph will be about Mississippian culture; all of the sentences describe Mississippian culture; all of the sentences include the word Mississippian; or any other appropriate response.*

Write three details that the author uses to support this main idea.

3 pts Accept any three of the following for 1 pt each:

Mississippian culture was made up of many different groups; the groups lived in different parts of North America; the groups led similar lives; most Mississippian peoples were farmers; they developed governments/religions/artwork; the Mississippian Period is usually divided into three periods.

Main Idea & Supporting Details Lesson 1: Mississippian Culture at Cahokia

The **Early Mississippian Period** lasted from approximately 800-1200 A.D. During this period, Mississippian people began to settle in one place and develop farming communities.

The **Middle Mississippian Period** lasted from approximately 1200-1400 A.D. This period is usually considered the peak of Mississippian culture. During this period, the Mississippian people developed their art.

The **Late Mississippian Period** lasted from approximately 1400 A.D. until the arrival of Europeans. During this period, there was a lot of warfare between different Mississippian peoples.

Life at Cahokia

Most people who study Mississippian culture believe that the settlement at Cahokia was one of the culture's most important centers. Cahokia was established as early as 700 A.D., before the official start of the

Mississippian Period. It lasted into the Late Mississippian Period. During its peak, as many as 20,000-30,000 people lived at Cahokia. It was bigger than any city in Europe during that same time period.

Cahokia was also one of the most advanced settlements in North America at its time. Cahokians were skilled farmers who planted many different crops. They also hunted and traded with other Mississippian groups.

C Write one way that this illustration supports the idea that Cahokia was an important cultural center.

C Write one way that this illustration supports the idea that Cahokia was an important cultural center.

1 pt *It shows that Cahokia was a large settlement; it shows that many people lived there; it shows many different types of buildings; it shows temples and other important buildings; or any other appropriate response.*



This illustration shows what scientists believe Cahokia may have looked like about 1150 A.D.

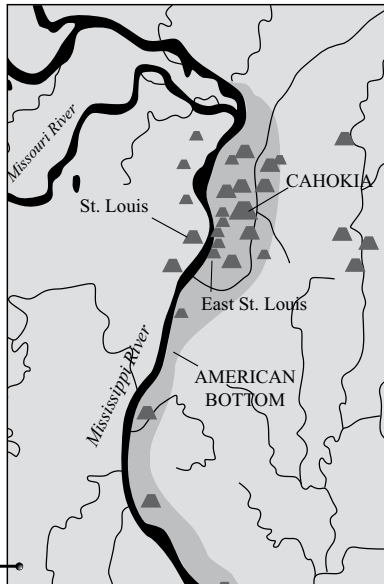
Main Idea & Supporting Details Lesson 1: Mississippian Culture at Cahokia

The people of Cahokia are known for the mounds they built. There are more than 104 mounds at Cahokia today, although people who have studied Cahokia believe that there were once 120 or more. These mounds were built for many different reasons. Some of the mounds were used for burial. Others were used to mark the boundaries of the community. The chief of the Cahokian people lived on top of the largest mound, known as Monks Mound. Monks Mound is the largest man-made earthen mound in North America.

The End of Cahokia

Some scientists believe that a drought brought an end to Cahokian civilization. There were severe droughts in the region. Some scientists believe that disease brought an end to Cahokian civilization. Some scientists believe that a change in climate brought an end to Cahokian civilization. Some scientists believe that war brought an end to Cahokian civilization. Some scientists believe that a combination of these factors brought an end to Cahokian civilization.

Although scientists will probably never know exactly what brought an end to Cahokian civilization, people will continue to study this fascinating culture and visit the site where it once stood.



This map shows the location of Cahokia, near present-day St. Louis.

D Write one detail that you learned about Cahokia from this map.

1 pt *Cahokia is along the Mississippi River; it is near St. Louis/East St. Louis; or any other appropriate response.*

D Write one detail that you learned about Cahokia from this map.

E What is the main idea of this section?

Write two details from the section that support the main idea.

E What is the main idea of this section?

1 pt *No one knows for sure what caused the end of Cahokia.*

Write two details from the section that support the main idea.

2 pts **Accept any two of the following for 1 pt each:**

Disease may have caused the end of Cahokia; a change of climate may have affected Cahokia; war may have brought an end to Cahokia.

Main Idea & Supporting Details Lesson 1: *Mississippian Culture at Cahokia*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box B.

Are there any details in the paragraph that don't directly support the main idea?

A: *In this paragraph, all of the details describe Mississippian culture.*

Are all paragraphs written this way?

A: *No.*

Why might an author include details that do not directly support the main idea?

A: *They might be interesting; they might get the reader's attention; they might support other details; etc.*

- Look at Guided Reading Boxes C & D.

To find the answers to these questions, you did not read the paragraphs. Where did you have to look?

A: *At the graphics (the picture and map).*

What parts of graphics can give you details?

A: *The map key, places identified on a map, objects or details in a picture, the graphics' caption, etc.*

Main Idea & Supporting Details Lesson 1: *Mississippian Culture at Cahokia*

Standards Links

English/Language Arts 5.5.3 - Write or deliver a research report that has been developed using a systematic research process...

Suggested Activity: Allow students to research an American Indian group of their choice. Ask each student to write a report which has a clear focus (main idea) and interesting facts (details).

Science 5.3.2 - Observe and describe that stars are like the sun, some being smaller and some being larger, but they are so far away that they look like points of light.

Suggested Activity: Point out that observing the stars has been a part of American Indian culture. Scientists believe that the peoples of Cahokia and other American Indian settlements used astronomy-- the points of light in the sky-- to guide their calendars and building structures. Students can study about the Cahokian structure known as "Woodhenge" which marked the equinox and solstice or the Chaco culture of New Mexico that had an elaborate system for watching the stars and sun (see **Useful Web Sites on page 46**).

Science 5.5.8 - Realize and explain that predictions may be more accurate if they are based on large collections of objects or events.

Suggested Activity: Explain that discoveries at Cahokia took many years and scientists came to conclusions only after many artifacts were found. Allow students to practice making predictions. Have students make pretend collections of artifacts that represent an event (e.g. sports, family, school events). Have a student show the most general artifact to the class and see if the class can predict what type of artifact collection was created. For example, the student could show some rice. Students might guess that the artifacts were collected from a kitchen. Next, the student could show a balloon. Lastly, the student could show a wedding invitation. Students will give better predictions as more "artifacts" are shown.

Main Idea & Supporting Details Lesson 2: *American Indians*

Reading Difficulty: 5.5

Guided Reading Boxes: 5

Vocabulary

- American Southwest Region
- Eastern Woodlands Region
- Arctic Region
- Great Plains Region

Skills and Standards

English/Language Arts Focus:

- 5.2.3 Recognize main ideas presented in texts, identifying and assessing evidence that supports those ideas.

Social Studies Standards Addressed:

- 5.1.1 Give examples of early cultures and settlements that existed in North America prior to contact with Europeans.
- 5.1.3 Identify and compare historic Indian groups of the West, Southwest, Northwest, Arctic and sub-Arctic, Great Plains, and Eastern Woodlands regions at the beginning of European exploration in the late fifteenth and sixteenth centuries.
- 5.3.7 Describe the major ways that land was used by American Indians and colonists in each region and explain how land use changed in the past and continues to change.
- 5.3.9 Interpret historical maps and create maps of the United States in different historical periods using map elements, such as title, legend, directional indicator, scale, and projection.
- 5.3.11 Give examples of how specific physical features influenced historical events and movements.
- 5.4.1 Describe the economic activities within and among American Indian cultures prior to contact with Europeans. Examine the economic factors that helped motivate European exploration and colonization.
- 5.5.1 Describe basic needs that individuals have in order to survive — such as the need for food, water, shelter, and safety — and give examples of how people in early America adapted to meet basic needs.

Science Standards Addressed:

- 5.1.2 Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.
- 5.4.4 Explain that in any particular environment, some kinds of plants and animals survive well, some do not survive as well, and some cannot survive at all.
- 5.6.2 Demonstrate how geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representation can never be exact in every detail.

Background Prompt

How do you think your life would be different if you lived somewhere where there was snow on the ground all year long? What if you lived somewhere where it never snowed?

Main Idea & Supporting Details Lesson 2: American Indians

B This paragraph is an introduction to the lesson. It introduces the lesson's main idea. List two pieces of evidence that it provides to support this main idea.

2 pts *Accept any two of the following for 1 pt each:* American Indians had been living in North, Central, and South America for thousands of years; each tribe developed its own unique way of life; tribes that lived in similar environments adapted to their surroundings in similar ways.

LESSON 2

MAIN IDEA & SUPPORTING DETAILS

American Indians

When European explorers began to arrive in the Americas in the 1400s, they discovered that there were already many people living here. These people, American Indians, had been living in North, Central, and South America for thousands of years. Although each tribe developed its own unique way of life, tribes can be grouped according to the regions in which they lived. This is because tribes that lived in similar environments adapted to their surroundings in similar ways.

B This paragraph is an introduction to the lesson. It introduces the lesson's main idea. List two pieces of evidence that it provides to support this main idea.

A This section shows the main idea of the lesson. Why is it important to read this section before you begin reading the lesson?

A This section shows the main idea of the lesson. Why is it important to read this section before you begin reading the lesson?

1 pt *It tells you what the lesson will be about; it tells you what is most important in the lesson; or any other appropriate response.*



This map shows some of the many tribes who lived in North America before Europeans arrived.

Standards Addressed: Soc: 5.1.1, 5.1.3, 5.3.7, 5.3.9, 5.3.11, 5.4.1, 5.5.1
Sci: 5.1.2, 5.4.4, 5.6.2

Main Idea & Supporting Details Lesson 2: American Indians

The Arctic

Several different American Indian tribes, including the Aleuts, Inuits, and Yupiks, were living in the Arctic Region of North America when the first Europeans arrived in the Americas.

The **Arctic Region** includes the western coast of Alaska as well as the northern coast of Canada. The environment in the Arctic can be very harsh. Temperatures are very low, and much of the land is frozen year-round. But Arctic Indian

American Southwest Region can be very high, and much of the land is desert. The tribes who lived in this region learned to adapt to their unique environment.

C As you read this section, look for the main idea by asking yourself what the author most wants you to know about the Arctic Region. Write your main idea below.

Write two pieces of evidence from the section that support this main idea.

Many of them built homes, called pueblos, out of stones and mud or out of a material called adobe. They were able to farm corn, beans, and squash, but they had to irrigate the land in order to grow these crops in such a dry climate.

The Great Plains

The **Great Plains Region** is the area between the Rocky Mountains and the

Mississippi River. Before Europeans arrived in North America, many different American Indian tribes, including the Sioux, the Comanche, and the Cheyenne lived in this region. Like other regions of North America, the Great Plains region is a unique environment. Most of the region is made up of flat grasslands or prairies. The weather can be very hot in the summer and very cold in the winter.



These Sioux Indians were photographed around 1898.

C As you read this section, look for the main idea by asking yourself what the author most wants you to know about the Arctic Region. Write your main idea below, and write two pieces of evidence from the section that support this main idea.

1 pt American Indians living in the Arctic Region adapted to its harsh environment, or any other appropriate response.

2 pts Accept any two of the following for 1 pt each: Temperatures are very low; much of the land is frozen year round; the tribes hunted and fished instead of growing crops; they used animal skins to keep warm; they lived in tents made of animal skin.

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D Write one detail that you notice in this photograph.

How does it support the main idea that the people of the Great Plains region adapted to their environment?

2

D Write one detail that you notice in this photograph.

1 pt Answers will vary. Example: They lived in tepees. Accept any reasonable detail from the photograph.

How does it support the main idea that the people of the Great Plains region adapted to their environment?

1 pt Answers will vary. Example: They used the trees to make their tepees. Students should link the above answer to information in the text.

Main Idea & Supporting Details Lesson 2: American Indians

E This sentence mentions three different Woodlands tribes, but there were many others as well. Write two resources you could use to find out more details about other Woodlands tribes.

2 pts *Accept any two of the following for 1 pt each:* Other resources include the Internet, books, encyclopedias, dictionaries, social studies books, or any other appropriate response.



the Great Plains depended on the buffalo for food and shelter. One of the most important animals was the buffalo. People who lived in this region used the buffalo for food. They also used the buffalo to make clothing and to build shelter. In addition to hunting, some people in the region grew crops such as corn, which grew well in the

of the Mississippi River. As the name suggests, this region is home to many trees. American Indian tribes who lived in this region used the wood from the trees that grew there to make their homes. They also used tree bark to build canoes which they used to travel and fish.

Although some parts of the region were too rocky for farming, the land and weather in most of the Eastern Woodlands Region made it ideal for growing crops such as corn, beans, and squash. In addition, the woodlands were full of many fruits and nuts that the Eastern Woodlands tribes gathered for food. They also hunted the animals that lived in these forests. Animal skins were used to make clothing and blankets.

E This sentence mentions three different Woodlands tribes, but there were many others as well. Write two resources you could use to find out more details about other Woodlands tribes.

The Eastern Woodlands

On the eastern coast of North America, many American Indian tribes built communities long before the Pilgrims arrived. These tribes, including the Iroquois, the Shawnee, and the Cherokee, are sometimes known as Woodlands Indians, because they lived in the Eastern Woodlands Region. The **Eastern Woodlands Region** is made up of the land that is east



This photograph shows a group of Woodland Indians.

Main Idea & Supporting Details Lesson 2: *American Indians*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box B.

Does a lesson's introduction always provide details to support the main idea?

A: *No. Sometimes it may tell a story to get the reader interested. You may have to read further to find out the main idea.*

Which details from the lesson do you think are most helpful for understanding the lesson's main idea?

A: *Answers will vary. Ask students to justify their answers.*

Are there any details in this lesson that you do not think are very important?

A: *Answers will vary. Ask students to justify their answers.*

- Look at Guided Reading Box D.

Sometimes you need to connect details found in graphics to details in the paragraphs.

Which paragraph(s) does this graphic support?

A: *It supports the paragraphs on the Great Plain Indians.*

How do you know this?

A: *The picture caption notes they are Sioux Indians. The paragraph tells that Sioux Indians lived in the Great Plains.*

Now that you have linked the graphic to the paragraph, what other information do you know about the Indians in the photo on page two?

A: *They lived in hot summers, cold winters, hunted buffalo, grew crops, etc.*

Main Idea & Supporting Details Lesson 2: *American Indians*

Standards Links

English/Language Arts 5.3.6 - Evaluate the meaning of patterns and symbols that are found in myth and tradition by using literature from different eras and cultures.

Suggested Activity: After reading American Indian stories and myths, help students examine the patterns and symbols they find. Compare and contrast the characters found and the purpose for the tales (see **Useful Web Sites on page 46**).

Science 5.3.3 - Observe the stars and identify stars that are unusually bright and those that have unusual colors, such as reddish or bluish.

Suggested Activity: Stars have traditionally been used as guides to locations and seasons. Discuss that astronomers categorize stars based on their brightness. Help students examine how knowing the brightness or particular color of different stars can help identify them and give astronomical information. Have students compare and contrast the magnitude, or brightness of the stars (either through star magnitude charts or pictures) (see **Useful Web Sites on page 46**).

Main Idea & Supporting Details Lesson 3: *Symmetry in Art: Navajo Rugs*

Reading Difficulty: 4.8

Guided Reading Boxes: 5

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

- line of symmetry
- reflectional symmetry
- symmetry

Skills and Standards

English/Language Arts Focus:

- 5.2.3 Recognize main ideas presented in texts, identifying and assessing evidence that supports those ideas.

Social Studies Standards Addressed:

- 5.1.1 Give examples of early cultures and settlements that existed in North America prior to contact with Europeans.
- 5.5.5 Analyze traditional arts, including folk tales and narratives that depict the experiences of ethnic, racial, and religious groups in different regions of the United States.

Science Standards Addressed:

- 5.1.2 Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.

Mathematics Standards Addressed:

- 5.4.6 Identify shapes that have reflectional and rotational symmetry.

Background Prompt

What do you think makes a piece of art beautiful?

Main Idea & Supporting Details Lesson 3: Symmetry in Art: Navajo Rugs

A How do these words help you figure out the main idea of the lesson?

1 pt *These words are important in the lesson; they help you understand what the lesson will be about/its main idea; important words will be related to the main idea; or any other appropriate response.*

USING MATH

MAIN IDEA & SUPPORTING DETAILS

A How do these words help you figure out the main idea of the lesson?

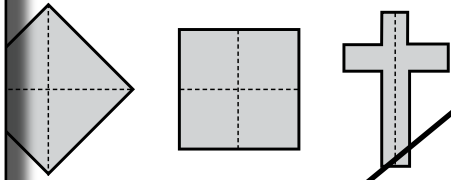
B This is a math lesson. It does not list a main idea. What is the purpose of the lesson? What does the author most want you to know?

Symmetry in Art: Navajo Rugs

Navajo Indians have been weaving beautiful rugs for hundreds of years. These rugs are made using many different colors and patterns. One thing that makes these rugs so attractive to look at is that they have reflectional symmetry.

Reflectional symmetry occurs when two congruent halves are separated by a line known as a **line of symmetry**.

Look at the shapes below. All of them have reflectional symmetry. The dotted lines are lines of symmetry. Notice that some shapes have more than one line of symmetry.



B This is a math lesson. It does not list a main idea. What is the purpose of the lesson? What does the author most want you to know?

1 pt *The author wants you to know about symmetry/what symmetry is.*

C What is the main idea of this paragraph?

Write two details from the paragraph that support this main idea.

D These shapes are details. How do they help you understand symmetry?

Two of these shapes are commonly used in Navajo designs. But the reflectional symmetry of Navajo rugs is due to more than just the shapes that are used in their designs. The patterns on the rugs often have reflectional symmetry too.

C What is the main idea of this paragraph?

1 pt *Navajo rugs are beautiful.*

Write two details from the paragraph that support this main idea.

2 pts **Accept any two of the following for 1 pt each:**

Rugs use many different colors/patterns; the rugs are attractive because they have reflectional symmetry.

D These shapes are details. How do they help you understand symmetry?

1 pt *They help you visualize what a symmetrical shape looks like; they show you what a line of symmetry is; or any other appropriate response.*

Main Idea & Supporting Details Lesson 3: Symmetry in Art: Navajo Rugs

E Now that you have read the lesson, choose one detail that you think is very important to the main idea, and write it in the space below.

1 pt Student should have chosen any detail that explains or illustrates symmetry.

Why is it so important?

1 pt Student should justify his or her choice based on information in the text.

Now write one detail from the lesson that you don't think is very important to the main idea.

1 pt Student should have chosen any detail that is not related to symmetry (The rugs are beautiful; The Navajo Indians have been making rugs for hundreds of years; etc.).

Why did the author include this detail?

1 pt Student should justify based on information in the text. It adds interest; it provides background information; or any other appropriate response.

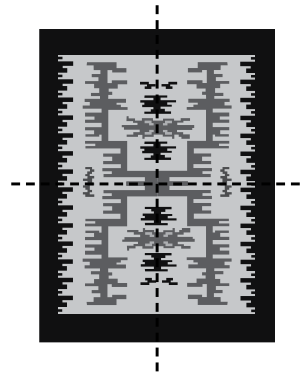
E Now that you have read the lesson, choose one detail that you think is very important to the main idea, and write it in the space below.

Why is it so important?

Now write one detail from the lesson that you don't think is very important to the main idea.

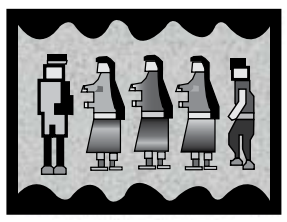
Why did the author include this detail?

Look at this popular Navajo design, known as the *storm pattern*.



Notice that it has two lines of symmetry.

Now look at these other patterns from Navajo rugs. Do they have reflectional symmetry? Why or why not?



Main Idea & Supporting Details Lesson 3: *Symmetry in Art: Navajo Rugs*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box B.

How are the main idea and details different in a math lesson than in other lessons?

A: *They are probably not listed; there is more likely to be a purpose than a clear main idea; there may be fewer details since the lessons are often shorter, etc.*

- Look at Guided Reading Box C.

How did you figure out the answer to this question?

A: *Students could say that they asked themselves what the sentences had in common, or that they noticed that the sentences all describe how the rugs looked, etc.*

- Look at Guided Reading Box E.

What details about symmetry were not included that you want to know?

A: *Answers will vary. Possible answers include: "What else is symmetrical?"; "Why did they use reflectional symmetry in the rugs?"; "How do you weave a symmetrical pattern?"; etc.*

Main Idea & Supporting Details Lesson 3: *Symmetry in Art: Navajo Rugs*

Standards Links

Science 5.5.3 - Classify objects in terms of simple figures or solids.

Suggested Activity: Have students examine a variety of American Indian works of art and identify the shapes used in their design.

Art 5.1.1 - Identify the relationship between a work of art and the geography and characteristics of the culture, and identify where, when, why, and by whom the work was made (Focus: North America).

Suggested Activity: Have students compare American Indian rugs and weavings from different parts of North America (Navajo woven blankets, Alaskan Tlingit Chilkat blankets, Lakota Sioux star quilts, and Metis finger woven sashes, etc.) for differences in color as well as design. Discuss how natural dyes can be made and how different regions' plants would affect the colors used (see **Useful Web Sites on page 46**).

Main Idea & Supporting Details Lesson 4: *Chief Pontiac: A Great Ottawa Leader*

Reading Difficulty: 4.7

Guided Reading Boxes: 5

Vocabulary

- Council of Three Tribes
- treaty

Skills and Standards

English/Language Arts Focus:

- 5.2.3 Recognize main ideas presented in texts, identifying and assessing evidence that supports those ideas.

Social Studies Standards Addressed:

- 5.1.1 Give examples of early cultures and settlements that existed in North America prior to contact with Europeans.
- 5.1.7 Identify and discuss instances of both cooperation and conflict between Indians and European settlers, such as agriculture, trade, cultural exchanges, and military alliances, as well as later broken treaties, massacres, and conflicts over control of the land.

Science Standards Addressed:

- 5.1.2 Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.
- 5.6.2 Demonstrate how geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representation can never be exact in every detail.

Background Prompt

What do you think of when you hear the name *Pontiac*? (If students immediately think of the car, ask “Where do you think the name came from?”)

Main Idea & Supporting Details Lesson 4: Chief Pontiac: A Great Ottawa Leader

BIOGRAPHY

LESSON 4

MAIN IDEA & SUPPORTING DETAILS

Chief Pontiac: A Great Ottawa Leader

Pontiac was a great leader of the Ottawa tribe. He is best known for fighting to protect American Indian land from the British. Although he lived more than 200 years ago, historians have learned a lot about this great leader.

Pontiac, also known as Obwandiyag, was born around 1720. He grew up in an American Indian village near what is now Detroit, Michigan.

Pontiac was a good leader, and he was popular with his people. Soon after becoming chief in 1755, he became the leader of the Council of Three Tribes. These tribes got along well with each other and with the French traders who traveled through their lands.

When the British captured French forts in 1760, they did not treat the American Indians well. Pontiac decided to lead his people against the British. In 1762, he gathered all of the tribes in his area. On

Three Tribes
a group of three American Indian tribes (the Ottawa, the Ojibwa, and the Potawatomi) that belong to the Algonquin language family



This illustration shows Chief Pontiac addressing his people in the West region.

A This lesson does not have a section that tells the main idea. What should you do?

1 pt Skim the lesson; look at vocabulary words; look at pictures/captions; look at headings; or any other appropriate response.

A This lesson does not have a section that tells the main idea. What should you do?

B The main idea of this paragraph is that Pontiac was a good and respected leader. How does this sentence support that main idea?

C Write at least two details that this illustration adds about Pontiac as a leader.

C Write at least two details that this illustration adds about Pontiac as a leader.

2 pts Accept any two of the following for 1 pt each:
It shows that people listened when he spoke; it shows that many people came to hear him speak; or any other appropriate response from the illustration.

B The main idea of this paragraph is that Pontiac was a good and respected leader. How does this sentence support that main idea?

1 pt It tells that the people respected him very much because they made him the leader of the Council of Three Tribes or any other appropriate response.

Main Idea & Supporting Details Lesson 4: Chief Pontiac: A Great Ottawa Leader

D Vocabulary words can be important details. How does this word relate to the main idea of this paragraph?

1 pt *The paragraph explains that the American Indians could not stop the British from taking their lands. The word treaty is important because Pontiac signed a peace treaty with the British after the British took back many of the captured forts, or any other appropriate response.*

CHIEF PONTIAC


May 7, tribes attacked the British at Fort Detroit. But the British had been warned of the attack, and they were able to hold off the American Indians. Pontiac and his men were forced to retreat. Although the attack on Fort Detroit failed, American Indians were able to capture eight other British forts.

By 1764, the American Indians had lost the support of the French. The British were able to take back many of the captured forts. In July 1766, Pontiac signed a peace treaty with the British. He died three years later. Although he could not stop the British from taking over American Indian land, he is remembered today as a brave and strong leader.

E What is the main idea of this lesson?

How do you know?

Write three details that the author uses to support this main idea.



D Vocabulary words can be important details. How does this word relate to the main idea of this paragraph?

E What is the main idea of this lesson?

1 pt *Chief Pontiac was a strong leader who fought to protect Indian land, or any other appropriate response.*

How do you know?

1 pt *All of the paragraphs tell about Pontiac's skill as a leader and his fight against the British; the title gives a clue; the illustrations show Pontiac as a leader and Fort Detroit suggesting that leadership and battle are central points; or any other appropriate response.*

Write three details that the author uses to support this main idea.

3 pts **Accept any three of the following for 1 pt each:**

He became leader of the Council of Three Tribes; he decided to lead his troops against the British; he gathered all the tribes in his area; he attacked the British at Fort Detroit; he signed a peace treaty with the British; or any other appropriate response from the lesson.

Main Idea & Supporting Details Lesson 4: *Chief Pontiac: A Great Ottawa Leader*

Discussion Points Following the Lesson

- Look at Guided Reading Box B.

When you are looking for the main idea, you look for words that are repeated. How many times do you see the word Pontiac in this paragraph?

A: *Once.*

Even though the name Pontiac is only mentioned once, what are other ways that Pontiac is mentioned (hint where could you substitute the name Pontiac or Pontiac's)?

A: *He is mentioned 3 more times with the word "he" twice and "his."*

Look at the first paragraph. How many times is Pontiac mentioned?

A: *Four: "Pontiac," "He," "He," and "great leader."*

- Look at Guided Reading Box E.

Are there any details in the lesson that do not directly support the main idea of the lesson?

A: *Possible answers include: historians have learned a lot about this great leader; Pontiac was also known as Obwandiyag; Pontiac grew up near what is now Detroit; the tribes in the Council of Three Tribes were tribes who got along well with each other.*

Why does the author include these details?

A: *They explain more about Pontiac and his people; they are interesting; etc.*

Main Idea & Supporting Details Lesson 4: *Chief Pontiac: A Great Ottawa Leader*

Standards Links

English/Language Arts 5.7.10 - Deliver informative presentations about an important idea, issue, or event...

Suggested Activity: Have students choose a different American Indian leader (i.e. Tecumseh, Sitting Bull, Geronimo, etc.) and give a presentation that has a clear main idea and is supported with details.

Art 5.13.1 - Compare characteristics of a theme, historical periods, or event through the multiple perspectives of different disciplines.

Suggested Activity: Have students compare the details learned from reading about Pontiac (or another American Indian) to the details learned from looking at portraits of him. (For portraits, use “Google” image search engine for “Chief Pontiac.”) Note that most of Pontiac’s portraits are all speculations of what he looked like, and many were painted after his death. Many of the details written about his life are unverifiable as well.

Main Idea & Supporting Details Lesson 5: *Algonquin Snow Goggles*

Reading Difficulty: 5.7

Guided Reading Boxes: 7

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

(none)

Skills and Standards

English/Language Arts Focus:

- 5.2.3 Recognize main ideas presented in texts, identifying and assessing evidence that supports those ideas.

Social Studies Standards Addressed:

- 5.1.1 Give examples of early cultures and settlements that existed in North America prior to contact with Europeans.

Science Standards Addressed:

- 5.1.2 Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.
- 5.2.4 Keep a notebook to record observations and be able to distinguish inferences from actual observations.
- 5.2.7 Read and follow step-by-step instructions when learning new procedures.
- 5.5.1 Make precise and varied measurements and specify the appropriate units.

Health Standards Addressed:

- 5.3.6 Demonstrate strategies to improve or maintain personal health.

Background Prompt

What happens when sunlight reflects off of snow?

Main Idea & Supporting Details Lesson 5: Algonquin Snow Goggles

B Now that you have read these paragraphs, you should know the main idea. Write it in the space below.

1 pt *The Algonquin Indians made snow goggles to adapt to the environment.*

How did you know this was the main idea?

1 pt *All of the details are related to adapting to the environment; the heading provides a clue that snow goggles are important; or any other appropriate response.*

C Which detail about the Algonquin Indians best explains why they needed the goggles?

1 pt *They live in a snowy environment or when sunlight reflects off of snow, it is difficult to see.*

D How do the details in this graphic support the main idea of the lesson?

1 pt *The graphic shows that the Algonquins lived in a cold region, or any other appropriate response.*

A This page does not have a section that tells the main idea of the lesson. What are two strategies you can use to figure it out?

1 pt *Scan the headings; look at the graphics; or any other appropriate response.*

LESSON 5

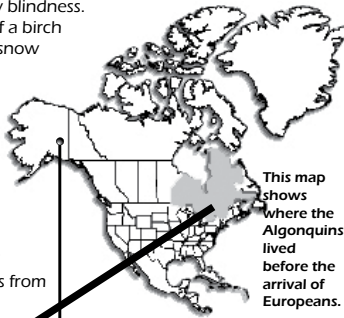
MAIN IDEA & SUPPORTING DETAILS

Algonquin Snow Goggles

A This page does not have a section that tells the main idea of the lesson. What are two strategies you can use to figure it out?

→ American Indian tribes were very good at adapting to the climates in which they lived. Before the arrival of Europeans, the Algonquin Indians lived in the northeastern part of what is now the United States and the southeastern part of Canada. This part of the world gets a lot of snow every year. If you have ever been outside on a snowy day, you know that when sunlight reflects off of snow, it can make it very hard to see.

→ The Algonquin Indians came up with a solution to the problem of snow blindness. Using the bark of a birch tree, they made snow goggles. These goggles had small slits for the eyes. When they looked through the slits, the Algonquins were able to see much better and protect their eyes from the sun's glare.



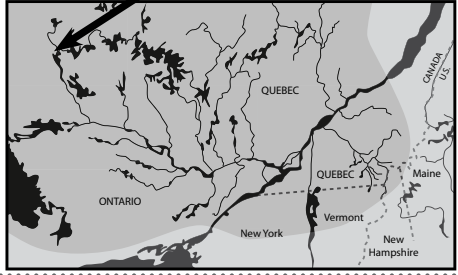
This map shows where the Algonquins lived before the arrival of Europeans.

B Now that you have read these paragraphs, you should know the main idea. Write it in the space below.

How did you know this was the main idea?

C Which detail about the Algonquin Indians best explains why they needed the goggles?

D How do the details in this graphic support the main idea of the lesson?



Standards Addressed: Soc: 5.1.1
Sci: 5.1.2, 5.2.4, 5.2.7, 5.5.1 Health: 5.3.6

Main Idea & Supporting Details Lesson 5: Algonquin Snow Goggles

Make Algonquin Snow Goggles

It is easy to make a pair of Algonquin snow goggles. Just follow the instructions below. You will need a partner and adult help.

MATERIALS

- black poster board

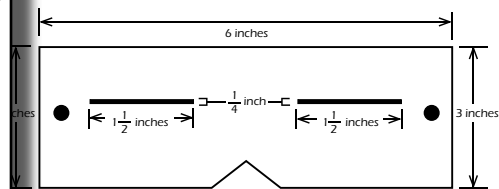
E This is an activity. Does an activity have a main idea? Write one reason why or one reason why not.

E This is an activity. Does an activity have a main idea?

Yes. (If a student responds “No” and supports it with evidence that it has a “purpose”, mark correct.)

Write one reason why or one reason why not.

1 pt *The lesson may not list a main idea, but it has a purpose; everything in the activity is focused on one purpose; or any other appropriate response.*



and below the eye
of an inch.
angular eye slits
bottom of your

F How would making the goggles help you understand the main idea of the lesson?

- Using the hole punch, punch holes in both sides of your goggles.
- Tie string through each hole. Use the yarn or string to tie them in back.
- Wear your goggles outside on a sunny day. Practice looking through the eye slits.
Warning: Do not look directly at the sun. It could hurt your eyes!
- Take the goggles off and compare the results.
- Record your observations in your science journal.

G Which detail in the directions is most important?

Why? _____

F How would making the goggles help you understand the main idea of the lesson?

1 pt *It helps you understand how the goggles work; it shows you why snow goggles were important; or any other appropriate response.*

G Which detail in the directions is most important?

1 pt *Do not look directly at the sun (or any detail the student successfully supports below).*

Why?

1 pt *It helps to keep you safe.*

Main Idea & Supporting Details Lesson 5: *Algonquin Snow Goggles*

Discussion Points Following the Lesson

- Look at Guided Reading Box C.

How did you figure out the answer to this question?

A: *Students could say that they thought about the purpose of snow goggles; they realized that the snow and snow blindness were what made the goggles necessary; etc.*

- Look at Guided Reading Box E.

How is a purpose like a main idea?

A: *A main idea tells you the purpose for reading. Both the purpose and main idea have details - one has steps for details and one has facts. You need to understand both of them to get the point of what you are reading.*

Main Idea & Supporting Details Lesson 5: *Algonquin Snow Goggles*

Standards Links

Social Studies 5.2.3 - Give examples of how the British colonies developed forms of representative government, self-government, and democratic practices within the British imperial political system, including town meetings, colonial legislative bodies, and charters on individual freedoms and rights.

Suggested Activity: Explain that many ideas and objects in our culture today have been adopted or adapted from American Indian culture (e.g. snow shoes, toboggans, kayaks, birch bark canoe, moccasins, foods, etc.) Examine how many of our governing principals incorporated by the British colonies were adopted from American Indians too (such as impeachment and democratic voting principals).

Science 5.5.5 - Demonstrate that areas of irregular shapes can be found by dividing them into squares and triangles.

Mathematics 5.5.1 - Understand and apply the formula for the area of a triangle, parallelogram, and trapezoid.

Mathematics 5.5.3 - Use formulas for the area of rectangles and triangles to find the area of complex shapes by dividing them into basic shapes.

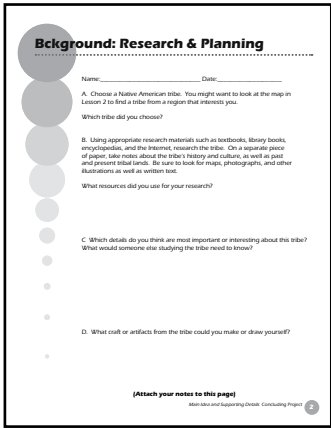
Suggested Activity: Assist students in finding the area of their snow goggles by subtracting the area of the triangle and rectangle cut-outs from the total rectangular 6" x 3" area of the goggles.

Main Idea & Supporting Details: American Indians Concluding Project Rubric

The following rubric is provided to assist you in scoring the culminating project for the American Indians set. It is intended only as a guide. Feel free to adjust scoring to reflect your own teaching goals and expectations.

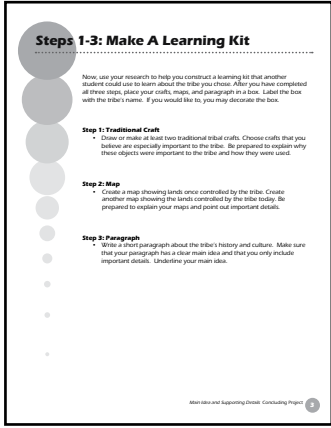
Background: Research and Planning (20 pts.)

- ___ /5 points Student used a variety of resources.
- ___ /10 points Appropriate research was conducted on the chosen tribe.
- ___ /5 points Student shows evidence of evaluating research by determining what facts were important or interesting.
- ___ TOTAL



Make a Learning Kit Step 1: Craft/Artifact (30 pts.)

- ___ /10 points total (5 pts per item) Craft is appropriate to the chosen tribe.
- ___ /10 points total (5 pts per item) Craft is made by the student and shows evidence of effort.
- ___ /10 points total (5 pts per item) Student can orally explain the craft and its significance.
- ___ TOTAL



Step 2: Map (25 pts.)

- ___ /5 points Map shows lands owned by tribe today.
- ___ /5 points Map shows lands owned by tribe in the past.
- ___ /5 points Area shown on the map is easily identifiable.
- ___ /5 points Map is student-created.
- ___ /5 points Student can orally explain the map.
- ___ TOTAL

Main Idea & Supporting Details: *American Indians* Concluding Project Rubric

Step 3: Paragraph (25 pts.)

- ___ /5 points Paragraph has a clear main idea that is underlined.
- ___ /5 points Paragraph includes at least five important details about the tribe’s history and culture.
- ___ /5 points Paragraph stays on topic.
- ___ /5 points Paragraph shows synthesis of research. Student has not copied from the source.
- ___ /5 points Paragraph reflects an understanding of the tribe.

- _____ TOTAL

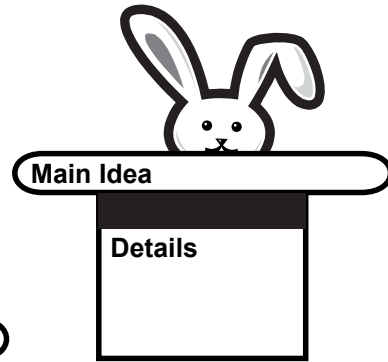
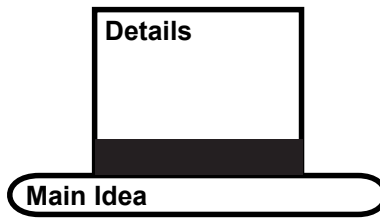
- _____ / 100

Main Idea & Supporting Details: *American Indians*

Teacher Tools

Additional Practice Activities:

- **Graphic Organizer:** Students often have trouble determining an unstated main idea. Create a magician's hat organizer for students to fill out as they read. If the main idea is not stated (It is "hidden."), the student should use the hat right side up, with the rabbit hidden under the hat. If the main idea is stated at the beginning of a lesson or paragraph, students should use the upside down hat with the rabbit showing at the top (because the main idea is visible).



- Have students read a paragraph, stop, close their eyes, and recall what word they remember reading the most. Help students recognize that key words and vocabulary are often repeated and can be a clue to the main idea.

Extension Activities:

- Summarizing can help students understand unwritten main ideas. Have students begin by giving 10 word summaries of familiar fairy tales or stories. Then challenge students to give the summary in as few words as possible. Have students read paragraphs from their textbooks and give 10 or fewer word summaries.

Main Idea & Supporting Details: *American Indians*

Teacher Tools

Useful Web Sites:

Please note that web site content may change at any time.

The night sky in Chacoan culture

<http://www.nps.gov/chcu/culture.htm>

Woodhenge at Cahokia

<http://www.cahokiamounds.com/woodhenge.html>

The following links have full text American Indian myths/stories

<http://www.americanfolklore.net/ee.html#2>

<http://www.kstrom.net/isk/stories/myths.html>

<http://members.cox.net/academia/origins.html>

1st Magnitude Stars Table brightness of stars

<http://www.kstrom.net/isk/stars/1magtab.html>

Pleiades star brightness

<http://hou.lbl.gov/~vhoette/Pleiades/m45count.html>

Chilkat blankets from the Alaskan Tlingit

<http://www.civilization.ca/tresors/treasure/231eng.html>

Star quilts made by the Lakota Sioux

<http://www.acahome.org/tac/iaf/quilts.htm>

Finger woven sashes made by the Metis

<http://www.metisresourcecentre.mb.ca/history/sash.htm>

General information about American Indians

<http://www.history1700s.com/articles/article1107.shtml>

<http://www.digitalhistory.uh.edu/historyonline/us12.cfm>

Sequential Order Lesson 1: *How Does an Inventor Work?*

Reading Difficulty: 5.4

Guided Reading Boxes: 5

Vocabulary

- Morse code
- observation
- telegraph

Skills and Standards

English/Language Arts Focus:

- 5.2.2 Analyze text that is organized in sequential or chronological order.

Social Studies Standards Addressed:

- 5.4.3 Trace the development of technology and the impact of major inventions on business productivity during the early development of the United States.
- 5.5.6 Read accounts of how scientific and technological innovations have affected the way people lived in the early United States and make predictions about how future scientific and technological developments may change cultural life.

Science Standards Addressed:

- 5.1.1 Recognize and describe that results of similar scientific investigations may turn out differently because of inconsistencies in methods, materials, and observations.
- 5.1.3 Explain that doing science involves many different kinds of work and engages men, women, and children of all ages and backgrounds.
- 5.1.5 Explain that technology extends the ability of people to make positive and/or negative changes in the world.
- 5.1.7 Give examples of materials not present in nature, such as cloth, plastic, and concrete, that have become available because of science and technology.
- 5.2.6 Write instructions that others can follow in carrying out a procedure.
- 5.2.7 Read and follow step-by-step instructions when learning new procedures.
- 5.5.8 Realize and explain that predictions may be more accurate if they are based on large collections of objects or events.

Background Prompt

How many famous inventors can you name? How do you think a person becomes an inventor?

Sequential Order Lesson 1: How Does an Inventor Work?

LESSON 1

SEQUENTIAL ORDER

VOCABULARY

- Morse code
- observation
- telegraph

MAIN IDEA

Most inventors follow important steps when they invent.

A Before you read, look at the headings in the lesson. How do the headings give you a clue that the text is written to emphasize sequential order?

How Does an Inventor Work?

Every day, your life is made easier because of science and technology. But things that we take for granted like electric lights, televisions, telephones, and cars, would not be possible were it not for the ideas of inventors. Inventors are people who have ideas to build new things. Using imagination and existing technology, inventors create machines that make life easier, and materials such as plastic, concrete, and some kinds of cloth that are not available in nature. Anyone can become an inventor. Men, women, and children all over the globe have been inventing for thousands of years. How does an inventor create an invention that people can use?



The National Inventors Hall of Fame in Akron, Ohio honors the best American inventors.

A Before you read, look at the headings in the lesson. How do the headings give you a clue that the text is organized in sequential order?

1 pt They begin with verbs/ action words; each heading describes a step; or any other appropriate response.

Standards Addressed: Soc: 5.4.3, 5.5.6
Sci: 5.1.1, 5.1.3, 5.1.5, 5.1.7, 5.2.6, 5.2.7, 5.5.8

1

Sequential Order Lesson 1: How Does an Inventor Work?

C Other than the heading, write one way you know this paragraph is written to emphasize sequential order.

1 pt It includes sequence signal words (once, if); it mentions steps; or any other appropriate response.

an inventor encounters a problem, he or she thinks about what kind of tool would help solve it. He or she begins to think up a new invention. Observation is therefore one of the most important steps in invention. **Observation** means gaining information through the use of one or more of the senses, such as sight, smell, etc.



This product was invented by Madam C.J. Walker, a famous African American inventor from Indiana.

the method that he or she was using, it would not be accurate to compare the results of different experiments.

Brainstorm Solutions

Once an inventor has observed a problem, he or she can begin to think of ideas for an invention that could solve the problem by doing a job faster or more easily. Sometimes, it is easy to come up with ideas for a new invention. But it is not always easy to figure out how to build the invention and make it work. Inventors choose the idea they think will work best.

B What word in this sentence tells you that an inventor must observe *before* inventing?

C Other than the heading, write one way you know this paragraph is written to emphasize sequential order.

Make a Model

After experimenting with different ways of making the new invention, an inventor will find the method or formula that works best. He or she will build an early version of the invention, and test it to make sure that it works. Once the invention is built, the inventor may use it to solve the original problem. The inventor may also demonstrate, or show, it to other people. He or she may even begin to sell it for other people to use.

Experiment

Once an inventor has chosen an idea for a new invention, he or she has to experiment to find the best way to make it. Most inventors follow certain steps when they experiment. They want to make sure that they carefully follow the same steps each time they try something new. This way, it is easier to compare the results of different experiments. If an inventor were to change

D Making a model is one step in inventing, but it can be divided into several steps. Write at least two of them.

B What word in this sentence tells you that an inventor must observe *before* inventing?

1 pt once

D Making a model is one step in inventing, but it can be divided into several steps. Write at least two of them.

2 pts Accept any two of the following for 1 pt each:

Find the method/formula that works best; build an early version of the invention; test the invention; use it to solve the original problem; demonstrate the invention; sell the invention.

Sequential Order Lesson 1: *How Does an Inventor Work?*

Make Improvements

Sometimes, the first model of an invention will work perfectly. It may never need to be changed at all. Usually, though, inventions continue to develop over time. The original inventor may think of new ways to make the invention better, faster, or easier to use. Or, other inventors may think of new ways to improve the invention. Can you think of some inventions that have been improved over time?

The next time you run into a difficult job, ask yourself what kinds of tools would make it easier. Who knows, you could become the next great American inventor!

E As you read about Morse's telegraphs, pay careful attention to how he followed each of the steps described in the lesson. When you are done reading, write how Morse followed each step.

E As you read about Morse's telegraphs, pay careful attention to how he followed each of the steps described in the lesson. When you are done reading, write how Morse followed each step.

6 pts: 1 pt for each step:

Observe: *Morse observed that early telegraphs were not practical/used too many wires.*

Brainstorm solutions: *Morse thought of using a code for each letter instead of a separate wire.*

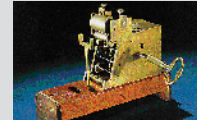
Experiment: *Morse experimented to make a machine that could mark codes on paper.*

Make a model: *Morse made a model and demonstrated it.*

Make improvements: *Morse created Morse code to make his telegraph even better.*

INVENTION CLOSE-UP:

Morse's Telegraph



This is what Morse's telegraph looked like.

→ Before there were computers, or even telephones, people relied on the telegraph to communicate between distant places. A **telegraph** is a system that uses a signal to carry encoded information from one place to another. The first successful American telegraph was invented by Samuel F. B. Morse.

Although the first telegraph was invented in 1774, the earliest telegraphs had many problems. Telegraphs transmit information using wires. Early telegraphs had to have one wire for each of the 26 letters of the alphabet. This was not practical. Morse wanted to make the telegraph better by making it work with only one wire. He needed to figure out a way to build a new kind of telegraph.

Morse began to experiment. He found that he could avoid having a different wire for each letter if he used a code to represent each letter instead. He experimented to see if he could make a machine that would mark the codes on a piece of paper. Then the person receiving the message could decode the marks to understand the message.

On January 6, 1838, Morse demonstrated his machine for the first time. He was able to successfully send a message. But he wanted to make the machine better. To improve his invention, Morse created a new system of dots and dashes to represent letters. This system of dots and dashes, known as **Morse code**, helped make the telegraph work better. Although telephones and computers have replaced the telegraph, people still use Morse code today.

Sequential Order Lesson 1: *How Does an Inventor Work?*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box C.

Are all texts that include sequence signal words written to emphasize sequential order?

A: *No. Almost all texts include at least some sequence signal words.*

How can you tell that the sequence signal words do indicate that the passage is organized sequentially?

A: *There will be a lot of sequence signal words; the passage may contain a lot of dates or timelines or other illustrations that show sequence; the main idea and/or the headings will indicate that sequence is important to the lesson, etc.*

- Look at Guided Reading Box E.

Do you think Morse could have left out any of the steps and been successful?

A: *Answers will vary. Ask students to explain their answers.*

Where else do you read steps you need to accomplish in order to be successful?

A: *You might encounter steps when reading homework/test directions, recipes, game rules, model directions, etc.*

Sequential Order Lesson 1: *How Does an Inventor Work?*

Standards Links

English/Language Arts 5.4.3 - Write informational pieces with multiple paragraphs.

Suggested Activity: After reading about an invention or inventor, write a sequentially organized report that presents information about the inventor or the inventor's life.

Science 5.2.7 - Read and follow step-by-step instructions when learning new procedures.

Suggested Activity: Follow a recipe such as one for peanut soup like inventor George Washington Carver made. See <http://georgecarver.com> for peanut recipes.

English/Language Arts 5.6.1 - Identify and correctly use prepositional phrases (*for school* or *In the beginning*), appositives (*We played the Cougars, the team from Newport*), main clauses (words that express a complete thought), and subordinate clauses (clauses attached to the main clause in a sentence).

Suggested Activity: Using inventor biographies and step-by-step instructions, have students identify prepositional phrases in the text.

Sequential Order Lesson 2: Algebra: Make a Scale Model

Reading Difficulty: 5.9

Guided Reading Boxes: 6

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

- scale
- scale model

Skills and Standards

English/Language Arts Focus:

- 5.2.2 Analyze text that is organized in sequential or chronological order.

Science Standards Addressed:

- 5.2.2 Use appropriate fractions and decimals when solving problems.
5.2.7 Read and follow step-by-step instructions when learning new procedures.

Mathematics Standards Addressed:

- 5.2.4 Multiply and divide fractions to solve problems.
5.3.1 Use a variable to represent an unknown number.
5.7.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.

Background Prompt

Have you ever built a model? What was it? How did you make sure it looked like the original, but smaller?

Sequential Order Lesson 2: Algebra: Make a Scale Model

A Before you read, skim the lesson. Write at least two ways you know this lesson is written to emphasize sequential order.

2 pts *Accept any two of the following for 1 pt each:* There are numbered steps; the headings begin with verbs/action words; it says "follow the steps;" it includes sequence signal words (which, before); or any other appropriate response.

B Is this paragraph written to emphasize sequential order? How do you know?

1 pt *No; it does not include numbers, dates, or sequence signal words; or any other appropriate response.*

USING MATH

LESSON 2 SEQUENTIAL ORDER

Algebra: Make a Scale Model

VOCABULARY
scale
scale model

Eli is studying inventions in school. He has to write a report about an invention that changed life in early America. Eli has decided to write about the windmill. He wants to build a model of a windmill as part of his report. Because he wants his windmill to look like a real windmill, but smaller, Eli wants to make a **scale model**. A scale model is a model that is bigger or smaller than a real object. A **scale** is a ratio that compares the real measurements of an object with the measurements of the model.



You can visit this model of a colonial windmill in Kendallville, Indiana.

A Before you read, skim the lesson. Write at least two ways you know this lesson is written to emphasize sequential order.

B Is this paragraph written to emphasize sequential order? How do you know?

To make a scale model, Eli needs to follow the steps below.

1. Find the Size of the Original

Before he can begin, Eli needs to know the size of the original object. While reading, Eli found the following measurements for an early American windmill:

LENGTH	14 feet
WIDTH	12 feet
HEIGHT	30 feet

C Is this chart arranged in sequential order? Write one reason why or why not.

C Is this chart arranged in sequential order? Write one reason why or why not.

1 pt *No; the order of the measurements does not matter; the numbers are not in order; there are no sequence signal words; or any other appropriate response.*

1 Standards Addressed: Sci: 5.2.2, 5.2.7, Math: 5.2.4, 5.3.1, 5.7.1

Sequential Order Lesson 2: Algebra: Make a Scale Model

D Why is it necessary to choose a scale before setting up the proportion?

1 pt Without a scale, you would not know what numbers to use, or any other appropriate response.

D Why is it necessary to choose a scale before setting up the proportion?

2. Choose a Scale

In order to choose a scale, Eli needs to decide how much smaller than the original he wants his model to be. He decides to make his windmill $\frac{1}{10}$ the size of the original.

The ratio of the size of the model to the size of the original will be 1:10.

3. Set up a Proportion and Solve

In order to figure out how big to make his model, Eli needs to set up proportions for length, width, and height.

He lets l equal the length of his model

$$\text{Scale of model } \frac{1 \text{ ft}}{10 \text{ ft}} = \frac{l \text{ model length}}{14 \text{ ft actual length}}$$

$$10l = 14 \text{ ft}$$

$$l = \frac{14 \text{ ft}}{10 \text{ ft}}$$

$$l = 1.4 \text{ ft}$$

Eli's model will be 1.4 feet in length.



Sequential Order Lesson 2: Algebra: Make a Scale Model

E Does it matter whether Eli calculates the width or the height first? Write one reason why or why not.

1 pt *No; the order will not affect the answer; the model dimension will be the same regardless of the order in which they are calculated; or any other appropriate response.*

Now Eli needs to repeat this step to figure out the width and the height of his model.

He lets w equal the width of his model.

$$\text{Scale of model } \frac{1 \text{ ft}}{10 \text{ ft}} = \frac{w}{12 \text{ ft}} \frac{\text{model width}}{\text{actual width}}$$

$$10w = 12 \text{ ft}$$

$$w = \frac{12 \text{ ft}}{10 \text{ ft}}$$

$$w = 1.2 \text{ ft}$$

He lets h equal the height of his model.

$$\text{Scale of model } \frac{1 \text{ ft}}{10 \text{ ft}} = \frac{h}{30 \text{ ft}} \frac{\text{model height}}{\text{actual height}}$$

$$10h = 30 \text{ ft}$$

$$h = \frac{30 \text{ ft}}{10 \text{ ft}}$$

$$h = 3 \text{ ft}$$

Eli's model will measure 1.4 ft x 1.2 ft x 3 ft.

E Does it matter whether Eli calculates the width or the height first? Write one reason why or why not.

F Eli still needs to add the blades to his windmill. In your own words, describe what he needs to do in order to determine what size to make them. Be sure to write at least three sentences in sequential order.

Which step could be left out? _____
Why? _____

F Eli still needs to add the blades to his windmill. In your own words, describe what he needs to do in order to determine what size to make them. Be sure to write at least three sentences in sequential order.

3 pts 1 pt for each of the following:

- 1) Eli needs to find the dimension of the original windmill blades.
 - 2) Eli needs to choose a scale. It will have to be the same scale he used for the rest of the windmill (1/10).
 - 3) Eli needs to set up a proportion and solve for each dimension of the blade.
- (Note: Students may have divided step 3 into more than one step or have left out step 2 as long as they have 3 steps in sequential order.)*

Which step could be left out?

Why?

1 pt *Step 2 - The scale will be the same; he doesn't have to choose it.*

Sequential Order Lesson 2: Algebra: Make a Scale Model

Discussion Points Following the Lesson

- Look at Guided Reading Box A.

Which of your answers do you think provides the biggest clue that this text is organized to emphasize sequential order?

A: *Answers will vary. Ask students to explain their answers.*

- Look at the illustrations in this lesson.

Do these illustrations depict sequential order?

A: *No. They simply illustrate the lesson.*

What kind of illustration could you add to the lesson that would depict sequential order?

A: *You could include a chart showing the steps, a flowchart, etc.*

- Imagine you want to take a trip to Kendallville, Indiana to see the windmill that is pictured in this lesson. What steps would you need to follow to plan your trip?

A: *First, you need to find out where Kendallville is located. Then, you need to find out how much the trip would cost and when tours are available. You have to decide when you will go and how you will travel, etc.*

Sequential Order Lesson 2: Algebra: Make a Scale Model

Standards Links

Science 5.1.5 - Explain that technology extends the ability of people to make positive and/or negative changes in the world.

Suggested Activity: Have students research the use of windmills to provide power. Have them explain how it could have a positive impact on the world.

Social Studies 5.3.9 - Interpret historical maps and create maps of the United States in different historical periods using map elements, such as title, legend, directional indicators, scale, and projection.

Suggested Activity: Have students research the locations of windmills in the United States. Have them create maps to show how the number and location of windmills has changed over time. Explain that the scale used to make a map is calculated the same way as the scale used to build models. Have students check to make sure their maps are drawn to scale (**see Useful Web Sites on page 81**).

Sequential Order Lesson 3:

Thomas Jefferson and the Polygraph

Reading Difficulty: 4.6

Guided Reading Boxes: 4

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

- Charles Willson Peale
- polygraph

Skills and Standards

English/Language Arts Focus:

- 5.2.2 Analyze text that is organized in sequential or chronological order.

Social Studies Standards Addressed:

- 5.1.12 Identify major British and American leaders and describe their roles in key events, such as the First and Second Continental Congresses, drafting and approval of the Declaration of Independence (1776), publication of *Common Sense*, and major battles of the Revolutionary War.
- 5.5.6 Read accounts of how scientific and technological innovations have affected the way people lived in the early United States and make predictions about how future scientific and technological developments may change cultural life.

Science Standards Addressed:

- 5.1.1 Recognize and describe that results of similar scientific investigations may turn out differently because of inconsistencies in methods, materials, and observations.
- 5.1.3 Explain that doing science involves many different kinds of work and engages men, women, and children of all ages and backgrounds.
- 5.2.6 Write instructions that others can follow in carrying out a procedure.
- 5.2.7 Read and follow step-by-step instructions when learning new procedures.
- 5.5.1 Make precise and varied measurements and specify the appropriate units.

Mathematics Standards Addressed:

- 5.4.1 Measure, identify, and draw angles, perpendicular and parallel lines, rectangles, triangles, and circles by using appropriate tools (e.g., ruler, compass, protractor, appropriate technology, media tools).
- 5.7.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.

Background Prompt

If you needed to make two copies of your homework, but you didn't have a copy machine, what could you do?

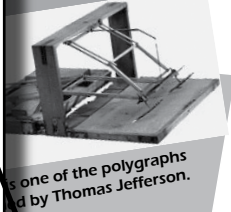
Sequential Order Lesson 3: Thomas Jefferson and the Polygraph

ACTIVITY!

SEQUENTIAL ORDER

A Which of the following happened last? **1 pt**

- Hawkins invented the polygraph.
- Peale gave a polygraph to Jefferson.
- Peale received the right to make polygraphs.
- People needed a better way to make copies.



Thomas Jefferson and the Polygraph

Before there were copy machines, people had to copy documents by hand if they needed more than one copy. This was not very practical, because it took a lot of time. People needed a better way to make several copies at once. One solution to this problem was an invention called a **polygraph**. *Poly* means many and *graph* means writing. The polygraph was designed so that when a person wrote with one pen, a second pen made another copy of whatever the person wrote. Polygraphs were made in America by **Charles Willson Peale**, who gave one to his close friend, Thomas Jefferson. Peale had received the right to make polygraphs in America from the machine's inventor, an Englishman named John Isaac Hawkins.

Thomas Jefferson is most famous for writing the Declaration of Independence and for serving as the third President of the United States. But he was also very interested in inventors and inventing. Jefferson became very excited about Peale's polygraphs. He sent the inventor many suggestions about how to make them better. If you visit Jefferson's home, Monticello, you can see one of the polygraphs that is on display there.

A Which of the following happened last?

- Hawkins invented the polygraph.
- Peale gave a polygraph to Jefferson.
- Peale received the right to make polygraphs.
- People needed a better way to make copies.

B Before you read, skim the lesson. Write two ways that you know this text is written to emphasize sequential order.

Standards Addressed: Soc: 5.1.12, 5.5.6
Sci: 5.1.1, 5.1.3, 5.2.6, 5.2.7, 5.5.1 Math: 5.4.1, 5.7.1

B Before you read, skim the lesson. Write two ways that you know this text is written to emphasize sequential order.

2 pts Accept any two of the following for 1 pt each:
It includes sequence signal words (before, when); it includes numbered steps (the activity); it says "just follow the steps;" or any other appropriate response.

Sequential Order Lesson 3: Thomas Jefferson and the Polygraph

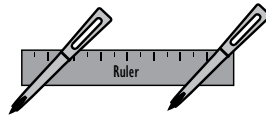
Make a Polygraph

Although the polygraphs that Jefferson used were made of parts, it is easy to make a simple polygraph. Follow the steps below.

1. Attach one of your pencils or markers to the ruler. Attach it at a 45-degree angle. Use your protractor to measure the angle. The pencil or marker should be about one inch from the bottom of the ruler.

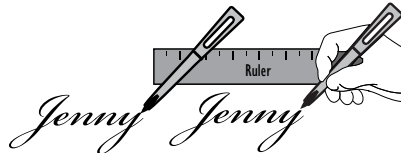


2. Attach the second pencil or marker to the ruler. Attach it at a 45-degree angle. Use your protractor to measure the angle. The tip of the pencil or marker should be about one inch from the bottom of the ruler.



4. Position the polygraph so that the pencils or markers will both write on the paper, with one next to the other.

5. Holding one of the pencils or markers, use the polygraph to write your name. What happened?



6. Experiment. Move the pencils or markers farther apart or closer together. How does it change the result? Is it easier to write with one pencil or marker than with the other?

MATERIALS

- two pencils or markers of equal length (markers will work best)
- a ruler
- a protractor
- a piece of paper
- sturdy tape, such as masking or strapping tape
- a writing surface, such as a desk or table

C Does the order in which the materials are listed matter? Write one reason why or why not.

1 pt *No: As long as you have all of the materials it doesn't matter; the order of the materials doesn't change the outcome of the experiment; or any other appropriate response.*

C Does the order in which the materials are listed matter? Write one reason why or why not.

D Why is it important to follow these steps in the order in which they are written?

D Why is it important to follow these steps in the order in which they are written?

1 pt *If you don't follow the steps in order, you might not get the same/right results; some steps are not possible if you haven't done the previous step(s); or any other appropriate response.*



Sequential Order Lesson 3: *Thomas Jefferson and the Polygraph*

Discussion Points Following the Lesson

- Look at Guided Reading Box A. The last sentence of the paragraph explains that Peale received the right to make polygraphs in America from John Isaac Hawkins. But this was not the last event to occur.

How did you know the right answer?

A: *Logically, Peale needed permission to make polygraphs before he could make one and give it to Jefferson; the phrase “had received” suggests that this happened before the events described in the previous sentence; etc.*

Why do you think that the author arranged the paragraph this way?

A: *The detail about Hawkins is not as important as other details in the paragraph; the author wanted to emphasize how Jefferson got the polygraph, not how Hawkins got the right to build it; it was easier to explain in this order; etc.*

Sequential Order Lesson 3: *Thomas Jefferson and the Polygraph*

Standards Links

English/Language Arts 5.6.6 - Use correct capitalization.

Suggested Activity: Have students use a homemade polygraph to practice writing word lists. Focus on proper nouns that need capitalization (write classmates names in alphabetical order, write state names in admission order, inventors products by date, etc.).

Art 5.2.1 - Identify and be familiar with a range of selected works of art identifying artists, culture, style, and period.

Art 5.2.2 - Identify distinguishing characteristics of style in individual artists' work and art movements.

Suggested Activity: Have students explore the Peale family including the sons named for old master painters (Raphaelle, Rembrandt, Titian, and Rubens). Have them compare Peale paintings to paintings by the master each was named for (**see Useful Web Sites on page 81**).

Sequential Order Lesson 4:

Thomas Jennings: An African American Inventor

Reading Difficulty: 5.7

Guided Reading Boxes: 5

Vocabulary

- abolitionist
- patent

Skills and Standards

English/Language Arts Focus:

- 5.2.2 Analyze text that is organized in sequential or chronological order.

Social Studies Standards Addressed:

- 5.1.10 Examine the causes and consequences of the establishment of slavery and describe how slavery became an issue that began to divide the Northern and Southern colonies.
- 5.1.19 Develop and interpret timelines showing major people, events, and developments in the early history of the United States from 1776-1801.
- 5.4.3 Trace the development of technology and the impact of major inventions on business productivity during the early development of the United States.
- 5.5.6 Read accounts of how scientific and technological innovations have affected the way people lived in the early United States and make predictions about how future scientific and technological developments may change cultural life.

Science Standards Addressed:

- 5.1.3 Explain that doing science involves many different kinds of work and engages men, women, and children of all ages and backgrounds.
- 5.1.5 Explain that technology extends the ability of people to make positive and/or negative changes in the world.

Background Prompt

If you came up with a new invention, what would you do to keep other people from taking credit for your idea?

Sequential Order Lesson 4: Thomas Jennings: An African American Inventor

BIOGRAPHY

LESSON 4

SEQUENTIAL ORDER

Thomas Jennings: An African American Inventor

patent
a right given to an inventor by the government to use, make, and sell an invention

Americans have always been great inventors, but it was not always easy for all Americans to get credit for their inventions. Before the Civil War, many African Americans were slaves. The law said that slaves could get patents for their inventions, but slave owners often took credit for their slaves' ideas. Although they often could not get patents, African Americans continued to invent. Thomas Jennings was one such inventor.

Jennings was born in 1791, during the time of slavery. Although Jennings was not a slave, many of his family members were. Jennings lived in New York City, where he worked as a dry cleaner. He was always looking for new ways to make his work easier. When he was 30 years old, Jennings invented a new way of dry cleaning called "dry scouring." He asked the government for a patent. On March 3, 1821, he became the first African American patent holder.

A In your own words, describe what often happened after a slave created a new invention.

B This picture was taken
 before Jennings was born.
 the year Jennings was born.
 after Jennings was born.

How do you know?



This photograph shows what the United States Patent Office looked like in the 1800s.

A In your own words, describe what often happened after a slave created a new invention.

1 pt The slave's master usually took credit for the invention; the slave didn't get credit/a patent; or any other appropriate response.

B This picture was taken **1 pt**
 before Jennings was born.
 the year Jennings was born.
 after Jennings was born.

How do you know?

1 pt The caption says the picture was taken in the 19th century/1800s, but Jennings was born in 1791/the 18th century; or any other appropriate response.

Sequential Order Lesson 4: Thomas Jennings: An African American Inventor

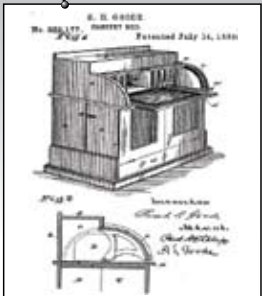
THOMAS JENNINGS

C Who received a patent first, Sarah E. Goode or Thomas Jennings?

1 pt *Thomas Jennings*

C Who received a patent first, Sarah E. Goode or Thomas Jennings?

Jennings was also an abolitionist. After he received his patent, he used the money from his invention to buy freedom for family members who were slaves. After all of the members of his family were free, he used his money to help the abolitionist movement. In 1831, he was elected the assistant secretary for the First Annual Convention of the People of Color. Jennings died in 1859, almost four years before the Emancipation Proclamation freed slaves. Although he did not live to see the end of slavery, Jennings's abolition work helped free many slaves. Today he is remembered as a great African American inventor.



Sarah E. Goode's cabinet bed made her the first African American woman to receive a patent.

D In your own words, explain what happened after Jennings received his patents. Write at least two details in sequential order.

2 pts *Accept any two of the following in sequential order for 1 pt each:*

Jennings used the money to buy freedom for family members; he used his money to support the abolition movement; he was elected secretary of the First Annual Convention of People of Color; he died.

African American Inventors

George Washington Carver (1864-1943)	former slave who invented many products using peanuts and other crops, patented a process of making paint from soybeans in 1925
Lewis H. Latimer (1848-1928)	improved Edison's lightbulb when he invented a carbon filament in 1881
Garrett A. Morgan (1877-1963)	patented the first traffic signal and the gas mask (1914)
Madam C.J. Walker (1867-1919)	invented hair care products (1905) that made her a millionaire

Thomas Jennings was only one of many African American inventors. This chart tells about four others.

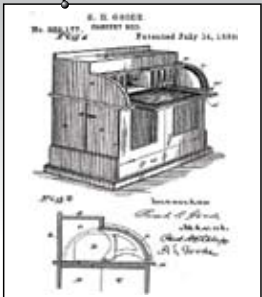
E This chart lists the inventors in alphabetical order. Arrange them in sequential order by the dates of their patents instead.

1. _____ 3. _____
2. _____ 4. _____

C Who received a patent first, Sarah E. Goode or Thomas Jennings?

1 pt *Thomas Jennings*

C Who received a patent first, Sarah E. Goode or Thomas Jennings?



Sarah E. Goode's cabinet bed made her the first African American woman to receive a patent.

D In your own words, explain what happened after Jennings received his patents. Write at least two details in sequential order.

D In your own words, explain what happened after Jennings received his patents. Write at least two details in sequential order.

2 pts *Accept any two of the following in sequential order for 1 pt each:*

Jennings used the money to buy freedom for family members; he used his money to support the abolition movement; he was elected secretary of the First Annual Convention of People of Color; he died.

African American Inventors

George Washington Carver (1864-1943)	former slave who invented many products using peanuts and other crops, patented a process of making paint from soybeans in 1925
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Thomas Jennings was only one of many African American inventors. This chart tells about four others.

E This chart lists the inventors in alphabetical order. Arrange them in sequential order by the dates of their patents instead.

1. _____ 3. _____
2. _____ 4. _____

E This chart lists the inventors in alphabetical order. Arrange them in sequential order by the dates of their patents instead.

1. **1 pt** *Lewis H. Latimer* _____ 3. **1 pt** *Garrett A. Morgan* _____
2. **1 pt** *Madam C.J. Walker* _____ 4. **1 pt** *George Washington Carver* _____

Sequential Order Lesson 4: *Thomas Jennings: An African American Inventor*

Discussion Points Following the Lesson

- Look at Guided Reading Box C.

How did you figure out the answer to this question?

A: *There are two possibilities. One is by looking at the graphic, which gives the date 1885, and comparing it to the date of Jennings's patent. The other is by reasoning that since Jennings was the first African American to receive a patent, his had to have been granted before Goode's.*

- Look at Guided Reading Box E and the chart on page 67.

Can you think of another way to organize the information in sequential order on the chart?

A: *You could arrange it by the dates of birth of the inventors.*

Which of these ways do you like best?

A: *Answers will vary. Ask students to justify their choices.*

Sequential Order Lesson 4: *Thomas Jennings: An African American Inventor*

Standards Links

Mathematics 5.6.2 - Find the mean, median, mode, and range of a set of data and describe what each does and does not tell about the data set.

Suggested Activity: Have students collect data on what it costs to dry clean a shirt at various dry cleaners. Then have them determine mean, median, etc.

English/Language Arts 5.6.2 - Use transitions (*however, therefore, on the other hand*) and conjunctions (*and, or, but*) to connect ideas.

Science 5.2.7 - Write instructions that others can follow in carrying out a procedure.

Suggested Activity: Have students write directions for how to perform a daily task such as teeth-brushing, shoe-tying, or making a bed. Have them circle all of the transitional words and underline conjunctions.

Science 5.2.3 - Choose appropriate common materials for making simple mechanical constructions and repairing things.

Suggested Activity: Allow students to use recycled materials to make their own inventions.

Sequential Order Lesson 5: *The Cotton Gin and the Steamboat: Changing Life in the 1800s*

Reading Difficulty: 5.7

Guided Reading Boxes: 4

Vocabulary

- cotton gin
- Robert Fulton
- steamboat
- Eli Whitney

Skills and Standards

English/Language Arts Focus:

- 5.2.2 Analyze text that is organized in sequential or chronological order.

Social Studies Standards Addressed:

- 5.1.10 Examine the causes and consequences of the establishment of slavery and describe how slavery became an issue that began to divide the Northern and Southern colonies.
- 5.3.8 Identify the major manufacturing and agricultural regions in colonial America and cite ways that agriculture and manufacturing have changed in the past and continue to change.
- 5.4.3 Trace the development of technology and the impact of major inventions on business productivity during the early development of the United States.
- 5.4.7 Analyze how the causes and effects of changes in price of certain goods and services had significant influence on events in United States history.
- 5.5.6 Read accounts of how scientific and technological innovations have affected the way people lived in the early United States and make predictions about how future scientific and technological developments may change cultural life.

Science Standards Addressed:

- 5.1.3 Explain that doing science involves many different kinds of work and engages men, women, and children of all ages and backgrounds.
- 5.1.5 Explain that technology extends the ability of people to make positive and/or negative changes in the world.
- 5.3.4 Investigate that when liquid water disappears it turns into a gas (vapor) mixed into the air and can reappear as a liquid when cooled or as a solid if cooled below the freezing point of water.
- 5.3.8 Investigate, observe, and describe that heating and cooling cause changes in the properties of materials, such as water turning into steam by boiling and water turning into ice by freezing. Notice that many kinds of changes occur faster at higher temperatures.

Background Prompt

Can you think of inventions that have changed life in the 21st century?

Sequential Order Lesson 5: *The Cotton Gin and the Steamboat: Changing Life in the 1800s*

LESSON 5

SEQUENTIAL ORDER

VOCABULARY

- cotton gin
- Robert Fulton
- steamboat
- Eli Whitney

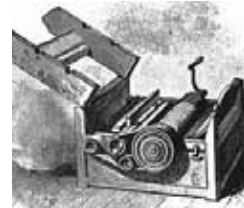
MAIN IDEA

The cotton gin and the steamboat were two inventions that changed American life in the 1800s.

The Cotton Gin and the Steamboat: Changing Life in the 1800s

Eli Whitney's Cotton Gin

In 1793, a man named **Eli Whitney** invented a machine called the cotton gin that changed the way that many people in the southern United States lived and worked. Whitney had worked as both a blacksmith and a teacher, but he loved to invent things. His **cotton gin** could separate cotton seeds from the cotton fiber used to make cloth. The cotton gin was simple to use. Cotton was put into the top of the machine and a handle was turned. As the handle turned, the cotton moved through wires that combed the seeds out. When the job was finished, the seed-free cotton was pulled off the wires.



This is what Eli Whitney's cotton gin looked like.

Before the invention of the cotton gin, it took a long time to separate the seeds from the cotton. Whitney's cotton gin could separate 50 pounds of cotton in just one day. This allowed people to make cotton cloth much more cheaply. Cotton quickly became the biggest crop in the South. It continued to be the South's biggest crop until the Civil War (1861 -1865).

A This paragraph describes how the cotton gin worked. In your own words, write the four steps in sequential order.

A This paragraph describes how the cotton gin worked. In your own words, write the four steps in sequential order.

4 pts 1 pt for each of the following in sequential order:

- 1) Put cotton in the top of the machine.
- 2) Turn the handle.
- 3) The cotton moves through the wires and is combed.
- 4) Pull cotton from the wires.

Standards Addressed: Soc: 5.1.10, 5.3.8, 5.4.3, 5.4.7, 5.5.6
Sci: 5.1.3, 5.1.5, 5.3.4, 5.3.8

1

Sequential Order Lesson 5: *The Cotton Gin and the Steamboat: Changing Life in the 1800s*

B This paragraph tells about the effects that the cotton gin had on the South. How does understanding sequence help you understand causes and effects?

1 pt *Causes take place before effects, so knowing the order helps; it helps you figure out which is the cause (first) and which is the effect (second); or any other appropriate response.*

g hard times
owing well. The
ped the South
e cotton gin
ause the cotton
s more cotton
vers wanted
on. Some land
ians who had
s of years. Also
ng grown, more
picking the
t to pay these
ase in slavery.

B This paragraph tells about the effects that the cotton gin had on the South. How does understanding sequence help you understand causes and effects?

Robert Fulton's Steamboat

Another invention that changed life in the United States during the 1800s was the **steamboat**. In the early 1800s, river travel was the most common way to move people and goods from one place to another. But it could be very difficult to row boats upstream because of the strong currents. Steam-powered boats had been built in Europe, but they were not very practical. Then an American artist and inventor named **Robert Fulton** had an idea that would make river travel easier. He built a new kind of steamboat.

C In your own words, describe the sequence of events that began with the invention of the cotton gin and ended in an increase in slavery in the South. Be sure to write at least three sentences.

D Fulton's steamboat might not have been built if it hadn't been for other events and inventions that happened before 1807. Using information from the lesson and inferences, list at least two of these events or inventions.



D Fulton's steamboat might not have been built if it hadn't been for other events and inventions that happened before 1807. Using information from the lesson and inferences, list at least two of these events or inventions.

2 pts *Accept any two of the following for 1 pt each: The steamboat was invented; the steam engine was invented; people understood how steam is made; people needed new/easier ways to travel; or any other appropriate response that is causally-connected to the building of Fulton's steamboat.*

C In your own words, describe the sequence of events that began with the invention of the cotton gin and ended in an increase in slavery in the South. Be sure to write at least three sentences.

3 pts *Accept any three of the following in sequential order for 1 pt each: The cotton gin was invented. Cotton could be made more quickly/cheaply. Cotton helped the South grow. More people were needed to pick cotton. Growers did not want to pay workers. More and more slaves were forced to pick cotton.*

Sequential Order Lesson 5: *The Cotton Gin and the Steamboat: Changing Life in the 1800s*

Discussion Points Following the Lesson

- Look at Guided Reading Box D.

How did you come up with answers to this question?

A: *I asked what inventions made the new kind of steamboat possible; I thought about what made the new steamboat necessary; I asked why people needed a new kind of steamboat; I asked what inventions came before Fulton's steamboat, etc.*

- Look back at the text.

What are some of the numbers you see?

A: *1793, 50, 1861-1865, 1800's*

Do these numbers tell you about sequential order with the cotton gin and steamboat?

A: *Not all do. 50 is not about order. The dates help with sequential order.*

How do these dates help you understand the relationship between the cotton gin and the steamboat?

A: *You can tell which came first; you can tell they were both before the Civil War, etc.*

Sequential Order Lesson 5: *The Cotton Gin and the Steamboat: Changing Life in the 1800s*

Standards Links

Mathematics 5.1.4 - Interpret percents as a part of a hundred. Find decimal and percent equivalents for common fractions and explain why they represent the same value.

Suggested Activity: Have students examine the tags in their clothes. Find out what percentage of their clothing is cotton. Explain that the remaining percentage of 100 is not cotton. Order the percentages of cotton found on their tags from least to greatest.

Science 5.3.2 - Observe and describe that stars are like the sun, some being smaller and some being larger, but they are so far away that they look like points of light.

Suggested Activity: Discuss how the sun and stars may have affected or influenced slaves working in cotton fields. Discuss songs such as “Follow the Drinking Gourd” that show how slaves used these points of light to guide them in their travels to the Underground Railroad.

English/Language Arts 5.6.5 - Use a colon to separate hours and minutes (12:20 a.m., 3:40 p.m.) and to introduce a list (*Do the project in this order: cut, paste, fold.*); use quotation marks around the exact words of a speaker and titles of articles, poems, songs, short stories, and chapters in books; use semi-colons and commas for transitions (*Time is short; however, we will still get the job done.*).

Suggested Activity: Have students write an ordered description of their day which includes times for certain activities (8:05 catch bus).

Sequential Order: *Inventors* Concluding Project Rubric

The following rubric is provided to assist you in scoring the culminating project for the Inventors set. It is intended only as a guide. Feel free to adjust scoring to reflect your own teaching goals and expectations.

Step 1: Inventor’s Journal and Research (30 pts.)

- /15 points Student has correctly used the journal to record observations, ideas, and plans.
- /5 points Student has carried out research using appropriate research materials.
- /5 points Student has made effective use of his or her research.
- /5 points Student demonstrates that his or her invention is unique to the best of his or her knowledge.
- TOTAL

This is a thumbnail of the 'Step 1: Inventor's Journal and Research' form. It includes a header with 'Name' and 'Date' fields. Below that, it asks students to identify a problem and describe their brainstorming process. It also includes sections for 'Research' (using internet, library, etc.) and 'Experimentation' (describing the invention and the experiments conducted).

Step 2: The Invention (depiction and demonstration) (35 pts.)

- /10 points Student has done a reasonable job of depicting or constructing the invention.
- /5 points The invention could function or functions as described.
- /10 points Student’s presentation is clear and well organized.
- /10 points Student is able to answer questions about the invention.
- TOTAL

This is a thumbnail of the 'Step 2: The Invention' form. It asks students to 'Create and Demonstrate a Model' and includes a 'Presentation Notes' section. It also provides a 'Presentation Notice' for students to use when presenting their invention.

Step 3: The Written Report (35 pts.)

- /5 points Student has used sequence signal words appropriately throughout the report.
- /10 points The student’s report is presented in sequential order and is easy to follow.
- /10 points The report is complete, including all required information.
- /5 points Student’s report reflects an understanding of the invention process as well as the product.
- /5 points The student’s report addresses if improvements to the invention should be made.
- TOTAL
- / 100

This is a thumbnail of the 'Step 3: The Written Report' form. It asks students to 'Summarize and develop ideas for improvement' and includes a 'Presentation Notice' for students to use when presenting their invention.

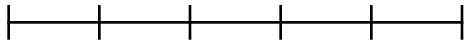
Sequential Order: *Inventors*

Teachers Tools

Additional Practice Activities:

- Graphic Organizer: Create a basic reproducible timeline or sequencing map/flow chart that students can take notes on as they read their lessons.

Timeline example:



Sequencing map/flow chart example:



- Have students practice following written instructions in sequential order. Possible projects include: origami, cooking, model building, scavenger hunts with directions at each point along the hunt, etc.
- Have students practice sequential order using learning games on the Internet (see for example <http://www.quia.com/pages/sequencingfun.html>).
- Help students understand the relationship between time that is expressed in different forms such as 19th century, 1800s, 1915, late 1900s, etc. Write dates in different forms on index cards and have students put them in chronological order.

Extension Activities:

- Have students research the race between Elisha Gray and Alexander Graham Bell to patent the telephone. Have them discuss or write about how the sequence of events affected the outcome.
- Have students relate their lives to other historical events. First, each student needs to make a list of 10 events that occurred in his/her life. Next, research to find another event that occurred on the same date in a different year. Combine these into 10 sentences such as "I was born on November 2, 1996, eight years before George Bush was elected for a second term. I learned to walk on December 7, 1991, 50 years after the bombing of Pearl Harbor. (A time line could be added to illustrate the dates.)
- Have students write the steps necessary for a simple task, such as getting ready for school, or making a peanut butter and jelly sandwich. Have them trade instructions with a partner. The partner should then attempt to follow the instructions. If there are problems, discuss what steps are missing or out of order and how that affects the task.
- Have students select 5-10 pictures at random from a magazine, put them in order, and make up a story about the sequence. Have them share the story with the class. Have students swap pictures, put them in a different order, and make up different stories.

Sequential Order: *Inventors*

Teachers Tools

Useful Web Sites:

Please note that web site content may change at any time.

Morse telegraph

<http://www.jls.palo-alto.ca.us/virtualmuseum/ushistory/morse/>
<http://www.wrvmuseum.org/morsecode/morsecodehistory.htm>
http://www.radio-electronics.com/info/radio_history/morse/morseteleghstry.php

Samuel B Morse

<http://www.morsehistoricsite.org/history/morse.html>

Charles Willson Peale/the polygraph

<http://www.mdarchives.state.md.us/msa/speccol/1545/html/1032.html>
http://en.wikipedia.org/wiki/Charles_Willson_Peale
<http://www.ucpress.edu/books/pages/9210/9210.ch01.html>
<http://www.nndb.com/people/443/000086185/>
<http://www.ushistory.org/independence/secondbank/peale.htm>
<http://humanitiesweb.org/human.php?s=g&p=a&a=i&ID=576>
<http://www.npg.si.edu/exh/peale/papers2.htm>
<http://www.archives.gov/nhprc/annotation/september-98/charles-willson-peale.html>
http://www.artcyclopedia.com/artists/peake_charles_willson.html

African American inventors

<http://www.enchantedlearning.com/inventors/black.shtml>
<http://www.enchantedlearning.com/inventors/1700.shtml> <http://www.bkfk.com/inventions/kidinventors.asp>
<http://www.bkfk.com/products/#2>
<http://www.si.umich.edu/CHICO/Schomburg/text/inventors.html>
<http://www.blackinventor.com/pages/history.html> (*timeline*)

Patents

<http://en.wikipedia.org/wiki/Patent>

Cotton gin

http://en.wikipedia.org/wiki/Cotton_gin
<http://www.eliwhitney.org/cotton.htm>
http://college.hmco.com/history/readerscomp/rcah/html/ah_021100_cottongin.htm
http://inventors.about.com/od/cstartinventions/ss/patent_X72.htm

Eli Whitney

http://college.hmco.com/history/readerscomp/rcah/html/ah_092300_whitneyeli.htm
<http://www.eh.net/encyclopedia/article/phillips.cottongin>

Steamboat, Fulton

<http://www.kiac-usa.com/clermont.html#MIDDLE>
<http://www.eyewitnesstohistory.com/fulton.htm> <http://www.ulster.net/~hrmm/steamboats/fulton.html> <http://xroads.virginia.edu/~HYPER/DETOC/transport/fulton.html>
http://en.wikipedia.org/wiki/Robert_Fulton

Sequential Order: *Inventors*

Teachers Tools

http://www.pbs.org/wgbh/theymadeamerica/whomade/fulton_hi.html

Windmills

<http://www.windmillworld.com/world/usa.htm>

<http://www.midamericawindmillmuseum.com/>

General Information about inventors

female inventors

<http://www.uah.edu/colleges/liberal/womensstudies/inventor.html>

Ferris wheel

<http://www.thezephyr.com/archives/bigwheel.htm>

fire ladder

<http://www.sfmuseum.org/hist9/hayestruck.html>

radio

<http://www.eh.net/encyclopedia/article/scott.radio.industry.history>

<http://www.qsl.net/n7jy/radiohst.html>

pencil sharpener

http://www.earlyofficemuseum.com/sharpener_gallery_1800s.htm

phonograph

<http://www.garlic.com/~tgracyk/leon.htm>

inventions from 1250-1996

<http://www.fatbadgers.co.uk/Britain/inventors.htm>

quizzes, scientists and inventors, create your own trivia tournament

<http://www.funtrivia.com/dir/252.html>

inventions today

<http://www.usgennet.org/usa/topic/preservation/science/inventions/chpt1.htm>

general

<http://www.hrw.com/science/si-science/physics/motion/spotlight/inventors1.html>

<http://www.enchantedlearning.com/inventors/1400.shtml>

<http://glsd76.glc.n.com/webbasedresources/my%20webs/mywebresources/inventors.htm>

Interpreting Graphics Lesson 1: *Mapping a Trail*

Reading Difficulty: 5.2

Guided Reading Boxes: 6

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

- artillery

Skills and Standards

English/Language Arts Focus:

- 5.2.1 Use the features of informational texts, such as formats, graphics, diagrams, illustrations, charts, maps, and organization, to find information and support understanding.

Social Studies Standards Addressed:

- 5.1.12 Identify major British and American leaders and describe their roles in key events, such as the First and Second Continental Congresses, drafting and approval of the Declaration of Independence (1776), publication of *Common Sense*, and major battles of the Revolutionary War.
- 5.1.20 Read historical fiction and nonfiction about an event of the American Revolution and reconstruct the literal meaning of passages by identifying who was involved, what happened, where it happened, what events led to these developments, and what consequences or outcomes followed.
- 5.3.1 Demonstrate that lines of latitude and longitude are measured in degrees of a circle, that places can be precisely located where these lines intersect, and that location can be stated in terms of degrees north or south of the equator and east or west of the prime meridian.
- 5.3.2 Name and locate states, major cities, major regions, major rivers, and mountain ranges in the United States.
- 5.3.9 Interpret historical maps and create maps of the United States in different historical periods using map elements, such as title, legend, directional indicator, scale, and projection.
- 5.3.11 Give examples of how specific physical features influenced historical events and movements.

Science Standards Addressed:

- 5.6.2 Demonstrate how geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representation can never be exact in every detail.

Background Prompt

Have you ever gotten lost on a trip, or anywhere else? What did you do? How can you avoid getting lost?

Interpreting Graphics Lesson 1: Mapping a Trail

ACTIVITY!

LESSON 1

INTERPRETING GRAPHICS

The Knox Trail

The Knox Trail is an important part of American

Mapping a Trail

Jerylyn and her family decide to follow the Knox Trail through New York and Massachusetts. They want to travel on a historical route. The Knox Trail follows the route that Henry Knox, his companions, and oxen traveled in the winter of 1775 to 1776. To make the journey, Jerylyn and her family are using a global positioning system, or GPS. A GPS is used to locate places on the Earth and to map routes. It uses a satellite and a computer to pinpoint places on the Earth. Once a place is located, it can be recorded as a set of numbers called coordinates. These coordinates correspond to longitude and latitude lines. Look at Jerylyn's travel diary on the next page.

B Why did this author include this graphic?

1 pt *It shows you what a GPS looks like; it makes the lesson more interesting; or any other appropriate response.*

What does GPS stand for?

1 pt *global positioning system*



A What graphic would you add to this passage to illustrate Knox's trip?

Why? _____

B Why did this author include this graphic?

What does GPS stand for?

were heavy. And it was the middle of winter! But with careful planning, the cooperation of the weather, helpful locals, and some dedicated troops, most of the artillery made it to Boston.

The trip, which would take about four and a half hours by car today, took about 56 days in the winter of 1775 to 1776. What was incredible about his trip was that Knox was traveling with 40 oxen-pulled sleds carrying tons of artillery.

Standards Addressed: Soc: 5.1.12, 5.1.20, 5.3.1, 5.3.2, 5.3.9, 5.3.11
Sci: 5.6.2

A What graphic would you add to this passage to illustrate Knox's trip?

1 pt *a drawing of the event, a map, or any other appropriate response that is justified below*

Why?

1 pt *A drawing would show what Knox's sleds looked like; it would help you understand what the trip was like; a map would help you understand where the events took place; or any other appropriate response.*

Interpreting Graphics Lesson 1: Mapping a Trail

C Why did the author include this map, instead of a map showing all of the United States?

1 pt *There isn't enough space to show all of the United States; it lets you see the region up close; it shows only the region you read about; or any other appropriate response.*

Great Barrington, MA
Coordinates: 42°13' N 73°19' W

Mechanicville, NY
Coordinates: 42°54' N 73°41' W

Albany, NY
Coordinates: 42°39' N 73°47' W

Springfield, MA
Coordinates: 42°06' N 72°32' W

Boston, MA
Coordinates: 42°19' N 71°05' W

C Why did the author include this map, instead of a map showing all of the United States?

D When Knox left Fort Ticonderoga he floated the artillery on boats. What body of water was he on?

E What would have made the trip from Great Barrington to Springfield especially difficult?

E What would have made the trip from Great Barrington to Springfield especially difficult?

1 pt *The Berkshire Mountains are in the way.*

D When Knox left Fort Ticonderoga he floated the artillery on boats. What body of water was he on?

1 pt *Lake George*

Interpreting Graphics Lesson 1: Mapping a Trail

Longitude and Latitude

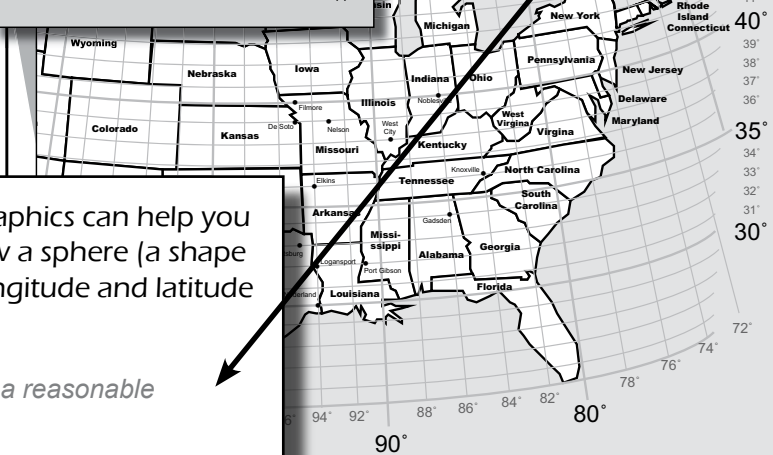
Longitude lines are imaginary lines running north to south on the Earth. Longitude lines divide the Earth into pieces, like wedges of an orange. All of the lines meet at the North and South poles. **Latitude lines** circle the Earth east to west. Latitude lines look like circular rings. Around the equator the circle is the largest. As you move north or south toward either pole, the circles become smaller. If you stood at the North Pole and drew a large circle around you, you would be drawing a line of latitude. If you divided the circle up into parts, you would be drawing lines of longitude.

The point where a longitude line crosses a latitude line is called a coordinate. Coordinates are stated in units called degrees ($^{\circ}$). Coordinate degrees do not have anything to do with temperature. Degrees come from divisions of a circle. Because the Earth is circular, the lines that divide up the Earth are called degrees — just like degrees in a circle. Degrees are divided into smaller units called minutes ($'$).

Plan your own trip!

- 1) Choose six cities on the map below that you plan to visit on your trip.
- 2) On a separate piece of paper, make a trip diary with the coordinates of the cities you'll visit.
- 3) Have a partner read your coordinates and tell you the names of the places you'll visit.

F Drawing your own graphics can help you understand a topic. Draw a sphere (a shape like an orange). Label longitude and latitude lines on it.

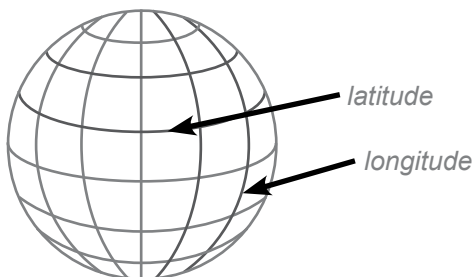


F Drawing your own graphics can help you understand a topic. Draw a sphere (a shape like an orange). Label longitude and latitude lines on it.

1 pt Student has created a reasonable drawing.

1 pt Student has drawn and labeled longitude lines.

1 pt Student has drawn and labeled latitude lines.



Interpreting Graphics Lesson 1: *Mapping a Trail*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box C.

How would the lesson be different if the author had included a map of the entire United States?

A: *The area around the Knox Trail would be much smaller; it would be harder to see the details and answer the questions, etc.*

Would there be any advantages to including a map of the entire United States?

A: *It might make it easier to understand where the trip took place, especially if you are not familiar with New York and Massachusetts.*

- Look at Guided Reading Box E.

How does the map maker show you that there are mountains between Great Barrington and Springfield?

A: *Triangles are used to indicate the location of the mountains, and the mountains are labeled "Berkshire Mts."*

- Look at the activity on page 3.

If you were going to complete this activity, which cities would you choose? Why?

A: *Answers will vary. Have students explain their choices.*

Interpreting Graphics Lesson 1: *Mapping a Trail*

Standards Links

Social Studies 5.1.14 - Identify and evaluate contributions of women during the American Revolution, including Abigail Adams, Martha Washington, Mercy Otis Warren, and Molly Pitcher.

Suggested Activity: Henry Knox was a bookseller—one might think an unlikely leader of the expedition. Discuss with students how there were many unlikely pivotal people in the American Revolution, including teens and women. Have students research the biographies of women or young adults who were important figures during the American Revolution such as teenager Emily Geiger (see **Useful Web Sites on page 117**).

Social Studies 5.1.20 - Read historical fiction and nonfiction about an event of the American Revolution and reconstruct the literal meaning of passages by identifying who was involved, what happened, where it happened, what events led to these developments, and what consequences or outcomes followed (emphasis on fiction).

Suggested Activity: Acquaint students with the number of historical fiction books, such as *My Brother Sam is Dead* or *Guns for General Washington*, that have been written about the Revolutionary War. Have students choose a book to read and share the story with others in a literature circle or have the class choose one book to read/discuss together. (For other historical fiction titles see also the *My Name is America* series, titles such as *Early Thunder* by Jean Fritz, *The Fighting Ground* by Avi, *The American Girl Felicity* series, etc.) (see **Useful Web Sites on page 117**).

Mathematics 5.5.5 - Understand and use the smaller and larger units for measuring weight (ounce, gram, and ton) and their relationship to pounds and kilograms.

Suggested Activity: The 59 pieces of artillery that were transported during the Knox expedition were very heavy. The largest piece weighed 1800 pounds, with the cannon ball weighing 24 pounds. Have students determine the number of total ounces in this largest piece. He transported a total 43 brass/iron cannons, six cohorn, 8 mortars, and 2 howitzers. Have students calculate the total weight of six cohorn at 84 lbs each and convert this into metric measurements.

Interpreting Graphics Lesson 2: *Colonial Trade*

Reading Difficulty: 5.2

Guided Reading Boxes: 5

Vocabulary

- exports
- imports
- surface currents
- triangular trade

Skills and Standards

English/Language Arts Focus:

- 5.2.1 Use the features of informational texts, such as formats, graphics, diagrams, illustrations, charts, maps, and organization, to find information and support understanding.

Social Studies Standards Addressed:

- 5.1.8 Locate the 13 British colonies that became the United States and describe their political, social, and economic organization and structure.
- 5.3.2 Name and locate states, major cities, major regions, major rivers, and mountain ranges in the United States.
- 5.3.9 Interpret historical maps and create maps of the United States in different historical periods using map elements, such as title, legend, directional indicator, scale, and projection.

Science Standards Addressed:

- 5.6.2 Demonstrate how geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representation can never be exact in every detail.

Background Prompt

Imagine you are a sailor. You need to sail across the ocean, but your ship doesn't have a motor, and it is too far to row. What would help your ship move?

Interpreting Graphics Lesson 2: Colonial Trade

LESSON 2

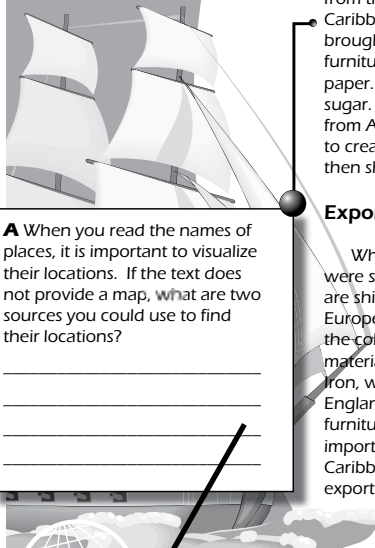
INTERPRETING GRAPHICS

VOCABULARY

- exports
- imports
- surface currents
- triangular trade

MAIN IDEA

Colonists depended on trade winds and surface currents to ship goods across the Atlantic Ocean.



Colonial Trade

Trade was an important part of colonial life. Settlers in England's North American colonies traded with each other and with American Indians. Settlers also traded across the Atlantic Ocean. In colonial times, like today, this trade involved both imports and exports.

Imports

Imports are goods or materials received by a country. The colonies received imports from Europe, from the Caribbean, and from Africa through the Caribbean. Ships coming to the colonies from England brought many finished goods. These goods included furniture, metal goods, glassware, clothing, tea, and paper. Ships from the Caribbean brought molasses and sugar. Ships from the Caribbean also brought slaves from Africa. The colonies used the sugar and molasses to create rum. The rum that the colonists made was then shipped to Africa.

Exports

When the colonies shipped goods or materials out, they were sending exports. Exports are goods and materials that are shipped from a country. The colonies exported goods to Europe, the Caribbean, and Africa. Many of the exports that the colonies shipped to England were raw materials. Raw materials are materials that are used to make other products. Iron, whale oil, furs, indigo, and timber were all exported to England from the colonies. The timber was made into fine furniture in English factories and then shipped back as an import to the colonies. Fish, fur, and meat were sent to the Caribbean. Cloth, gunpowder, iron, tools, and rum were exported to Africa.

A When you read the names of places, it is important to visualize their locations. If the text does not provide a map, what are two sources you could use to find their locations?

A When you read the names of places, it is important to visualize their locations. If the text does not provide a map, what are two sources you could use to find their locations?

2 pts **Accept any two of the following for 1 pt each:**
social studies book, atlas, encyclopedia, dictionary, the Internet, or any other appropriate response

Standards Addressed: Soc: 5.3.2, 5.3.9
Sci: 5.6.2

1

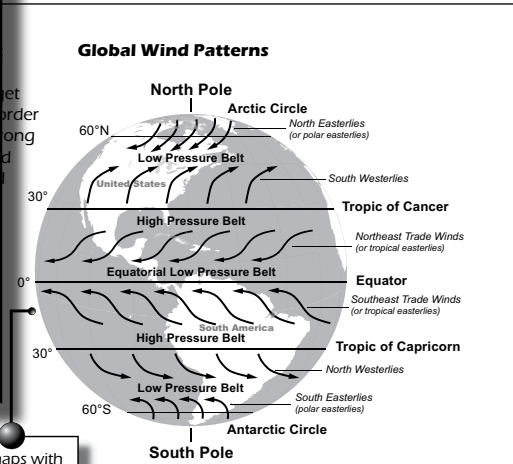
Interpreting Graphics Lesson 2: Colonial Trade

B Why would the author include two maps with arrows showing directions?

1 pt *It shows how wind patterns and surface currents are related; one shows wind patterns and the other shows surface currents; they help you understand the text; or any other appropriate response.*

Which way do the winds blow near the North Pole? Is it toward the equator or away from it?

1 pt *toward the equator*

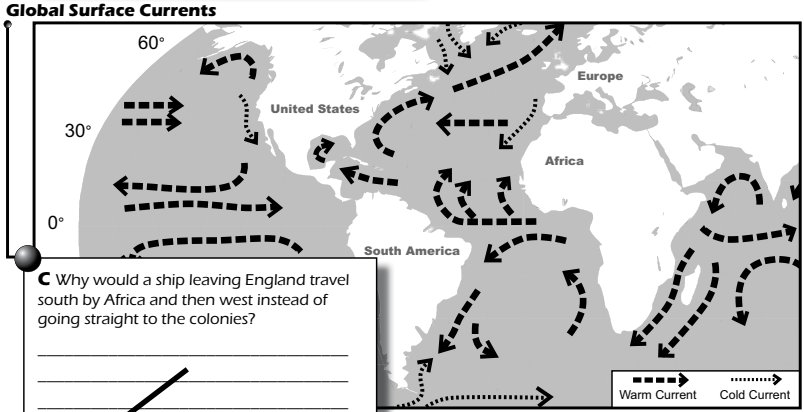


west and away from the equator.

B Why would the author include two maps with arrows showing directions?

Which way do the winds blow near the North Pole? Is it toward the equator or away from it?

The winds also form surface currents in the ocean waters. **Surface currents** are large streams of flowing water on the surface of the ocean. Across the Earth, you can find many currents moving in circular patterns. In addition to the wind, land masses and the movement of the Earth also affect the direction of the currents.



C Why would a ship leaving England travel south by Africa and then west instead of going straight to the colonies?

C Why would a ship leaving England travel south by Africa and then west instead of going straight to the colonies?

1 pt *If they go south first, sailors could follow the surface current; it would make the trip faster; if they tried to go straight across, they would be traveling against the surface currents; the trip would be harder; or any appropriate response.*

Interpreting Graphics Lesson 2: Colonial Trade

D List at least two imports or exports that you can learn about from the graphic that are not included in the text.

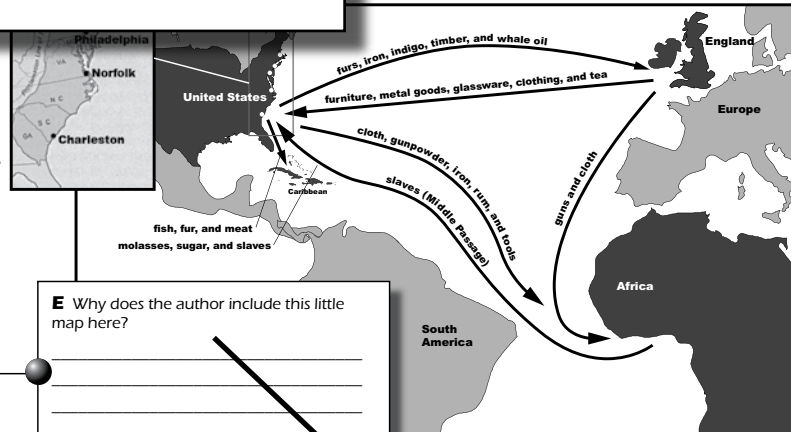
2 pts *Accept any two of the following for 1 pt each: glassware, whale oil, indigo, tools.*

Why do you think fish and meat were traded with the Caribbean and not England?

1 pt *Fish and meat might spoil on a long trip, or any other appropriate response.*

D List at least two imports or exports that you can learn about from the graphic that are not included in the text.

Why do you think fish and meat were traded with the Caribbean and not England?



E Why does the author include this little map here?

How do these maps add to your understanding of the lesson?

E Why does the author include this little map here?

1 pt *It shows you more details about the area where the colonists lived; it shows colonial ports; there is not space on the big map to label the cities; or any other appropriate response.*

How do these maps add to your understanding of the lesson?

1 pt *They help you understand how the triangular trade works; they help you visualize how goods moved; or any other appropriate response.*

Interpreting Graphics Lesson 2: *Colonial Trade*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box B and the maps.

How are the global wind patterns related to the surface currents?

A: *They follow similar patterns.*

- Look at the Global Wind Patterns map.

Why are winds that travel to the northeast known as South Westerlies?

A: *They come from the southwest.*

- Look at Guided reading Box D.

Why is it now possible to trade fish and meat with countries all over the world?

A: *We have refrigeration, airplanes, etc.*

- Look at the Triangular Trade map.

What was Africa's biggest export?

A: *Slaves.*

How did that export change our country?

A: *Slavery grew; the Civil War was fought; we now have many African American citizens; etc.*

Interpreting Graphics Lesson 2: *Colonial Trade*

Standards Links

Social Studies 5.1.10 - Examine the causes and consequences of the establishment of slavery and describe how slavery became an issue that began to divide the Northern and Southern colonies.

Suggested Activity: Discuss with students that the Middle Passage was a main route of slaves from Africa to the colonies. Discuss how the production of exports was related to slavery and the problems this association led to.

Art 5.1.3 Identify themes and symbols used in works of art and artifacts throughout history that portray universal ideas and beliefs.

Suggested Activity: Examine numerous paintings of the sea. Have students discuss the themes presented in the different pieces of artwork for similarities and differences. Possible art works include:

Mary Cassatt, *The Boating Party*

Mary Cassatt, *Children Playing on the Beach*

Casper David Friedrich, *Monk by the Sea*

Katsushika Hokusai, *The Great Wave off Kanagawa (Thirty-Six Views of Mount Fuji)*

Winslow Homer, *The Gulf Stream*

Edward Hopper, *Rooms by the Sea*

John Marin, *Sea and Rocks Movement*

Claude Monet, *A Stormy Sea*

Claude Monet, *Sea at Fecamp*

Thomas Moran, *The Much Resounding Sea*

Pierre-Auguste Renoir, *Sunset at Sea*

JMW Turner, *The Slave Ship*

Vincent Van Gogh, *Starlight over the Rhône*

James McNeill Whistler, *Symphony in Grey and Green*

Interpreting Graphics Lesson 3:

Farming in the United States

Reading Difficulty: 5.5

Guided Reading Boxes: 4

Vocabulary

- cash crop
- plantation
- temperate climate

Skills and Standards

English/Language Arts Focus:

- 5.2.1 Use the features of informational texts, such as formats, graphics, diagrams, illustrations, charts, maps, and organization, to find information and support understanding.

Social Studies Standards Addressed:

- 5.1.8 Locate the 13 British colonies that became the United States and describe their political, social, and economic organization and structure.
- 5.3.2 Name and locate states, major cities, major regions, major rivers, and mountain ranges in the United States.
- 5.3.8 Identify the major manufacturing and agricultural regions in colonial America and cite ways that agriculture and manufacturing have changed in the past and continue to change.
- 5.3.9 Interpret historical maps and create maps of the United States in different historical periods using map elements, such as title, legend, directional indicator, scale, and projection.
- 5.3.11 Give examples of how specific physical features influenced historical events and movements.
- 5.4.2 Summarize a market economy and give examples of how the colonial and early American economy exhibited these characteristics.
- 5.4.5 Use economic reasoning to explain why certain careers are more common in one region than in another and how specialization results in more interdependence.
- 5.5.1 Describe basic needs that individuals have in order to survive — such as the need for food, water, shelter, and safety — and give examples of how people in early America adapted to meet basic needs.

Science Standards Addressed:

- 5.4.4 Explain that in any particular environment, some kinds of plants and animals survive well, some do not survive as well, and some cannot survive at all.
- 5.6.2 Demonstrate how geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representation can never be exact in every detail.

Mathematics Standards Addressed:

- 5.1.4 Interpret percents as a part of a hundred. Find decimal and percent equivalents for common fractions and explain why they represent the same value.
- 5.3.7 Use information taken from a graph or equation to answer questions about a problem situation.
- 5.6.1 Explain which types of displays are appropriate for various sets of data.

Background Prompt

Do you know any farmers? Do you think that Indiana has a lot of farmers compared to other states?

Interpreting Graphics Lesson 3: Farming in the United States

LESSON 3

INTERPRETING GRAPHICS

VOCABULARY

- cash crop
- plantation
- temperate climate

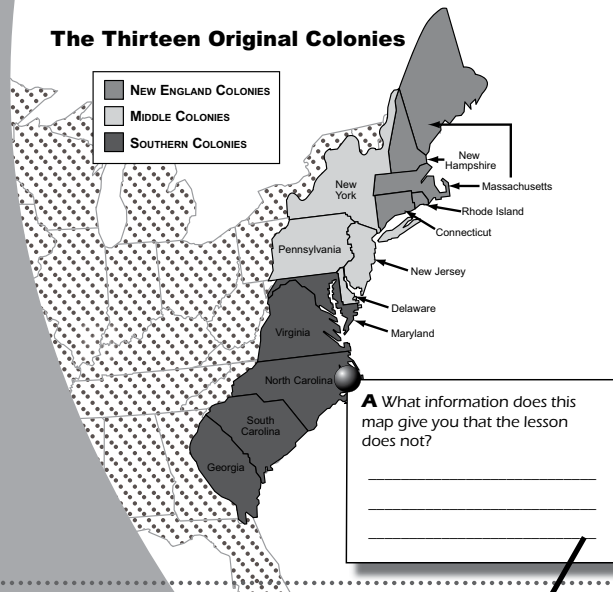
MAIN IDEA

Farming has always been an important part of American life.

Farming in the United States

Farming has always been an important part of how land is used in the United States. In fact, one of the first things that colonists did when they reached America was to set up farms. All of the 13 original colonies had farms. These colonies can be grouped based on the region in which they are found: New England Colonies, Middle Colonies, and Southern Colonies. Each of these three major regions had different types of farms.

The Thirteen Original Colonies



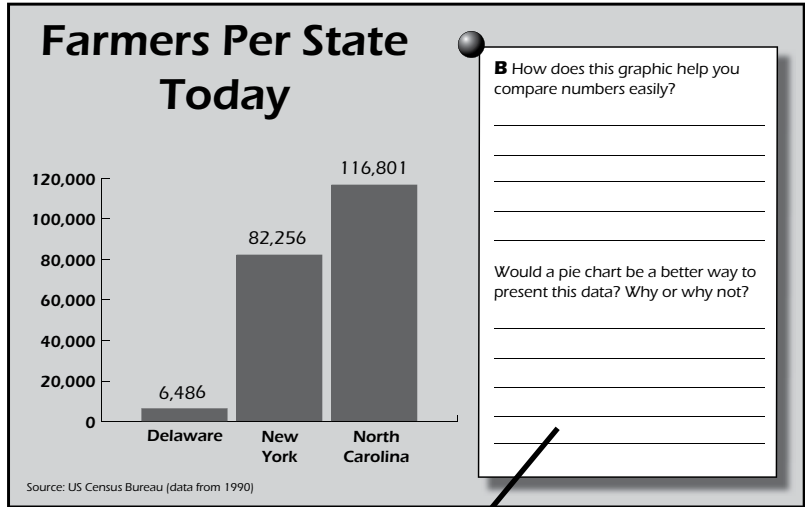
Standards Addressed: Sci: 5.4.4, 5.6.2 Math: 5.1.4, 5.7.7, 5.6.1 Soc: 5.1.8, 5.3.2, 5.3.8, 5.3.9, 5.3.11, 5.4.2, 5.4.5, 5.5.1

1

A What information does this map give you that the lesson does not?

1 pt *It shows which present-day states made up each grouping; it shows where the states containing the original colonies were located; or any other appropriate response.*

Interpreting Graphics Lesson 3: Farming in the United States



B How does this graphic help you compare numbers easily?

Would a pie chart be a better way to present this data? Why or why not?

Farming in New England

In colonial times, most of the farms in the New England Colonies were very small. There were several reasons for this. One is that winters in New England are long and cold. Because of this, the growing season is short. Another reason is that the land is rocky and the soil is not the best for farming. Most of the crops that were grown in the New England Colonies were grown as food for the colonists. They were not sold to other colonies. Since they could not grow enough crops to make a lot of money, most New Englanders looked for other jobs. These jobs included whaling and shipbuilding. Furs and products of the New

these crops to other colonies and even to other countries. Farmers in the Middle Colonies were successful because of the region's climate. The Middle Colonies have a more temperate climate than the New England Colonies. This makes the growing season longer. More crops can be grown each season. A **temperate climate** is a mild one without extreme heat or cold. Another reason that many crops were grown in this region is that the soil is fertile and good for growing. During colonial times, people in this region were able to grow wheat, barley, oats, rye, and corn. The flour they produced was desired by other American colonies as well as people who lived overseas.

Farming in the Southern Colonies

The Southern Colonies had the longest growing season. This region is often very hot. But the crops that grew there could survive the hot summers. The Southern colonies were home to many large plantations.

Middle Colonies

the New England
the Middle Colonies
lot of crops. They sold

B How does this graphic help you compare numbers easily?

1 pt *You can easily see the differences between numbers; you can quickly see which is biggest/smallest.*

Would a pie chart be a better way to present this data? Why or why not?

1 pt *No. A pie chart represents parts in relation to a whole; these three states do not make a whole; or any other appropriate response.*

Interpreting Graphics Lesson 3: Farming in the United States

C Why do you think the author chose to use pie charts to represent this data?

1 pt It shows a part in relation to the whole; it allows you to quickly see what percentage of the population farms; or any other appropriate response.

was a large farm that also
s or craftspeople working
s had almost anything that
need. A single plantation
lacksmiths, weavers, basket
and many more skilled
ions existed to produce cash
rop is a crop that is grown
of making money rather than
her's family. Cash crops for the
es included rice, indigo, and

Farming Today

In colonial times, more than 70 percent of people were farmers. While some only grew crops for their own family, others grew cash crops to make a profit. Today our country has grown to include 50 states. All 50 states have farmers. Though farming is still an important way of life, most people are not farmers. Less than 10 percent of the population of the United States farms for a living today.

Percent of State Population who are Farmers Today

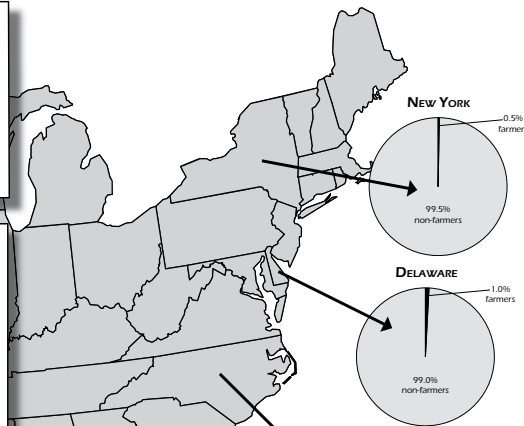
C Why do you think the author chose to use pie charts to represent this data?

D Compare this data to the data in the graphic on page 2. Does the state with the highest percentage of farmers have the highest number of farmers?

Does the state with the lowest percentage of farmers have the lowest number of farmers?

What can comparing both graphics tell you?

Source: US Census Bureau County & City Data Book, 2000



D Compare this data to the data in the graphic on page 2. Does the state with the highest percentage of farmers have the highest number of farmers?

1 pt Yes.

Does the state with the lowest percentage of farmers have the lowest number of farmers?

1 pt No.

What can comparing both graphics tell you?

1 pt It helps you understand how states compare to each other based on the number of farmers and percentage of farmers, or any other appropriate response.

Interpreting Graphics Lesson 3: *Farming in the United States*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box A.

Does the graphic show you where the colonies themselves were located?

A: *No. It only shows the present-day states where the colonies were located.*

Where could you look to find the exact location of the original colonies?

A: *You could look in a social studies book, an encyclopedia, on the Internet, etc.*

- Look at the map on page 1.

The arrow for Massachusetts points to two different areas? Why?

A: *Originally both of these areas were considered Massachusetts colonies.*

What state did the northern section of the Massachusetts colonies become?

A: *Maine*

- Look at Guided Reading Box D.

Why doesn't the state with the lowest percentage of farmers (New York) also have the lowest number of farmers?

A: *New York has a large population, so even though a small percentage of that population farms for a living, there are still more farmers than there are in other states with smaller populations.*

Interpreting Graphics Lesson 3: *Farming in the United States*

Standards Links

Health 5.1.4 - Describe the basic structure and functions of the human body systems.

Suggested Activity: Have students create a graphic that shows corn from seed to farm to the digestive system.

Mathematics 5.1.2 - Round whole numbers and decimals to any place value.

Mathematics 5.1.3 - Arrange in numerical order and compare whole numbers or decimals to two decimal places by using the symbols for less than (<), equals (=), and greater than (>).

Suggested Activity: Have students compare agriculture data from the USDA's National Agriculture Statistics Service by rounding and comparing numbers (see **Useful Web Sites on page 117**).

Interpreting Graphics Lesson 4:

Ellen Semple and the Study of Human Geography

Reading Difficulty: 5.2

Guided Reading Boxes: 5

Vocabulary

- environment
- human geography

Skills and Standards

English/Language Arts Focus:

- 5.2.1 Use the features of informational texts, such as formats, graphics, diagrams, illustrations, charts, maps, and organization, to find information and support understanding.

Social Studies Standards Addressed:

- 5.3.2 Name and locate states, major cities, major regions, major rivers, and mountain ranges in the United States.
- 5.3.3 Compare the locations of cities today with American Indian and colonial settlements and suggest reasons for the locations of these places, such as near bodies of water, on a lowland, along a transportation route, and near natural resources or sources of power.
- 5.3.9 Interpret historical maps and create maps of the United States in different historical periods using map elements, such as title, legend, directional indicator, scale, and projection.

Science Standards Addressed:

- 5.1.3 Explain that doing science involves many different kinds of work and engages men, women, and children of all ages and backgrounds.
- 5.6.2 Demonstrate how geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representation can never be exact in every detail.

Background Prompt

What is the environment of Indiana like? Do you think your life would be different if you lived somewhere else?

Interpreting Graphics Lesson 4: Ellen Semple and the Study of Human Geography

BIOGRAPHY

LESSON 4

INTERPRETING GRAPHICS

Ellen Semple and the Study of Human Geography



Courtesy of the Margaret I. King Library Special Collection, University of Kentucky

Ellen Churchill Semple was one of the first human geographers in the United States. Becoming a geographer was not an easy task for a woman of her time. Semple was born on January 8, 1863, in Louisville, Kentucky. She liked to read books about history and travel. When she was 16, she went to New York for college. Back then, mostly men went to college. Yet Semple graduated with the highest grades in her class. After college, she came back and worked in Kentucky.

human geography
the study of people and their environment

Later, Semple went to Germany, where she studied geography. There she met a geographer named Ratzel. She was interested in his ideas about human geography and she wanted to learn more. Even though the universities in Germany would not give degrees to women, Semple was allowed to listen to lectures.

environment
one's surroundings including climate, landforms, habitat, and other living things

She brought the information she learned back to the United States. She wanted to study the people of the United States and how their environments influenced them. She started her work in Kentucky. She studied the people who lived in the Appalachian Mountains. She wrote an article about how their lives were different from those of people who did not live in the mountains. In 1903, Semple wrote a book. It explained how the natural environment influenced the growth of our country. She explained how the United States grew from its first settlements along the Atlantic Coast. She explained that railroads and roads were influenced by the physical features of the land such as mountains and rivers. She pointed out that when people moved west, they followed the pattern of rivers.

Semple believed people's environments determine who they will be. She studied people in the United States and around the world. Her writings inspired many students to study geography. In fact, one man, Charles C. Smith, said that her article about people in the Appalachian Mountains of Kentucky, "fired more interest in geography by American students than any other article ever written."

A Study this picture. Why did the author include it?

What can you learn about Ellen Semple from the photo? Can you tell approximately when she lived? Explain.

Can you tell that she was a geographer? Explain.

A Study this picture. Why did the author include it?

1 pt It shows what Ellen Semple looked like; it makes the lesson more interesting; or any other appropriate response.

What can you learn about Ellen Semple from the photo? Can you tell approximately when she lived? Explain.

1 pt Yes. You can tell approximately when she lived by her clothes; her clothes look like they are from the 19th century; or any other appropriate response.

Can you tell that she was a geographer? Explain.

1 pt No. There is no evidence that she is a geographer.

Standards Addressed: Soc 5.3.2, 5.3.3, 5.3.9
Sci 5.1.3, 5.6.2

Interpreting Graphics Lesson 4: Ellen Semple and the Study of Human Geography

B Observe the photos. What geographical features do you see? List at least two.

2 pts *Accept any two of the following for 1 pt each: ocean, mountains, or any other reasonable answer from the graphic.*

How would the land influence the people living here?

1 pt *People might be expert swimmers/surfers; they might be used to tropical storms; they know how to handle hot weather; they might not travel to other states; or any other appropriate response related to the graphic.*

SEMPE

B Observe the photos. What geographical features do you see? List at least two.

How would the land influence the people living here? _____



C This photo was taken from the ground. Compare it to the photo of Hawaii. Why would the author choose to show the Great Plains this way?

How would the lives of people living here differ from those of people living in Hawaii?

D How would the lives of people who live here be different from those of people living in Nebraska?

1 pt *People would be used to colder weather; they might be more practiced at skiing; they might be better mountain climbers; or any other appropriate response related to the graphic.*

D How would the lives of people who live here be different from those of people living in Nebraska?



This photo shows the Great Plains west of Kearney, Nebraska.

E How do photos add information to the map graphic?



_____ and Teton mountains are found in Wyoming.

C This photo was taken from the ground. Compare it to the photo of Hawaii. Why would the author choose to show the Great Plains this way?

1 pt *It shows how flat the ground is; you can see what it looks like when you are there; it makes it look like you are there; or any other appropriate response.*

How would the lives of people living here differ from those of people living in Hawaii?

1 pt *The people would grow different crops; they would be used to colder weather; they might not be as good at water sports; or any other appropriate response related to the graphic.*

E How do photos add information to the map graphic?

1 pt *They show what different parts of the country look like up close; they make the map more interesting; or any other appropriate response.*

Interpreting Graphics Lesson 4: *Ellen Semple and the Study of Human Geography*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box A.

What would you add to the graphic to show that Ellen Semple was a geographer?

A: *You could add a caption that tells her profession; you could show her looking at maps, etc.*

- Look at Guided Reading Boxes B, C, and D.

How did you answer these questions?

A: *Students might say that they thought about the region's climate and how it might affect life, that they thought about what sports or activities might be popular because of the environment, etc.*

Are the answers that you chose true about everyone who lives in these regions?

A: *No. They are generalizations. Not everyone who lives in Hawaii is able to surf, and not everyone who lives in Wyoming can ski.*

How are you affected by your environment?

A: *Answers will vary. Ask students to explain their answers.*

Interpreting Graphics Lesson 4: *Ellen Semple and the Study of Human Geography*

Standards Links

English/Language Arts 5.4.4 - Use organizational features of printed text, such as citations, endnotes, and bibliographic references, to locate relevant information

Suggested Activity: Explain that because Ellen Semple wrote non-fiction, her books were full of citations, endnotes, and bibliographic information. Have students choose non-fiction books and examine them for text features.

Health 5.4.2 Describe how culture influences personal health behavior.

Suggested Activity: Discuss how Semple's work focused on how one's environment can influence human behavior. Have students discuss how culture too can affect one's behavior, especially regarding attitudes toward what are considered healthy behaviors.

Interpreting Graphics Lesson 5: *Measuring Temperature*

Reading Difficulty: 4.8

Guided Reading Boxes: 6

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

- Celsius scale
- degree
- Fahrenheit scale

Skills and Standards

English/Language Arts Focus:

- 5.2.1 Use the features of informational texts, such as formats, graphics, diagrams, illustrations, charts, maps, and organization, to find information and support understanding.

Social Studies Standards Addressed:

- 5.3.2 Name and locate states, major cities, major regions, major rivers, and mountain ranges in the United States.
- 5.3.5 Map and describe the characteristics of climate regions of the United States.

Science Standards Addressed:

- 5.1.3 Explain that doing science involves many different kinds of work and engages men, women, and children of all ages and backgrounds.
- 5.2.1 Multiply and divide whole numbers mentally, on paper, and with a calculator.
- 5.5.1 Make precise and varied measurements and specify the appropriate units.
- 5.6.2 Demonstrate how geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representation can never be exact in every detail.

Mathematics Standards Addressed:

- 5.2.1 Solve problems involving multiplication and division of any whole numbers.
- 5.5.6 Compare temperatures in Celsius and Fahrenheit, knowing that the freezing point of water is 0°C and 32°F and that the boiling point is 100°C and 212°F.

Background Prompt

How do you think the temperature in Indiana today compares to temperatures in other states?
How could you find out?

USING MATH

LESSON 5

INTERPRETING GRAPHICS

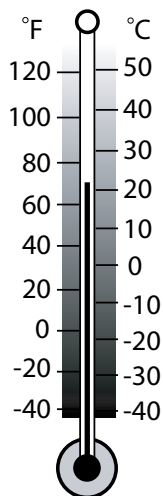
Measuring Temperature

In the United States, we measure temperature using the **Fahrenheit Scale**. But in many other parts of the world, people use a different scale to measure temperature—the **Celsius Scale**. Both scales are divided into a unit of measurement known as a **degree**. Temperatures are often written using the degree symbol (°).

On the Fahrenheit Scale, water freezes at 32° and boils at 212°. On the Celsius Scale, water freezes at 0° and boils at 100°.

Many thermometers are marked in both degrees Fahrenheit and degrees Celsius. All you need to do to convert from degrees Celsius to degrees Fahrenheit is to look at the other side of the thermometer.

Not all thermometers are marked in both degrees Celsius and degrees Fahrenheit. How can you convert, or change a temperature in degrees Celsius to one in degrees Fahrenheit? A quick way to estimate the temperature in degrees Fahrenheit is to multiply the temperature in degrees Celsius by two and then add 30.

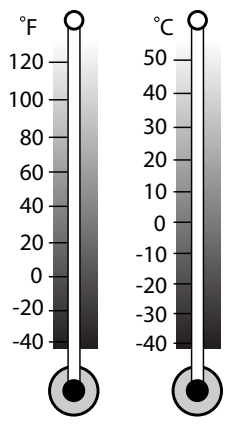


A temperature of 20°C is equal to approximately 70°F.

VOCABULARY

Celsius Scale
degree (°)
Fahrenheit Scale

B Complete the graphic to show the temperature at which water freezes in degrees Fahrenheit and Celsius.



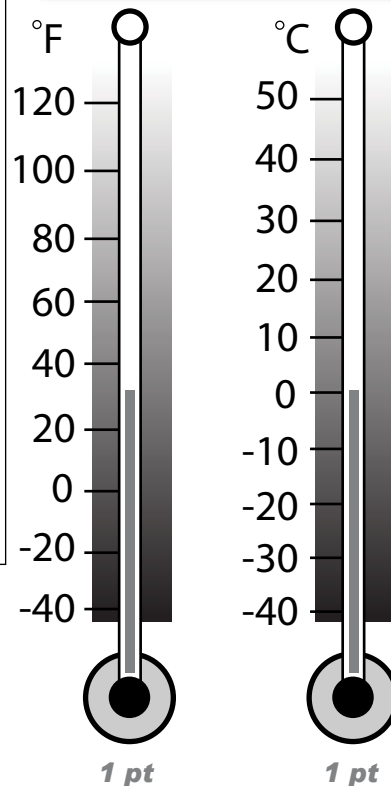
B Complete the graphic to show the temperature at which water freezes in degrees Fahrenheit and Celsius. (see below)

A What comparisons can you make between the Fahrenheit Scale and the Celsius Scale from looking at this graphic? Write at least two.

1 Standards Addressed: Soc: 5.3.2, 5.3.5
Sci: 5.1.3, 5.2.1, 5.5.1, 5.6.2 Math: 5.2.1, 5.5.6

A What comparisons can you make between the Fahrenheit Scale and the Celsius Scale from looking at this graphic? Write at least two.

2 pts Accept any two of the following for 1 pt each: Numbers are higher on the Fahrenheit scale than on the Celsius scale; numbers are lower on the Celsius scale than on the Fahrenheit scale; 120° Fahrenheit is equal to 50° Celsius; -40° Celsius is equal to -40° Fahrenheit; or any other appropriate response.



Interpreting Graphics Lesson 5: *Measuring Temperatures*

C Why would the author choose to include graphics of the states with these temperatures?

1 pt *It makes the information more interesting to look at; it shows where cities are located; or any other appropriate response.*

C Why would the author choose to include graphics of the states with these temperatures?

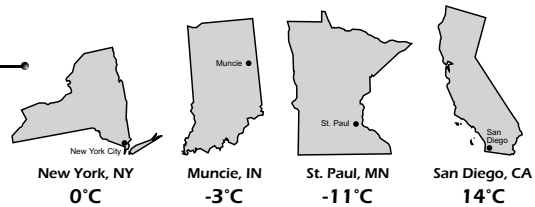
A temperature of 20 degrees Celsius is equal to approximately how many degrees Fahrenheit?

$$20 \times 2 = 40$$

$$40 + 30 = 70$$

20° C is equal to approximately 70° F.

The picture below shows the average January temperatures of four cities in the United States. What are their approximate temperatures in degrees Fahrenheit?



D Do these graphics help you understand the difference between degrees Celsius and Fahrenheit?

Write one reason why or why not. _____



The Fahrenheit Scale was named for Daniel Gabriel Fahrenheit (1686-1736), a German physicist.



The Celsius Scale was named for Anders Celsius (1701-1744), a Swedish astronomer.

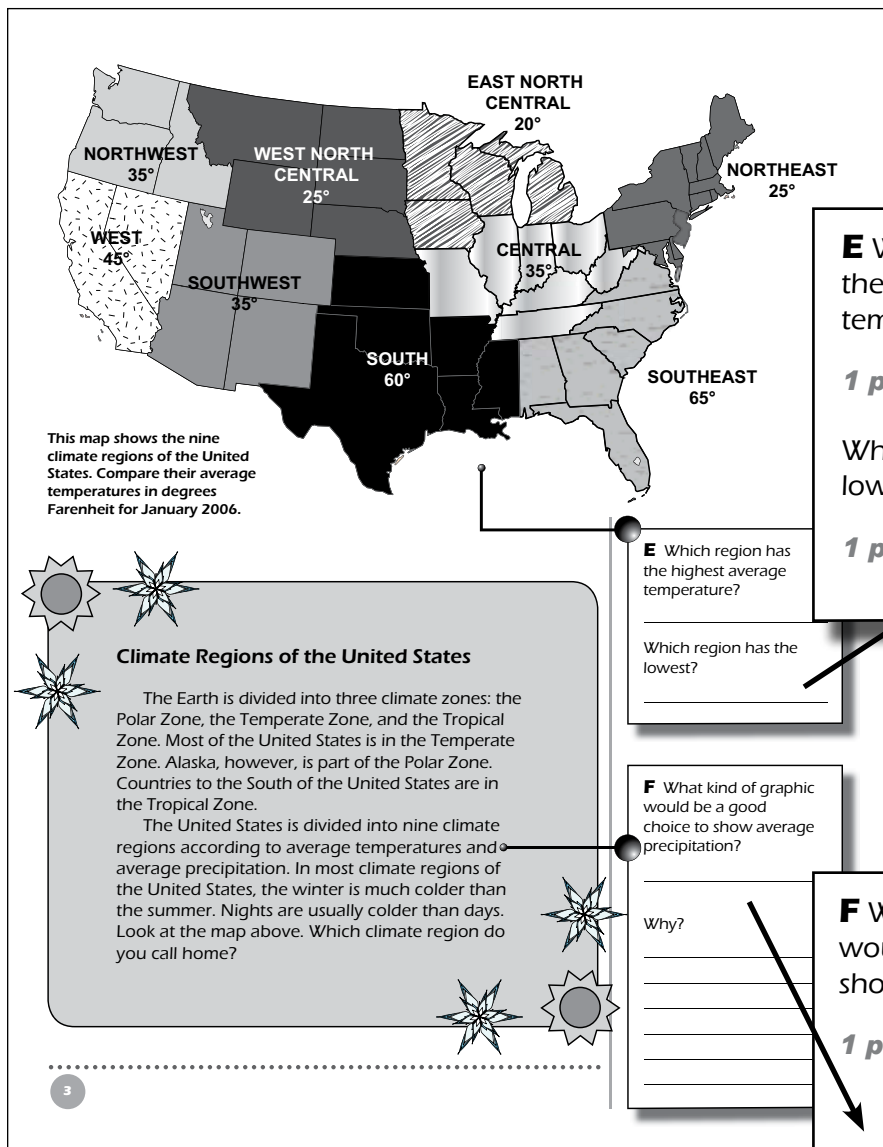
D Do these graphics help you understand the difference between degrees Celsius and Fahrenheit?

1 pt *No*

Write one reason why or why not.

1 pt *These are only pictures of the men the scales were named after; there is no information about the degrees; or any other appropriate response.*

Interpreting Graphics Lesson 5: *Measuring Temperature*



E Which region has the highest average temperature?

1 pt Southeast

Which region has the lowest?

1 pt East North Central

E Which region has the highest average temperature?

Which region has the lowest?

F What kind of graphic would be a good choice to show average precipitation?

Why?

F What kind of graphic would be a good choice to show average precipitation?

1 pt Good choices include a map like the one above, a bar or line graph, or any other appropriate response that is justified below.

Why?

1 pt It allows you to quickly see the differences between climate regions, or any other appropriate response.

Interpreting Graphics Lesson 5: *Measuring Temperature*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box C.

Do these graphics help you compare temperatures in different regions of the country?

A: *The answer will depend on whether students know where these states are located on a map.*

Would having a map of the entire United States help you understand this graphic better?

A: *Answers will vary. Ask students to justify their answers.*

- Look at the map on page 3.

Which climate region do we live in?

A: *Indiana is in the Central region.*

How does our average January temperature compare to that of other climate regions?

A: *It is the same as the Northwest and Southwest, higher than the West North Central, East North Central, and Northeast, and lower than the West, South, and Southeast.*

Interpreting Graphics Lesson 5: *Measuring Temperature*

Standards Links

English/Language Arts 5.4.5 - Use note-taking skills when completing research for writing.
Science 5.4.4 - Explain that in any particular environment, some kinds of plants and animals survive well, some do not survive as well, and some cannot survive at all.

Suggested Activity: Have students choose a climate region and research what different habitats are found there. Have them choose one of these, take notes, and write a brief paragraph about what kinds of organisms live there, and what kinds are absent. Have students compare what they found out and use the information to draw conclusions about what kinds of organisms can survive in what kinds of environments.

Mathematics 5.6.1 - Explain which types of displays are appropriate for various sets of data.
Mathematics 5.6.2 - Find the mean, median, mode, and range of a set of data and describe what each does and does not tell about the data set.

Suggested Activity: Have students collect temperature data every morning for a week (alternately, have students use the Internet to collect information). Have them use the data collected to create an appropriate graphic. Have them find the mean, median, mode, and range of the set of data.

Interpreting Graphics: *Geography*

Concluding Project Rubric

The following rubric is provided to assist you in scoring the culminating project for the Geography set. It is intended only as a guide. Feel free to adjust the scoring to reflect your own teaching goals and expectations.

Step 1: Examine a Map (30 pts.)

- ___ /6 points Student lists three important cities in the chosen state and explains why they are important.
- ___ /9 points Student lists latitude and longitude for three cities in the state.
- ___ /5 points Student records geographical features of the state.
- ___ /5 points Student calculates the distance between two locations in the state.
- ___ /5 points Student demonstrates knowledge about the state through map understanding.

___ TOTAL

Step 1: Examine a Map

Name: _____ Date: _____

State: _____ Map Title: _____
Date of Map: _____

1. What are some important cities in this state? How do you know they are important?

2. List the closest latitude and longitude to three of these cities.

Place _____ Latitude _____ Longitude _____

Place _____ Latitude _____ Longitude _____

Place _____ Latitude _____ Longitude _____

3. What geographical features can be found in the state?

mountains volcanoes
 rivers beaches
 lakes islands
 plains wetlands
 deserts

4. Determine the distance between major cities on your map—these can be cities, towns, or places.

Place 1 _____ to _____ Place 2 _____ # _____ units

Place 1 _____ to _____ Place 2 _____ # _____ units

5. What did you learn about the state by examining the map?

Interpreting Graphics Concluding Project 2

Step 2: Examine a Picture (40 pts.)

Picture A

- ___ /5 points Student records identifying information about the picture.
- ___ /5 points Student records details about the picture.
- ___ /10 points Student demonstrates knowledge about the state through pictures.

Picture B

- ___ /5 points Student records identifying information about the picture.
- ___ /5 points Student records details about the picture.
- ___ /10 points Student demonstrates knowledge about the state through pictures.

___ TOTAL

Step 2: Examine a Picture (B)

Name: _____ Date: _____

Picture B

Title: _____

Date: _____

Type (journal, landscape, event, etc.): _____

Look at the picture for three minutes. Look for as many details as you can. Record your details below. Include:

- common activities
- state symbol
- flag
- foods
- buildings
- type of transportation
- language
- weather
- people
- animals
- products made

Picture Details: _____

What information have you learned from this picture about the state?

Interpreting Graphics Concluding Project 3

Interpreting Graphics: *Geography*

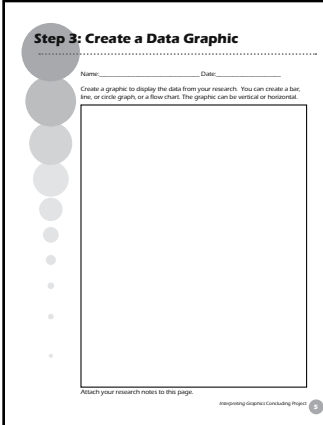
Scoring Rubric Concluding Project

Step 3: Create a Data Graphic (30 pts.)

- ___ /5 points Graphic that is created is readable.
- ___ /5 points Graphic displays numerical data.
- ___ /5 points Graphic display is appropriate for the type of data.
- ___ /5 points Graphic shows data for the chosen state.
- ___ /5 points Graphic is original, student created.
- ___ /5 points Research on data is included as notes.

___ TOTAL

___ / 100



Step 3: Create a Data Graphic

Name: _____ Date: _____

Create a graphic to display the data from your research. You can create a bar, line, or circle graph, or a flow chart. The graphic can be vertical or horizontal.

Attach your research notes to this page.

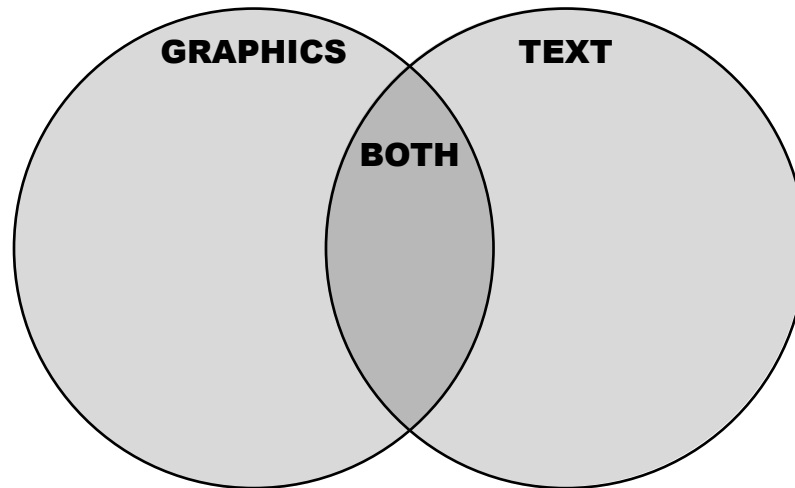
Interpreting Graphics Concluding Project 3

Interpreting Graphics: *Geography*

Teacher Tools

Additional Practice Activities:

- **Graphic Organizer:** To help students see the relationship between important graphics and the text, have students create a Venn diagram. Have students list information that they can discover from the text on one side, the graphics on the other, and information that is in both the text and the graphics in the middle.



- To help students pay attention to captions on graphics, have them write some of their own. Photocopy graphics from textbooks. Cut off the captions and have students practice matching the graphics to the correct captions, or have them write their own captions.

Extension Activities:

- Have students search the Internet to find graphics to illustrate a recent lesson in science or social studies. Have them analyze the graphics and explain why they chose them. Have them make up new captions for the graphics.
- Have students create graphics for a lesson in one of their textbooks. Have them exchange and interpret these graphics with a partner.
- Have students compare graphics used in different sources for the same topic (i.e. compare graphics from two encyclopedias on Brazil, or two magazine articles on a political event). Ask students to discuss similarities and differences found.

Interpreting Graphics: *Geography*

Teacher Tools

Useful Web Sites:

Please note that web site content may change at any time.

Maps

<http://www.earlyamerica.com/earlyamerica/maps/index.html>
<http://www.eduplace.com/ss/maps/historical.html>

Portraits

<http://www.earlyamerica.com/portraits/index.html>

Lesson Plans on Latitude, longitude, and mapmaking

<http://www.nationalgeographic.com/xpeditions/lessons/01/g68/mapmaking.html>

Knox Trail

<http://www.nysm.nysed.gov/services/KnoxTrail/index.html>

Henry Knox museum

<http://www.generalknoxmuseum.org>

Geography, US states sites

<http://www.proteacher.com/090027.shtml>
http://www.mcps.k12.md.us/curriculum/socialstd/Geog_Web.html
<http://www.50states.com/>
<http://math.rice.edu/~lanius/pres/map/mapsca.html>
http://www.educationworld.com/a_special/geography_aware_98.shtml
http://www.winthrop.k12.ma.us/Center/geography_webquest.htm
<http://www.teachers.net/lessons/posts/2188.html>
<http://www.primarysourcelearning.org/teach/wq/001/index.htm>

Geography Vocabulary

http://nhcs.k12.in.us/staff/bburson/webcreation/socialstudies/5th_grade_sstudies_vocab.htm
<http://www.studystack.com/studytable-7483>
<http://www.studystack.com/category-1>
<http://nanunet.lhric.org/highviewelem/Grade4/Gr4sskeywords.htm>
<http://nanunet.lhric.org/highviewelem/grade5/Gr5sskeywords.htm>

Revolutionary War Activities

<http://inquiryunlimited.org/stand/amrevstandELA.html>

My Brother Sam is Dead links

<http://www.mec.edu/holliston/teachers/ashef/brosamdead.htm>
http://ww2.sjc.edu/student_pages/ptaylor/Internetlesson.htm
Revolutionary War artillery info <http://www.americanrevolution.org/artillery.html>

Emily Geiger Links

http://www.libertyskids.com/pt_play_emilygeiger.html Emily Geiger play
Article on Emily Geiger <http://www.historyswomen.com/earlyamerica/EmilyGeiger.html>
Copy of a map from Ellen Semple's work <http://www.csiss.org/classics/content/24>

Agriculture statistics

<http://www.nass.usda.gov/index.asp>

Making Inferences Lesson 1: *Early Navigational Tools*

Reading Difficulty: 5.0

Guided Reading Boxes: 7

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

- lead line
- log
- magnetic compass
- navigate

Skills and Standards

English/Language Arts Focus:

- 5.2.4 Draw inferences, conclusions, or generalizations about text and support them with textual evidence and prior knowledge.

Social Studies Standards Addressed:

- 5.1.4 Trace the major land and water routes of European explorers of the Caribbean region and North America and examine their individual stories and reasons for exploration.
- 5.5.1 Describe basic needs that individuals have in order to survive — such as the need for food, water, shelter, and safety — and give examples of how people in early America adapted to meet basic needs.

Science Standards Addressed:

- 5.2.4 Keep a notebook to record observations and be able to distinguish inferences from actual observations.
- 5.2.7 Read and follow step-by-step instructions when learning new procedures.

Mathematics Standards Addressed:

- 5.3.7 Use information taken from a graph or equation to answer questions about a problem situation.

Background Prompt

What could you do if you wanted to measure the depth of a lake, but you only had a twelve-inch ruler, a rope, and a rock?

Making Inferences Lesson 1: *Early Navigational Tools*

ACTIVITY!

LESSON 1

MAKING INFERENCES

VOCABULARY

- lead line
- log
- magnetic compass
- navigate

MAIN IDEA

Early explorers had many navigational tools, but they were not very accurate.

Early Navigational Tools

Today we have computers and satellites to guide ships. But long ago, explorers did not have these tools to help them navigate. To **navigate** means to plan and control a course of travel. Instead, early explorers had to rely on simple tools. These tools included the magnetic compass, the log, and the lead line. Although these tools helped explorers navigate, they were not very accurate.

The Magnetic Compass

You are probably familiar with one of the most common tools used by early explorers—the magnetic compass. A **magnetic compass** is a tool that indicates geographic direction. A compass works because its magnetic needle always points toward Earth's North Pole. The magnetic compass showed early navigators which direction was north. But early compasses were not very accurate. Navigators also had to rely on the position of the North Star and the sun's location at noon, sunrise, and sunset to find direction.



The needle on a magnetic compass always points north.

A *Navigator* is not defined in the text. What other word in this paragraph can you use to infer its meaning?

A *Navigator* is not defined in the text. What other word in this paragraph can you use to infer its meaning?

1 pt *navigate*

Write a definition of *navigators*.

1 pt *Navigators are people who plan and control a course of travel, or any other appropriate response.*

B Infer: How would the sun's location at noon, where the sun rose, and set help a sailor find direction?

Why would it be easier to use a compass?

B Infer: How would the sun's location at noon, where the sun rose, and set help a sailor find direction?

1 pt *If the sailor knew where the sun would be at those times, s/he would then have to look at the sun's position and know the time of day to know where s/he was, or any other appropriate response.*

Why would it be easier to use a compass than the sun's location?

1 pt *You would not need prior knowledge of the sun positions; you would only need direction; it might be dark; or any other appropriate response.*

Standards Addressed: Soc: 5.1.4, 5.5.1
Sci: 5.2.4, 5.2.7 Math: 5.3.7

1

Making Inferences Lesson 1: *Early Navigational Tools*

C The lesson does not tell you what a sand-glass is, but it does tell you it was used to measure. Using what you know, write a definition of *sand-glass*.

1 pt *A sand-glass is a glass full of sand that runs from one side of the glass to another and is used to measure time; a sand-glass is an hour-glass; or any other appropriate response.*

C The lesson does not tell you what a sand-glass is, but it does tell you it was used to measure. Using what you know, write a definition of *sand-glass*.

D The paragraph tells what happened if the ship sailed away slowly. Use this information to infer what would happen if the ship sailed away quickly.

1 pt *A lot of rope would be pulled into the water.*

How did you make your inference?

1 pt *I looked at what would happen if the boat moved slowly and inferred that the opposite would happen if it moved fast; or any other appropriate response.*

D The paragraph tells what happened if the ship sailed away slowly. Use this information to infer what would happen if the ship sailed away quickly.

How did you make your inference?

E In your own words, explain how navigational tools today are different from those used hundreds of years ago. Write at least two sentences.

E In your own words, explain how navigational tools today are different from those used hundreds of years ago. Write at least two sentences.

1 pt *Early navigational tools were not very accurate, but tools today are; early tools were not very complex, but today's tools use computers and satellites; or any other appropriate response.*

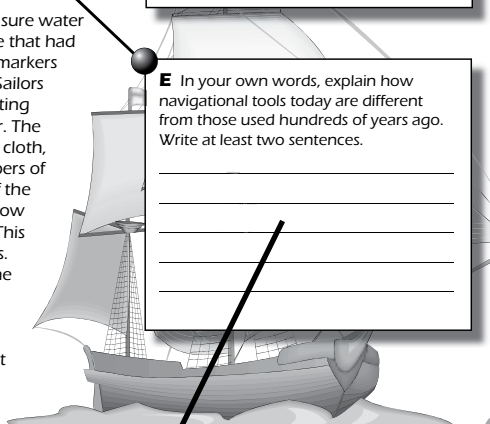
... they were behind their righted anchor. The rope had to measure into the water. ... main length of a sand-glass. ... verboard, ... ck and into ...

... m the log, more ... p the water. ... it would not ... pt very much ...

... of the rope would be pulled into the water. When the time was up, the log was pulled back onboard. As they pulled in the log, sailors counted the knots that had been in ...

... ship was figured ... the water. ... e term *knot* was ... water. A knot ...

... measure water ... rope that had ... red markers ... ard. Sailors ... y noting ... water. The ... red cloth, ... numbers of ... ng of the ... but how ... ard. This ... r was. ... of the ... fat. ... m ... ors ... what ... was pulled up from the bottom of the ocean.



2

MAKE A LEAD LINE

You can make a lead line like the ones used by the earliest navigators. Follow the instructions below.

- Materials:**
- string or yarn
 - scissors
 - a marker
 - 5 pieces of fabric or yarn in different colors
 - a ruler
 - a paperclip
 - paper and pencil
 - 4 glasses or beakers filled with different amounts of water

G Infer: How can you tell the depth of the water if the water level does not line up exactly with one of the fabric pieces?

1. Using your ruler, measure and cut a six inch piece of string or yarn. (Fig. 1)
2. Using your marker and ruler, make a mark at every inch on the string/yarn. You should have a mark at one inch, two inches, and so on.
3. Tie a different piece of colored fabric or yarn to each mark. Tie a paperclip to one end of the lead line. (Fig. 2)
4. Using your pencil and paper, make a chart to record the color of fabric/yarn that is closest to your paperclip. This first color/mark will indicate one inch of depth. The next mark will show two inches of depth. Continue recording until you have recorded a depth for each color/mark.
5. Drop your lead line, paperclip first, into the first glass of water. (Fig. 3)
6. Observe the color of the mark that is visible at or just above the top of the water.
7. Using your chart, calculate how much water is in the glass or beaker.
8. Record your results.
9. Repeat steps 6 through 9, until you have measured the water level in all 4 glasses/beakers.

G Infer: How can you tell the depth of the water if the water level does not line up exactly with one of the fabric pieces?

1 pt You can estimate by looking how close to the next fabric piece, or any other appropriate response.

F Infer: Why is it important to use different colors of fabric?

Fig. 1

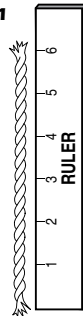


Fig. 2



Fig. 3



3

F Infer: Why is it important to use different colors of fabric?

1 pt It allows you to quickly tell the difference between different heights, or any other appropriate response.

Making Inferences Lesson 1: *Early Navigational Tools*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box B.

Sometimes the author assumes the reader already knows something about the topic. What does the author expect the reader to know before reading this paragraph?

A: *The sun appears at different places at different times of day; the North Pole is magnetic, etc.*

If you didn't already know these things, what could you do to make sense of what you are reading?

A: *You could look in a science textbook or an encyclopedia, etc.*

- Look at Guided Reading Box D.

This box asks you to infer by figuring out the opposite outcome from the one described in the text. If the writer states that "wearing sunscreen will protect a sailor from the sun's rays" what could you infer about a sailor who is not wearing sunscreen?

A: *He will not be protected from the sun.*

Look at the paragraph about the lead line. Can you infer what would happen if sailors did not know the meaning of the markers on the rope?

A: *They would not be able to figure out the depth of the water.*

Can you think of other examples where you need to infer the opposite of what is described in the text?

A: *Answers will vary. Ask students to explain their answers.*

Making Inferences Lesson 1: *Early Navigational Tools*

Standards Links

Health 5.1.5 - Describe how one's surroundings influence mental, emotional, social, and physical health.

Suggested Activity: Discuss some of the health problems associated with the long sailing voyages in cramped quarters (homesickness, scurvy, lice, fleas, lack of sleep, alcoholism, drowning, etc.).

Music 5.8.3 - Name some uses of music in everyday life.

Suggested Activity: Explain how sailors used the singing of shanties to work in rhythm when hoisting sails or pulling rope. Have students list other ways they know that music is used today (background in stores/elevators, relaxation, movie soundtracks, etc.).

Making Inferences Lesson 2: *Christopher Columbus*

Reading Difficulty: 5.4

Guided Reading Boxes: 6

Vocabulary

- retaliate
- sponsor

Skills and Standards

English/Language Arts Focus:

- 5.2.4 Draw inferences, conclusions, or generalizations about text and support them with textual evidence and prior knowledge.

Social Studies Standards Addressed:

- 5.1.4 Trace the major land and water routes of European explorers of the Caribbean region and North America and examine their individual stories and reasons for exploration.
- 5.1.6 Explain the religious, political, and economic reasons for movement of people from Europe to the Americas and describe the impact of exploration and settlement by Europeans on American Indians.

Science Standards Addressed:

- 5.2.4 Keep a notebook to record observations and be able to distinguish inferences from actual observations.

Health Standards Addressed:

- 5.1.5 Describe how one's surroundings influence mental, emotional, social, and physical health.

Background Prompt

What do you know about Christopher Columbus?

Making Inferences Lesson 2: Christopher Columbus

BIOGRAPHY

LESSON 2

MAKING INFERENCES

A Before you read the lesson, brainstorm what you know about Christopher Columbus.

How can brainstorming before you read help you make inferences while you read?

A Before you read the lesson, brainstorm what you know about Christopher Columbus.

1 pt Student should have written any fact or idea about Columbus.

How can brainstorming before you read help you make inferences while you read?

1 pt It helps you connect what you read with what you already know; or any other appropriate response.

B This paragraph tells you that the King and Queen sponsored Columbus, but it doesn't tell you why. Using what you know and what you read in the paragraph, infer why they would act this way.

Why is it important to ask yourself questions like this one and make inferences as you read?

Christopher Columbus

Christopher Columbus was born in 1451 in Genoa, Italy. He was interested in sailing and exploration. He believed the Earth was round and that he could sail across the Atlantic Ocean from Spain to reach the Indies. He needed a wealthy **sponsor** to fund his trip. In return, Columbus would bring back gold, spices, and silks. In 1492, Columbus was sponsored by King Ferdinand and Queen Isabella of Spain.

Columbus left Spain with three ships, the Niña, the Pinta, and the Santa Maria. On his first trip, many of his sailors died of disease, hunger, and thirst. They were only given one hot meal a day. The crew became restless, so Columbus offered to let the first person to see land. On October 12, a sailor aboard the Pinta was the first to see land. Columbus called it San Salvador. He did not find the riches he had hoped for, so he kept sailing. Everywhere he went, Columbus found native people whom he called *Indians* because he thought he was in the Indies. On March 15, 1493, Columbus left part of his crew behind and returned to Spain. He was welcomed in Spain as a hero.



Christopher Columbus

Standards Addressed: Soc: 5.1.4, 5.1.6
Sci: 5.2.4, Health: 5.1.5

C Infer: Why did Spain consider Columbus a hero?

B This paragraph tells you that the King and Queen sponsored Columbus, but it doesn't tell you why. Using what you know and what you read in the paragraph, infer why they would act this way.

1 pt They wanted the riches he would bring back; or any other appropriate response.

Why is it important to ask yourself questions like this one and make inferences as you read?

1 pt It helps you understand the text better; you will make sure you understand the text; or any other appropriate response.

C Infer: Why did Spain consider Columbus a hero?

1 pt The Spanish people believed he had found a new route to India that would lead to riches for Spain or any other appropriate response.

Making Inferences Lesson 2: Christopher Columbus

CHRISTOPHER COLUMBUS

D Infer: Columbus was from Italy, why would he want to start colonies for Spain?

1 pt *Spain was paying for his voyages; he was sailing for Spain; the Spanish king and queen were his sponsors; or any other appropriate response.*

In September, 1493, Columbus set out on another journey to the west. He wanted to start Spanish colonies and check on the crew he left behind. When Columbus returned to Navidad, the land where he left his crew, he found the crew dead and the fort destroyed. Columbus's men had mistreated the natives. The natives had **retaliated**.

D Infer: Columbus was from Italy, why would he want to start colonies for Spain?

Word reached Queen Isabella and King Ferdinand that Columbus and his crew were mistreating the natives. Columbus sailed back to Spain. The queen and king still liked Columbus despite the bad reports they had received. In May, 1502, Columbus took off on his third voyage, still searching for China. It was on this trip that Columbus reached America.

F Write one inference you can make from this paragraph. Remember, an inference is something that is not stated in the text, but that is supported by what is written.

How did you make your inference?

On May 20, 1506, Columbus died a disappointed man. He did not realize that he had opened a new route from the Old World to the New World. Life on both sides of the Atlantic was forever changed. Today in the United States, we celebrate Columbus Day on the second Monday in October.

E Write one way that life was changed in the Old World and one way it was changed in the New World.

E Write one way that life was changed in the Old World and one way it was changed in the New World.

1 pt *Old World: People began to leave for the New World; people learned more about the world/geography; or any other appropriate response.*

1 pt *New World: Europeans began to arrive; American Indians began to lose land/power; or any other appropriate response.*

F Write one inference you can make from this paragraph. Remember, an inference is something that is not stated in the text, but that is supported by what is written.

1 pt *Accept any reasonable inference based on information in the paragraph.*

How did you make your inference?

1 pt *I looked for what was left out; I looked for something that was unclear; I asked why someone would act this way; what else must be true/what the author was implying; or any other appropriate response.*



Making Inferences Lesson 2: *Christopher Columbus*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box C.

What were some of the reasons you thought Spain considered Columbus a hero?

A: *He told people he found the Indies, or any acceptable response.*

What are the reasons described in the paragraph for which he would not be a hero?

A: *His sailors died, he did not find riches, and he left his crew behind.*

With all of these negative points mentioned, why does the author end with he “returned a hero”?

A: *So that the reader will know what the people of the time thought of him, to give the author’s opinion, because these facts were common for expeditions, etc.*

- Look at Guided Reading Box E.

This box asked you to think about the New World and the Old World. In order to answer this question, you need to know what the Old World is. What is the Old World?

A: *Europe*

What is the New World?

A: *North America*

Are these the same places mentioned as “both sides of the Atlantic?”

A: *Yes.*

Why would the author not just say Europe and North America in both sentences?

A: *Students might say that it makes the wording more interesting, it avoids being repetitive; it makes you pay attention/think about what you are reading; etc..*

When you infer you have to connect words together that stand for the same thing. Look at the second paragraph. It says “his sailors” in one sentence. What are these same people called in another sentence?

A: *his crew, the crew*

Making Inferences Lesson 2: *Christopher Columbus*

Standards Links

Art 5.14.1 - Compare characteristics of a theme, historical period, or event through the multiple perspectives of different art forms.

Suggested Activity: Have students compare paintings that portray Christopher Columbus and infer the artist's opinion of Columbus (examples are the portraits of Sebastian del Piombo, Lorenzo Lotto, Stimmer, DeBry, Jovian/Paulo Jovius, Frank Ordaz, Mike Benny, Irving Ward, Wooley, etc.). Note: all of these portraits were painted after Columbus' death. Discuss how this may affect the portraits' accuracy (**see Useful Web Sites on page 153**).

Social Studies 5.1.21 - Examine an historical narrative about an issue of the time and distinguish between statements of opinion and those that are factually grounded.

English/Language Arts 5.5.4 - Write persuasive letters or compositions that...

Suggested Activity: Christopher Columbus's life and discoveries have been a subject of much recent controversy. Have students explore essays on this controversy and discuss opinions and facts presented in the essays. Have students infer why Columbus may be so controversial. Have students write a letter to a state representative explaining why we should or should not celebrate Columbus Day.

English/Language Arts 5.5.1 - Write narratives that...

Suggested Activity: Write a story about contact between Columbus and American Indians from the point of view of Columbus, one of his men, or an American Indian. Use historical facts to develop the story.

Making Inferences Lesson 3: *Using Angles*

Reading Difficulty: 5.9

Guided Reading Boxes: 8

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

- acute
- obtuse
- right angle
- sextant
- vertex

Skills and Standards

English/Language Arts Focus:

- 5.2.4 Draw inferences, conclusions, or generalizations about text and support them with textual evidence and prior knowledge.

Science Standards Addressed:

- 5.1.4 Give examples of technology, such as telescopes, microscopes, and cameras, that enable scientists and others to observe things that are too small or too far away to be seen without them and to study the motion of objects that are moving very rapidly or are hardly moving.
- 5.2.4 Keep a notebook to record observations and be able to distinguish inferences from actual observations.

Mathematics Standards Addressed:

- 5.4.1 Measure, identify, and draw angles, perpendicular and parallel lines, rectangles, triangles, and circles by using appropriate tools (e.g., ruler, compass, protractor, appropriate technology, media tools).
- 5.4.2 Identify, describe, draw, and classify triangles as equilateral, isosceles, scalene, right, acute, obtuse, and equiangular.
- 5.4.7 Understand that 90° , 180° , 270° , and 360° are associated with quarter, half, three-quarters, and full turns, respectively.

Background Prompt

What does it mean to “do a 180?” Where did this phrase come from?

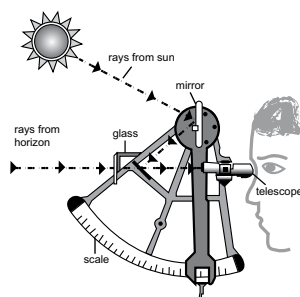
USING MATH

LESSON 3

MAKING INFERENCES

Using Angles

Understanding angles was an important skill for early navigators. They used angles to determine their latitude as they traveled. Navigators had a special tool called a **sextant** that helped them determine the angle between the sun (or a star) and the horizon.



When you use a sextant, you use the angle between the sun or a star and the horizon to determine latitude.

VOCABULARY

- acute angle
- obtuse angle
- right angle
- sextant
- vertex

A When the text asks you a question, it may be asking you to infer. What do you infer here?

Can you infer what *oct* means in Latin?

A When the text asks you a question, it may be asking you to infer. What do you infer here?

1 pt You infer the size of the octant's arc (or 1/8 of a circle).

Can you infer what *oct* means in Latin?

1 pt 8

A sextant gets its name from the Latin word *sixtus* which means six. The arc of the sextant is 1/6 of a circle. The arc of the sextant is marked for measuring angles. Before the sextant was invented, many sailors used another tool called an *octant*. Can you infer how large the octant's arc was?

To find out their location on the Earth, sailors looked out across the ocean until they saw the horizon. This is where they saw the sky meet the ocean water. Then they looked through the sextant's mirrors to find the angle between the sun and the horizon. They compared the angle measurement with charts that recorded the time of day to figure out their latitude on the Earth.

sextant
circle.

Standards Addressed: Science 4, 5.2.4
5.4.1, 5.4.2, 5.4.7

Making Inferences Lesson 3: Using Angles

B Why does the author tell you that understanding angles can help you?

Today, even though we use Positioning Systems to locate things, we still use the measurement of angles. Construction, sports, crafts, and all use information about angles. Angles can help you in your work.

Angles

An angle is formed when two rays intersect. To intersect means to meet at a point where the rays intersect. The rays form the sides of the angle. The measurement of an angle is given in degrees. The degree symbol is marked with a ° symbol. To show that an angle measures ninety degrees, we write 90°.

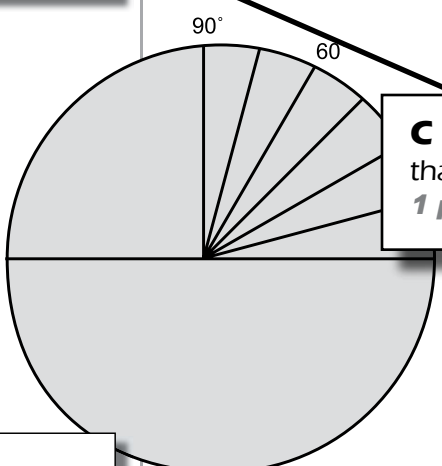
B Why does the author tell you that understanding angles can help you?

1 pt *It makes the lesson more meaningful; it makes you think about and apply what you are reading; or any other appropriate response.*

C Infer: What would you write to show that an angle measures forty-five degrees?

C Infer: What would you write to show that an angle measures forty-five degrees?

1 pt 45°



Angles are measured in degrees of a circle.

Look at the circle above.

D Infer: where would 45 degrees be?

How do you infer in mathematics?

D Infer: where would 45 degrees be?

1 pt *It would be half way between 30° and 60°.*

How do you infer in mathematics?

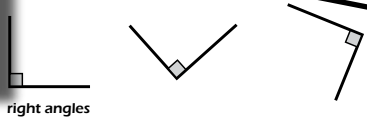
1 pt *You estimate; the same way you do in other texts; you ask yourself questions; or any other appropriate response.*

Making Inferences Lesson 3: Using Angles

E Infer: Write one other shape that has a right angle.

1 pt Shapes include rectangles, triangles, or any other appropriate response.

An angle that is 90° is called a right angle. A right angle can be found in the corner of a square. Below are right angles.



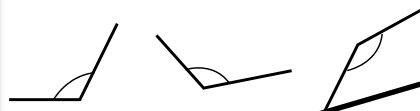
right angles

E Infer: Write one other shape that has a right angle. _____

F Infer: Write one angle measurement that would be considered obtuse.

1 pt Student should have written any measurement greater than 90° and less than 180° .

An angle that is greater than 90° but less than 180° is called an obtuse angle. An obtuse angle can be found in a hexagon. These are obtuse angles.



obtuse angles

F Infer: Write one angle measurement that would be considered obtuse. _____

G Infer: Write one angle measurement that would be considered acute.

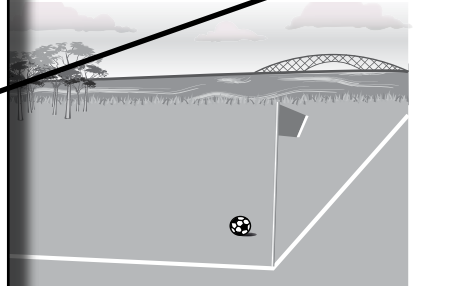
1 pt Student should have written any measurement greater than 0° and less than 90° .

An angle that is less than 90° is called an acute angle. An acute angle can be found in an equilateral triangle. Below are acute angles.



acute angles

G Infer: Write one angle measurement that would be considered acute. _____



How many angles can you find in this drawing?

H When you infer, you apply what you know to understand a new situation. What did you learn that you can apply to answer the question here?

H When you infer, you apply what you know to understand a new situation. What did you learn that you can apply to answer the question here?

1 pt The lesson explains what an angle is, looks like, or any other appropriate response.

Making Inferences Lesson 3: *Using Angles*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box A.

This box asks you to infer what *oct* means. How do you infer the meaning of new words?

A: *Look at all the parts of the word, look for similarities to words you know, look at the context of the word, or any acceptable response.*

What words do you know with *oct* in them?

A: *Words include octopus, octagon, October, etc.*

Do these help you understand *oct*?

A: *Yes and no. October is the tenth month, but the others are about eight.*

- Look at Guided Reading Box D.

Where do you have to read to find the information to help you infer here?

A: *You have to look at the graphic.*

Look at the other graphics in the lesson. Can you infer information from any of them?

A: *Answers will vary. Ask students to explain their answers.*

Look at the sextant graphic on page 1. Can you infer what part is called the “arc”?

A: *Yes, it is on the bottom marked “scale.”*

Making Inferences Lesson 3: *Using Angles*

Standards Links

Art 5.1.2 - Identify and compare works of art and artifacts with similar functions.

Suggested Activity: Have students compare different artifacts used for navigation (Polynesian latitude hook, Arab kamal, cross-staff, backstaff, quadrant, astrolabe, etc.). Examine how navigation tools have changed and ways they have remained the same.

Mathematics 5.4.7 - Understand that 90° , 180° , 270° , and 360° are associated with quarter, half, three-quarters, and full turns, respectively.

Suggested Activity: See if students can use their knowledge of degrees to understand and describe turns. Have students give directions to other students to face a classroom object using appropriate degrees to describe the turns.

Making Inferences Lesson 4: *The Northwest Passage*

Reading Difficulty: 4.8

Guided Reading Boxes: 7

Vocabulary

- John Cabot
- Northwest Passage
- Giovanni da Verrazano

Skills and Standards

English/Language Arts Focus:

- 5.2.4 Draw inferences, conclusions, or generalizations about text and support them with textual evidence and prior knowledge.

Social Studies Standards Addressed:

- 5.1.4 Trace the major land and water routes of European explorers of the Caribbean region and North America and examine their individual stories and reasons for exploration.
- 5.3.6 Analyze how the location and natural environment of Spanish, French, and British colonies influenced their development.
- 5.3.9 Interpret historical maps and create maps of the United States in different historical periods using map elements, such as title, legend, directional indicator, scale, and projection.

Science Standards Addressed:

- 5.2.4 Keep a notebook to record observations and be able to distinguish inferences from actual observations.
- 5.6.2 Demonstrate how geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representation can never be exact in every detail.

Background Prompt

What do you think is the quickest way to sail from Europe to Asia?

Making Inferences Lesson 4: *The Northwest Passage*

A Use the main idea to infer two things this lesson will be about.

2 pts *Accept any two of the following for 1 pt each: discoveries, exploring, looking for a new route, or any other appropriate response.*

The search for the Northwest Passage led to many discoveries in North America.

A Use the main idea to infer two things this lesson will be about.

B Compare the route of the Northwest Passage with the older routes around South America. Why would sailors prefer the Northwest Passage?

B Compare the route of the Northwest Passage with the older routes around South America. Why would sailors prefer the Northwest Passage?

1 pt *It would be shorter/faster; it is more direct; or any other appropriate response.*

LESSON 4

MAKING INFERENCES

The Northwest Passage

After Christopher Columbus returned to Europe from the New World, people became very excited. They believed that they would finally be able to easily reach the riches of Asia. In those days, to get from Western England to Asia, explorers had to make a dangerous trip around the Cape of Good Hope at the southern tip of Africa or around Cape Horn at the southern tip of South America.

Soon, many countries began to send explorers to search for a shorter and safer route. In England, people called the route they hoped to find the Northwest Passage. The **Northwest Passage** is a water route from Europe to Asia that passes through North America.

The brave explorers who searched for the passage faced many challenges. The search was very difficult because they were traveling through cold northern seas. The water was frozen over most of the year and impassable, meaning that ships could not get through.



This map shows the Northwest Passage and an older route around South America.

Standards Addressed: Soc: 5.1.4, 5.3.6, 5.3.9
Sci: 5.2.4, 5.6.2

1

Making Inferences Lesson 4: *The Northwest Passage*

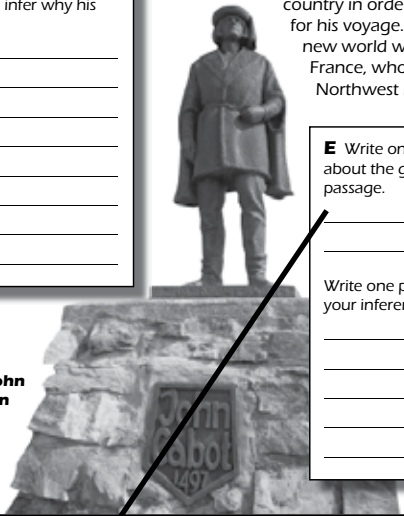
C The text does not tell you how Giovanni Caboto became John Cabot. Using what you know, infer why his name changed.

1 pt *He was sailing for England, so he wanted a more English name; the English people referred to him by the English version of his name; or any other appropriate response.*

John Cabot was one of the most famous explorers who tried to find the Northwest Passage. Cabot was born in Italy, where his name was Giovanni Caboto. Cabot wanted to search for a new route to Asia, but he could not find a country that would pay for his trip. Finally, Henry VII, the King of England, agreed to pay for Cabot's expedition. Cabot's ship, the *Matthew*, landed in Canada in 1497.

C The text does not tell you how Giovanni Caboto became John Cabot. Using what you know, infer why his name changed.

This statue of John Cabot is found in Bonavista, Newfoundland.



D Infer: Why was Cabot a hero in England?

1 pt *The English people believed he had found the Northwest Passage or any other appropriate response.*

D Infer: Why was Cabot a hero in England?

Giovanni da Verrazano

Another explorer who searched for the Northwest Passage was **Giovanni da Verrazano**. Like Cabot, Verrazano was born in Italy. He, too, had to leave his country in order to find someone to pay for his voyage. Verrazano's search for the new world was paid for by the King of France, who hoped he would find the Northwest Passage.

E Write one inference that you could make about the government of Italy from this passage.

Write one piece of evidence that supports your inference.

E Write one inference that you could make about the government of Italy from this passage.

1 pt *Italy was not interested in exploration; it did not like to pay for explorers' voyages; it did not have a lot of money to spend on exploration; or any other appropriate inference from the text.*

Write one piece of evidence that supports your inference.

1 pt *Both Cabot and Verrazano were Italian, but they had to find sponsors from other countries, or any other appropriate response.*

Making Inferences Lesson 4: *The Northwest Passage*

F Write one inference that you can make about the Northwest Passage based on this paragraph.

1 pt *It is very difficult to navigate, or any other appropriate response.*

Write one piece of evidence that supports your inference.

1 pt *It took Amundsen three years to make the trip, or any other appropriate support for the above inference.*

North
the Atlantic
and the
north as the
to France.
being
the
ce to New

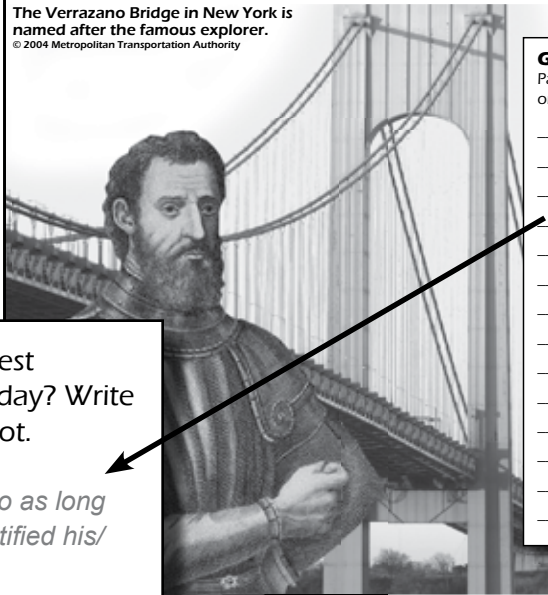
Passage. It took him three years to make the trip. After more than 500 years, the search for the Northwest Passage was finally over.

F Write one inference that you can make about the Northwest Passage based on this paragraph.

Write one piece of evidence that supports your inference.

the route seemed too dangerous for anyone to make the trip. Finally, in 1906, Roald Amundsen, a Norwegian explorer, became the first person to travel the Northwest

The Verrazano Bridge in New York is named after the famous explorer.
© 2004 Metropolitan Transportation Authority



G Infer: Does the Northwest Passage affect our lives today? Write one reason why or why not.

G Infer: Does the Northwest Passage affect our lives today? Write one reason why or why not.

1 pt *Accept either yes or no as long as the student has justified his/her choice.*

Yes: We now have a direct route from Europe to Asia; or any other appropriate response.

No: We do not need the Northwest Passage because we have airplanes; the passage is too dangerous to be useful; or any other appropriate response.

Making Inferences Lesson 4: *The Northwest Passage*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box A.

This box asks you to read the main idea to help you infer what the passage will be about. What other text features can help you infer what the passage will be about?

A: *The headings, subheadings, bolded words, comprehension questions, graphics, etc. can give you clues.*

- Look at Guided Reading Box C.

This box asks you to connect what you learn in future paragraphs to what you learn from this paragraph. You will know more about John Cabot if you read the whole section on Cabot. What clue in the next paragraph helps you answer this question?

A: *England paid for his trip and maybe the king changed his name or he changed his name so England would pay for his trip.*

- Look at Guided Reading Box E.

Are your inferences necessarily true?

A: *No. There could be many reasons why the Italian government was unable or unwilling to sponsor the voyages of Cabot and Verrazano.*

- Look at Guided Reading Box F.

How did you make your inference?

A: *Students might say they looked for what is missing or unclear in the text, they thought about what the author was implying, etc.*

Making Inferences Lesson 4: *The Northwest Passage*

Standards Links

Music 5.7.2 - Describe ways that music is related to other subjects.

English/Language Arts 5.5.2 - Write responses to literature that...

Suggested Activity: Stan Rogers was a modern-day Canadian songwriter and traveler imagining what it would have been like to be in search of the Northwest Passage. He wrote a song about his feelings. Have students read the lyrics and discuss how an expressive song like this can also help them learn more about the Northwest Passage. Next have students write an explanation that infers how the song relates to Roger's travels as well as the travels of the early explorers in search of the Northwest Passage (**see Useful Web Sites on page 153**).

Science 5.3.1 - Explain that telescopes are used to magnify distant objects in the sky, including the moon and the planets.

Science 5.3.2. - Observe and describe that stars are like the sun, some being smaller and some being larger, but they are so far away they look like points of light.

Science 5.3.3 - Observe the stars and identify stars that are unusually bright and those that have unusual colors, such as reddish or bluish.

English/Language Arts 5.5.1 - Write narratives that...

Suggested Activity: Long ago, the Northwest Passage was just a dream. Today we dream of finding a way to visit other planets or even stars. After discussing basic information about the universe, have students write their own travel narratives about their search for a way to reach one of these far away destinations.

Making Inferences Lesson 5: *The Exchange of Goods and Cultures*

Reading Difficulty: 5.7

Guided Reading Boxes: 6

Vocabulary

- cultures
- indigo

Skills and Standards

English/Language Arts Focus:

- 5.2.4 Draw inferences, conclusions, or generalizations about text and support them with textual evidence and prior knowledge.

Social Studies Standards Addressed:

- 5.1.4 Trace the major land and water routes of European explorers of the Caribbean region and North America and examine their individual stories and reasons for exploration.
- 5.1.6 Explain the religious, political, and economic reasons for movement of people from Europe to the Americas and describe the impact of exploration and settlement by Europeans on American Indians.
- 5.1.7 Identify and discuss instances of both cooperation and conflict between Indians and European settlers, such as agriculture, trade, cultural exchanges, and military alliances, as well as later broken treaties, massacres, and conflicts over control of the land.
- 5.4.1 Describe the economic activities within and among American Indian cultures prior to contact with Europeans. Examine the economic factors that helped motivate European exploration and colonization.

Science Standards Addressed:

- 5.2.4 Keep a notebook to record observations and be able to distinguish inferences from actual observations.

Background Prompt

What are some foods we eat that come from other parts of the world? How did they become popular in the United States?

Making Inferences Lesson 5: *The Exchange of Goods and Cultures*

Standards Links

Health 5.1.9 - Explain key health terms and concepts.

Suggested Activity: Teach students the meaning of the word *epidemic*. Explain that different cultures were not immune to certain diseases such as small pox and that contact with new cultures caused the virus to spread and cause epidemics. Students can study other historical epidemics such as malaria, flu, etc.

Social Studies 5.1.1 - Give examples of early cultures and settlements that existed in North America prior to contact with Europeans.

English/Language Arts 5.3.6 - Evaluate the meaning of patterns and symbols that are found in myth and tradition by using literature from different eras and cultures.

Suggested Activity: Have students explore trickster characters from other cultures such as the spider from many African cultures, the coyote from many American Indian cultures, etc. Discuss how these trickster figures have become a part of the broader culture of the United States. Explore how stories from Africa made their way to the Caribbean Islands and then to North America. Why are these figures appealing?

Making Inferences Lesson 5: The Exchange of Goods and Cultures

LESSON 5

MAKING INFERENCES

VOCABULARY

- cultures

The Exchange of Goods and Cultures

Trade and Exploration

At the store today, you can find food from all parts of the world. You can find bananas, pepper, rice, tea, and much more. Without trade, we wouldn't have this variety of food. For hundreds of years, trade has been important in the exchange of goods, as well as cultures, between different peoples.

Throughout history, trade and exploration have been closely linked. The need to expand trade led explorers to travel. They wanted to look for new trade routes and countries to trade with. Explorers like Marco Polo, Vasco de Gama, and Christopher Columbus all contributed to the exchange of goods and cultures.

The Exchange of Goods

Did you know that trade that happened hundreds of years ago has changed our culture today? In the 11th century, explorers and Arab traders brought a plant called **indigo** from India to the Mediterranean area. This plant was used to make a deep blue dye. Soon people in Europe started using indigo instead of their native plant, woad. Blue dye became common. Eventually, England used blue dye to color uniforms for the police, hospital, and other workers. This blue dye even influenced our language. You may have heard of the terms *blue collar worker* or *blue jeans*. Today most blue clothes are dyed with man-made indigo.



The blue pigment found in indigo is the same one found in woad, but it is more concentrated.

Standards Addressed: Soc: 5.1.4, 5.1.6, 5.1.7, 5.4.1
Sci: 5.2.4

A Write at least two ways our lives have been affected by trade.

2 pts: Accept any two of the following for 1 pt each:
We have many different foods (students may have listed two different foods for two points); we have learned about other people; our culture has changed; or any other appropriate response.

at least two ways our lives have been affected by trade.

B Infer: Why would people in Europe begin to use indigo instead of woad?

B Infer: Why would people in Europe begin to use indigo instead of woad?

1 pt *They liked the color better; it was a new discovery; it was easier to use; it worked better; or any other appropriate response.*

Making Inferences Lesson 5: The Exchange of Goods and Cultures

C In your own words, explain what trade has to do with the story of the gingerbread boy.

1 pt *Without trade, ginger would not have become a part of our culture; we would not have the story of the gingerbread boy without trade; or any other appropriate response.*

Why did the author include this information?

1 pt *It is something readers can relate to; it makes the lesson more interesting; or any other appropriate response.*

that came to Europe from
it was used as a spice to
. Today it is still used in
in gingersnap cookies.
ger ale is sometimes made
early explorers had not
other lands, we might not
ds we do today. We also
gerbread houses or the
bread boy.

of Cultures

Explorers to many unknown
s learned about more than
ces. They also learned
ures. **Culture** means a
way of life. Explorers also
cultures with people in the
ed. For example, when they
Europeans explorers learned
dians and their cultures.
ans discovered European
were exchanged and the
s were forever changed.

C In your own words, explain what trade has to do with the story of the gingerbread boy.

Why did the author include this information?



Ginger became a popular import to Europe from India.

Making Inferences Lesson 5: The Exchange of Goods and Cultures

D Infer: Why would American Indians make fewer crafts?

1 pt *It was easier to get the goods the Europeans made; they liked European goods; or any other appropriate response.*

America, they of the when the ended change

D Infer: Why would American Indians make fewer crafts?

American Indians became dependent on the European's manufactured goods. They wanted bowls and guns. American Indians made fewer traditional crafts like arrowheads and baskets. Their relationships with other tribes were disrupted. They soon hunted animals to near extinction just for furs to trade.

The early European traders also adopted some of the American Indian culture. They became hunters. They learned from the American Indians how to grow and cook "the three sisters" – corn, bean, and squash. They also used some of the American Indians' ideas for government. They decided to join the states together in a nation like the tribes

of life.

league. men and American es these

E To impeach means to bring a public official to trial. Why would Americans want to adopt this part of American Indian culture?

E To impeach means to bring a public official to trial. Why would Americans want to adopt this part of American Indian culture?

1 pt *It protects the people from unfair leaders; it helps make sure that leaders follow the rules; or any other appropriate response.*

F Based on what you read in the lesson, were the changes to the Europeans' culture more positive or more negative? Explain.

Were the changes positive or negative for American Indians? Support your answer with at least two pieces of evidence.



American Indians made fewer arrowheads after they began to trade with Europeans.

3

F Based on what you read in the lesson, were the changes to the Europeans' culture more positive or more negative? Explain.

1 pt *Student could have answered positive or negative, although more evidence points to positive. Accept any reasonable response explaining the chosen answer.*

Were the changes positive or negative for American Indians? Support your answer with at least two pieces of evidence.

2 pts **Accept any two of the following for 1 pt each:**
they became dependent on European goods; they stopped making traditional crafts; the relationships between tribes suffered; animals were hunted to near extinction; or any other appropriate response.

Making Inferences Lesson 5: *The Exchange of Goods and Cultures*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box A.

This box asks you to rely on your personal experiences. Have you ever traveled to a foreign country or eaten food from another culture?

A: *Answers will vary. Have students explain and discuss their answers/experiences.*

How would these experiences help you understand the exchange of goods and cultures?

A: *You would know that cultures do exchange ideas, food, etc. You would know what it is like to travel, etc.*

- Look at Guided Reading Box D.

This box requires you to connect ideas from one sentence to another. What other sentences in this paragraph can be combined to help you better understand the exchange of goods and cultures?

A: *“Before Europeans came to North America, American Indians hunted only what they needed for survival.” AND “They soon hunted animals to near extinction just for furs to trade.” (as well as other supported responses)*

Making Inferences: *Explorers*

Concluding Project Rubric

The following rubric is provided to assist you in scoring the culminating project for the Explorers set. It is intended only as a guide. Feel free to adjust the scoring to reflect your own teaching goals and expectations.

Step 1: Choose an Explorer

Step 2: Research (25 pts.)

- ___ /5 points Student uses at least two different types of resources.
- ___ /5 points Student lists resources used.
- ___ /15 points Student includes adequate notes.
- _____ TOTAL

Step 3: Complete the Inference Chart (75 pts.)

- ___ /25 points (5 points per specific fact listed) Student completes the “What fact happened?” research column.
- ___ /25 points (5 points per inference) Student completes the “What does it mean?” inference column.
- ___ /25 points (5 points for each piece of supporting evidence) Student completes the “Why do you think that?” supporting evidence column.
- _____ TOTAL

_____ TOTAL

_____ /100

Making Inferences: *Explorers*

Teacher Tools

Additional Practice Activities:

- **Graphic Organizer:** Have students create modified KWL charts. In the first column, they will write the details/facts they have read. In the second column, they will write any applicable information they already know about the detail/fact. In the third column, they will write questions that they will infer the answer to such as “Why did that happen?”

Details/Facts Read	Details Known	Questions Asked

- To help students understand the concept of making inferences, have them begin by playing clue finding games such as 20 questions or Clue™, using the term “infer” as they play the game. Explain that finding inferences is like being a detective, and when it involves text, it means reading between the lines.
- Once students understand the concept of inferring outside of text, move them to reading non-fiction paragraphs with magnifying glasses to act as reading detectives. Show students an example sentence such as “George Washington rode his horse triumphantly into Boston.” Model for the students “Ah Hah! I can infer that Washington knew how to ride a horse, that Boston was a city in George Washington’s time, and that something good was happening because he looked triumphant.” Continue to read and model inferring until a student is ready to try to read aloud and infer.

Extension Activities:

- Have students write clues about a historical person and see if classmates can guess the person.
- Have students keep lists of all of their inferences for a particular passage. In small groups have them discuss the similarities and differences between their inferences. Explore why they may have come to different conclusions.
- Have students classify their inferences into categories such as: a) implied by text/author, b) previously known fact, or c) conclusion reached as a synthesis of text, etc.

Making Inferences: *Explorers*

Teacher Tools

Useful Web Sites:

Please note that web site content may change at any time.

Astronomy For Kids: Star Links

<http://www.dustbunny.com/afk/links/starlinks.htm>

Surfing the Net with Kids: Backyard Astronomy

<http://www.surfnetkids.com/stargazing.htm>

Windows to the Universe

<http://www.windows.umich.edu/>

General

<http://www.cln.org/themes/explorers.html>

Christopher Columbus sites with activities

http://www.arlington.k12.va.us/instruct/esol_hilt/language_arts/midschl/HILTA/columbus.html

Northwest Passage song

<http://www.stanrogers.net/songs/nwp-sng.html>

<http://www.tomlewis.net/lyrics/northwest.htm>

Words to shanties

<http://www.jsward.com/shanty/index.shtml>

On line sounds of shanties

<http://sailorsongs.com/lyrics.htm>

History of shanties

<http://sailorsongs.com/History.htm>

Navigation worksheets (actual)

<http://www.jsward.com/navigation/index.shtml>

Columbus Link

http://www.classbrain.com/artbiographies/publish/printer_christopher_columbus.shtml

Portraits of Columbus Comprehensive site, includes morph of portraits. The web site also gives written descriptions from people who knew Columbus.

<http://commfaculty.fullerton.edu/lester/writings/admiral.html>

Fact & Opinion Lesson 1: *Anne Hutchinson*

Reading Difficulty: 5.7

Guided Reading Boxes: 5

Vocabulary

- banish
- dissenter

Skills and Standards

English/Language Arts Focus:

- 5.2.5 Distinguish among facts, supported inferences, evidence, and opinions in text.

Social Studies Standards Addressed:

- 5.1.6 Explain the religious, political, and economic reasons for movement of people from Europe to the Americas and describe the impact of exploration and settlement by Europeans on American Indians.
- 5.1.9 Evaluate the contributions of political and religious leaders in colonial America.

Science Standards Addressed:

- 5.1.2 Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.

Background Prompt

What would you do if you disagreed with the leaders of your community? How would you feel if you were arrested because of your opinion?

BIOGRAPHY

LESSON

FACT & OPINION

Anne Hutchinson: A Colonial Dissenter

A Anne Marbury was born in England in 1591. She loved learning and read many books from her father's library when she was a child. She became very interested in religion.

When she grew up, Anne married Will Hutchinson. Both of them were Puritans, or Christians who wanted to purify the Church of England. Because they did not agree with many of the teachings of the church, Puritans faced many hard times in England.

In 1634, the Hutchinson family left England for America, where they hoped to find religious freedom. They settled in the Puritan colony known as the Massachusetts Bay Colony. Anne continued to think a lot about religion. She liked to talk about her beliefs. She even led religious meetings in her home, which was very unusual for a woman at that time.

Many of the other members of the colony did not believe that a woman should be leading religious meetings. They were also angry because Anne was a dissenter. Although Anne was very religious, some of her beliefs were different than those of church leaders. In her meetings, she often spoke out against the leaders of the church.

dissenter
a person who does not agree with the views of his or her leader



A This sentence tells when Anne Marbury was born. Is it a fact, or an opinion?

How do you know?



This drawing depicts Anne Hutchinson's trial.

B What word in this sentence signals that someone's opinion will be expressed?

What is the opinion, and whose opinion is it?

Standards Addressed: Soc: 5.1.6, 5.1.9
Sci: 5.1.2

A This sentence tells when Anne Marbury was born. Is it a fact, or an opinion?

1 pt fact

How do you know?

1 pt It can be verified/ proven; dates are facts; or any other response.

B What word in this sentence signals that someone's opinion will be expressed?

1 pt believe

What is the opinion and whose opinion is it?

1 pt The opinion is that women should not lead religious meetings.

1 pt It is the opinion of the other members of the colony.

Fact & Opinion Lesson 1: Anne Hutchinson

ANNE HUTCHINSON

In 1637, Hutchinson was charged with trying to overthrow the government and was put on trial. Puritan leaders claimed that Hutchinson was teaching ideas that were not true. They wanted her to give up preaching and obey the male leaders of the church. But Hutchinson was a courageous woman, and she was not willing to give up her beliefs. As a result, she was banished from the Massachusetts Bay Colony.

After Hutchinson left her home, she and her followers built the new settlement of Portsmouth in what is now Rhode Island. She later moved to Long Island, in present-day New York. She died in September, 1643 during an American Indian attack. Today a statue of Anne Hutchinson stands in front of the state house in Boston, Massachusetts.

banish
to force to leave a place

E Write one fact that you learned about Anne Hutchinson from the lesson.

Use information from the lesson to write an opinion about Hutchinson.

C What word in this paragraph signals that the charges against Hutchinson were based on opinions, not facts?

C What word in this paragraph signals that the charges against Hutchinson were based on opinions, not facts?

1 pt claimed or wanted

D Underline one sentence in this paragraph that contains an opinion. How do you know that it is an opinion?

D Underline one sentence in this paragraph that contains an opinion. How do you know that it is an opinion?

1 pt for correctly underlining a sentence (see left)

1 pt There is a signal word (claimed); there is a judgment word (courageous); these statements cannot be proven; or any other appropriate response.

E Write one fact that you learned about Anne Hutchinson from the lesson.

1 pt Accept any verifiable fact from the lesson such as "Anne Hutchinson was put on trial in 1637."

Use information from the lesson to write an opinion about Hutchinson.

1 pt Accept any reasonable opinion supported by the text. Examples include: Anne Hutchinson was very brave; Anne Hutchinson should not have been banished, etc.

2

Fact & Opinion Lesson 1: *Anne Hutchinson*

Discussion Prompts Following the Lesson

- Reread the last sentence of this passage. (“Today a statue . . .”).

What can you conclude about the opinion of today’s Massachusetts government toward Anne Hutchinson? How is this different from the way the Massachusetts Bay Colony leaders felt about her in 1637?

A: *Today the government is proud of Hutchinson. People want to honor her as a hero. It is different because the leaders of the Massachusetts Bay Colony thought she was a criminal.*

- Look at your response to Guided Reading Box E.

What was your opinion? What facts from the passage support your opinion?

A: *Answers will vary. Ask students to justify their choices.*

- What do you think are the four most important facts about Anne Hutchinson in this passage? Explain why you chose the facts that you did.

A: *Answers will vary. Ask students to explain and/or justify their choices.*

Fact & Opinion Lesson 1: *Anne Hutchinson*

Standards Links

English/Language Arts 5.5.3 - Write or deliver a research report that has been developed using a systematic research process...

Suggested Activity: Discuss what being a dissenter means and how leaders are often dissenters in some way. Have students write reports on other colonial leaders (use biographies such as the *Colonial Leaders* series by Chelsea House Publications). Encourage students to share the opinions as well as the facts they discover about these leaders when they write their reports.

Social Studies 5.1.17 - Describe the origins and drafting of the Bill of Rights, ratified in 1791.

Suggested Activity: Point out that the Bill of Rights was written to preserve the rights of religious freedom that Anne Hutchinson sought. Discuss other rights the Bill of Rights protects. Discuss how Hutchinson's life may have been different if she had lived after 1791.

Fact & Opinion Lesson 2: *Writing Factual Reports*

Reading Difficulty: 4.7

Guided Reading Boxes: 3

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

(none)

Skills and Standards

English/Language Arts Focus:

- 5.2.5 Distinguish among facts, supported inferences, evidence, and opinions in text.

Social Studies Standards Addressed:

- 5.1.7 Identify and discuss instances of both cooperation and conflict between Indians and European settlers, such as agriculture, trade, cultural exchanges, and military alliances, as well as later broken treaties, massacres, and conflicts over control of the land.
- 5.1.9 Evaluate the contributions of political and religious leaders in colonial America.
- 5.1.21 Examine an historical narrative about an issue of the time and distinguish between statements of opinion and those that are factually grounded.
- 5.5.3 Read fiction and nonfiction stories about conflicts among and between groups of people at different stages in the formation of the United States and give examples of how these conflicts were resolved.

Science Standards Addressed:

- 5.1.2 Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.
- 5.2.7 Read and follow step-by-step instructions when learning new procedures.

Background Prompt

Why is it important to include facts instead of opinions when you write a report?

ACTIVITY!

LESSON 2

FACT & OPINION

- MATERIALS**
- blank notebook paper
 - pen or pencil

Writing Factual Reports

Writing reports is a way to show what you've learned. You must do research before writing your report. Research means looking for facts about a topic. When you write your report, you must be careful to include facts rather than opinions.

Brian and his classmates had to write reports about events in Colonial America. Brian chose to write about a battle that occurred during the French and Indian War. Now his rough draft is ready for editing.

As you read Brian's rough draft, try to sort out the facts from the opinions.

A Write two strategies that will help you sort out facts from opinions.



Standards Addressed: Soc: 5.1.7, 5.1.9, 5.1.21, 5.5.3
Sci: 5.1.2, 5.2.7 **1**

A Write two strategies that will help you sort out facts from opinions.

2 pts Accept any two of the following for 1 pt each: Ask if it is something that can be proven; look for opinion signal words; look for judgment words; identify the purpose of the lesson; ask yourself about the author.

Fact & Opinion

Fact & Opinion Lesson 2: Writing Factual Reports

B Underline at least three sentences that include opinions in Brian's report. Then choose one sentence and rewrite it so that it does not include opinions.

3 pts: 1 pt each for correctly identifying three sentences (see right).

1 pt Student should have removed the judgment word(s) or added phrases such as "they believe that."

B Underline at least three sentences that include opinions in Brian's report. Then choose one sentence and rewrite it so that it does not include opinions.

The Battle of Monongahela

A cool battle happened between the English and French. It was at the beginning of the French and Indian War. It is called the Battle of Monongahela.

Both countries wanted the same lands around the Ohio River. The French were smart because they decided to protect the land by building many forts to guard it.

The greedy British wanted the land too, so they also built forts. Then in July 1754, they sent Major George Washington to the French's Fort Duquesne to tell the French to leave the land in the Ohio Valley. The French wouldn't leave. Sadly, Washington and his troops had to retreat.

Then in 1755, the British sent Major General Braddock to attack. Unfortunately, he didn't listen to advice about how to fight the French and their American Indian allies. He stubbornly thought his troops should fight the same way they did in Europe. There, the troops marched out in the open in lines called ranks. So Braddock's troops marched in lines to the fort. They crossed the Monongahela River.

The French had fewer troops than the British, but they fought terrifically anyway. Their American Indian allies joined them. Instead of marching out in lines, they hid behind trees and rocks. Amazingly, the British just stayed in their marching lines. They were not as smart as the French.

The French and American Indians easily wounded them. Almost every British soldier was hurt. Even Braddock was shot. Braddock told his troops to retreat. Because they were cowardly, they got out of their lines and ran. Now the Battle of Monongahela is called "Braddock's Defeat."

C Write four facts from Brian's report.

C Write four facts from Brian's report.

4 pts Accept any four verifiable facts for 1 pt each.

Fact & Opinion Lesson 2: *Writing Factual Reports*

Discussion Prompts Following the Lesson

- What is the purpose of Brian's report?

A: *The purpose is to provide facts about an event in Colonial America.*

Does Brian achieve his purpose?

A: *Partially. He does include a number of facts, but as it is written, his report contains too many opinions.*

- Why do you think people generally put fewer opinions than facts into a research paper?

A: *It makes the paper more reliable; people will take the writer more seriously, etc.*

What do you think the readers of a non-fiction article or report usually want?

A: *They want to find out the facts, not the author's opinion.*

- Look at Guided Reading Box B.

How did you change the sentences so that they were no longer opinions?

A: *There are several possibilities. They could have removed the judgment words or added a phrase such as "the British believed..." to signal that the opinion belonged to the people of the time and not to the student writing the report.*

- What did you learn from this lesson that can help you when you write reports in the future?

A: *Answers will vary. Have students explain their answers.*

Fact & Opinion Lesson 2: *Writing Factual Reports*

Standards Links

English/Language Arts 5.7.10 - Deliver informative presentations about an important idea, issue, or event...

Suggested Activity: Have students give an oral presentation about any battle or engagement that occurred during the American Revolution. Make sure the presentations present facts rather than opinions.

Social Studies 5.1.15 - Explain consequences of the Revolution, including the drafting of state constitutions and the achievement of independence by the United States.

Social Studies 5.1.16 - Explain why the United States Constitution was created in 1787 and how it established a stronger union among the original 13 states. Identify people who were involved in its development.

Suggested Activity: The end result of the battles of the Revolution was the Continental Congress that led to the Declaration of Independence and later the Constitution at the constitutional convention. Have students examine the primary documents of the Declaration of Independence and the Constitution.

Mathematics 5.4.4 - Identify, describe, draw, and classify polygons, such as pentagons and hexagons.

Suggested Activity: Show students that forts, such as Fort Duquense, often have distinctive shapes such as pentagons. Examine forts used during the Revolutionary War (Fort Ticonderoga, Fort Henry, Fort Stanwix, Fort Niagara, Fort Ligonier, Ft. Necessity, etc.). Compare and classify their shapes. Discuss the benefits of different shaped forts.

Fact & Opinion Lesson 3:

Measurement: Perimeter of Polygons

Reading Difficulty: 5.7

Scaffolding/Guided Reading Boxes: 7

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

- perimeter

Skills and Standards

English/Language Arts Focus:

- 5.2.5 Distinguish among facts, supported inferences, evidence, and opinions in text.

Social Studies Standards Addressed:

- 5.5.1 Describe basic needs that individuals have in order to survive — such as the need for food, water, shelter, and safety — and give examples of how people in early America adapted to meet basic needs.
- 5.5.5 Analyze traditional arts, including folk tales and narratives that depict the experiences of ethnic, racial, and religious groups in different regions of the United States.

Science Standards Addressed:

- 5.1.2 Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.
- 5.2.1 Multiply and divide whole numbers mentally, on paper, and with a calculator.
- 5.5.3 Classify objects in terms of simple figures and solids.

Mathematics Standards Addressed:

- 5.2.1 Solve problems involving multiplication and division of any whole numbers.
- 5.4.4 Identify, describe, draw, and classify polygons, such as pentagons and hexagons.
- 5.5.1 Understand and apply the formulas for the area of a triangle, parallelogram, and trapezoid.
- 5.5.2 Solve problems involving perimeters and areas of rectangles, triangles, parallelograms, and trapezoids, using appropriate units.
- 5.5.3 Use formulas for the areas of rectangles and triangles to find the area of complex shapes by dividing them into basic shapes.

Background Prompt

Have you ever needed to measure around the outside of an object? What was it? How did you do it?

Fact & Opinion Lesson 3: Measurement: Perimeter of Polygons

USING MATH

LESSON 3

**Measurement:
Perimeter of Polygons**

Mrs. Witherfronz is making a quilt to give as a gift. She wants to make a rectangular quilt that is five feet wide and six feet long. Because she wants to trim around the edge of the quilt with decorative fringe, she needs to calculate the perimeter of the quilt. She will be making quilt squares that are one foot wide by one foot long or one square foot. Read below to understand how to calculate the perimeter of a rectangle like Mrs. Witherfronz's quilt.

This is what Mrs. Witherfronz's quilt square looks like. Can you figure out how many quilt squares she will make?

Perimeter

You have probably measured perimeter without even knowing it. When you measure around the sides of a polygon, such as a rectangle, you are measuring perimeter. The **perimeter** of a polygon is the sum of the lengths of all its sides. For example, if you measured all four sides of a piece of paper and added them together you would know the perimeter.

1 Standards Addressed: Sci: 5.1.2, 5.2.1, 5.5.3
Soc: 5.5.1, 5.5.5 Math: 5.2.1, 5.4.4, 5.5.1, 5.5.2, 5.5.3

VOCABULARY
perimeter

A This is a math lesson. Would you expect it to include many opinions?
1 pt No.
Write one reason why or why not.
1 pt *Math is about numbers not people or events. Math usually does not include a lot of writing/paragraphs; it is mostly numbers, equations, etc.; these are facts; most people do not have strong opinions about math topics; or any other appropriate response*

B Write one fact about Mrs. Witherfronz's quilt square.

Now write one opinion about it.

B Write one fact about Mrs. Witherfronz's quilt square.
1 pt *It is one foot wide; it is one foot long; it is one square foot; it is shaped like a square; it is an octagon surrounded by four triangles; or any other appropriate factual response.*

Now write one opinion about it.
1 pt *It is pretty; it is small/simple/ugly, etc. Accept any reasonable opinion of the material presented.*

C This sentence is an opinion. How do you know?
1 pt *It makes a statement that cannot be proven; it makes an assumption about the reader; it uses the word probably; or any other appropriate response.*

Fact & Opinion

Fact & Opinion Lesson 3: Measurement: Perimeter of Polygons

D Is this a fact or an opinion?

1 pt fact

How do you know?

1 pt *It can be proven; you can test/prove it by using a ruler; or any other appropriate response.*

D Is this a fact or an opinion? _____

How do you know?

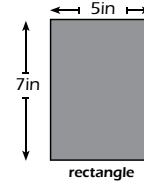
E How do you know that this statement is a fact?

E How do you know that this statement is a fact?

1 pt *You can measure the sides; it can be proven; you can check the math; or any other appropriate response.*

Example:

Using a ruler, you can measure all four sides of a rectangle. The shorter sides (width) measure 5 inches and the longer sides (length) of the rectangle measure 7 inches. Because this is a rectangle, you know that two parallel sides are equal. So there are two sides that are 5 inches for a total of 10 inches



$$5 + 5 = 10 \text{ inches}$$

and two sides that are 7 inches for a total of 14 inches.

$$7 + 7 = 14 \text{ inches}$$

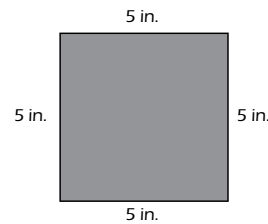
If you add the sums from all the sides, the perimeter of the rectangle equals 24 inches.

$$10 + 14 = 24$$

You can simplify this calculation by using multiplication: 2 times the width (w) plus 2 times the length (l) = the perimeter.

$$(2 \times w) + (2 \times l) = \text{perimeter}$$

You can find the perimeter of other polygons by adding the sums of the length of all of the sides. If the polygon's sides are the same length, like a square's sides, you can use multiplication to simplify your equation.

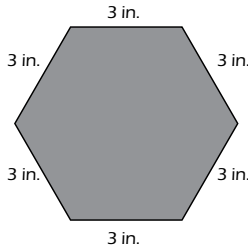


$$4 \times l = \text{perimeter}$$

The perimeter of the square = $4 \times 5 = 20$ inches.

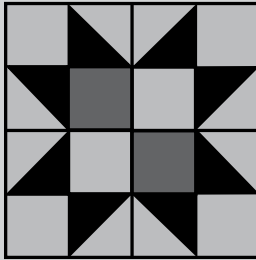
Fact & Opinion Lesson 3: Measurement: Perimeter of Polygons

To figure the perimeter of this hexagon, find the sum of the length of all six sides, or multiply the length of each of the sides times 6 because there are six equal sides.



$(3 + 3 + 3 + 3 + 3 + 3) = (6 \times 3) = 18$ inches in perimeter

How Common Were Colonial Quilts?



Today we often picture colonial women making quilts and other crafts. But this was not nearly as common as we think. While some colonial women did make beautiful quilts, most women did not have time to work on crafts.

Life in colonial America was very difficult. Families needed to work together in order to meet their basic needs, such as food and shelter. Decorative quilts would have been a luxury. Colonial women likely made decorative quilts only for special occasions or as gifts.

3

F This sentence contains mostly facts. But it contains one opinion. Write it here.

1 pt *The quilts were beautiful.*

F This sentence contains mostly facts. But it contains one opinion. Write it here.

G Write one common opinion about colonial quilting.

Now write one

G Write one common opinion about colonial quilting.

1 pt *Colonial women often made quilts; quilting was common in colonial times; colonial women made a lot of quilts; colonial women made beautiful quilts; or any other appropriate response.*

Now write one fact about it.

1 pt *Colonial women did not have much time for quilt making; some colonial women did make quilts; quilts would have been a luxury; quilts would have been made only for special occasions or as gifts; or any other appropriate response from the lesson.*

Fact & Opinion Lesson 3: *Measurement: Perimeter of Polygons*

Discussion Prompts Following the Lesson

- Look at Guided Reading Box A.

When you think about facts and opinions, are math lessons different from social studies or science lessons?

A: *Yes: Math lessons usually have less text and fewer paragraphs; they are usually about numbers and not people; etc. No: Both can contain opinions.*

- Look at Guided Reading Box E.

How did you answer this question?

A: *Answers will vary. Students might say that they looked at the picture/checked the multiplication/addition, etc.*

Are number statements always facts?

A: *No. Some might not be provable; there could be errors; estimates are not facts, etc.*

- Look at Guided Reading Box F.

How much of this sentence is opinion?

A: *Only the word beautiful is an opinion.; It is a fact that some colonial women did make quilts, because it can be proven. It is an opinion that the quilts were beautiful, because it cannot be proven.*

Fact & Opinion Lesson 3: *Measurement: Perimeter of Polygons*

Standards Links

Science 5.1.2 - Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.

Suggested Activity: Explain how myths of quilting have persisted despite being untrue. Discuss how untrue facts become people's general opinion and persist despite evidence against them. Explore myths and truths about quilting in America (see **Useful Web Sites on page 189**).

Mathematics 5.4.6 - Identify shapes that have reflectional and rotational symmetry.

Suggested Activity: Have students search colonial artwork, including needlework, for shapes that have symmetry (see **Useful Web Sites on page 189**).

Mathematics 5.5.2 - Solve problems involving perimeters and areas of rectangles, triangles, parallelograms, and trapezoids, using appropriate units.

Suggested Activity: Extend the lesson by determining the area of rectangular colonial crafts such as samplers and quilt squares.

Art 5.6.2 - Understand that personal preference is one of many criteria used in making judgments about art.

Suggested Activity: Show students samples of colonial artwork. Make a chart listing all of the facts about the art. Then make a separate chart listing their opinions. Discuss how the opinions are subjective, but the facts are not.

Fact & Opinion Lesson 4: *Yankee Doodle*

Reading Difficulty: 6.0

Guided Reading Boxes: 5

Vocabulary

- Richard Schuckburgh
- Ephraim Williams
- “Yankee Doodle”

Skills and Standards

English/Language Arts Focus:

- 5.2.5 Distinguish among facts, supported inferences, evidence, and opinions in text.

Social Studies Standards Addressed:

- 5.1.12 Identify major British and American leaders and describe their roles in key events, such as the First and Second Continental Congresses, drafting and approval of the Declaration of Independence (1776), publication of *Common Sense*, and major battles of the Revolutionary War.
- 5.1.20 Read historical fiction and nonfiction about an event of the American Revolution and reconstruct the literal meaning of passages by identifying who was involved, what happened, where it happened, what events led to these developments, and what consequences or outcomes followed.
- 5.1.21 Examine an historical narrative about an issue of the time and distinguish between statements of opinion and those that are factually grounded.
- 5.1.22 Identify and interpret primary source and secondary source materials that pertain to a problem confronting people during the founding period of the United States.

Science Standards Addressed:

- 5.1.2 Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.

Background Prompt

What do you know about the song “Yankee Doodle”?

LESSON 4

FACT & OPINION

VOCABULARY

- Richard Shuckburgh
- Ephraim Williams
- "Yankee Doodle"

MAIN IDEA

Scholars disagree about the history of "Yankee Doodle."

A Write one opinion about "Yankee Doodle" that you read in this paragraph.

Write one fact that you read in the paragraph.

Yankee Doodle

You probably know the song "Yankee Doodle." During the Revolutionary War, American soldiers sang this song as they marched against British troops. The Americans sang "Yankee Doodle" with pride. But this patriotic song was written to make fun of American soldiers. This was because they did not have the fancy uniforms or training that the British soldiers did. During this time period, *yankee* was a term used to describe Americans who the British believed didn't know very much. The word *doodle* meant *fool*. Most scholars agree that "Yankee Doodle" was written during the French and Indian War (1754-1763). But they often disagree about who wrote it and exactly when it was written.

*"Yankee Doodle went to town,
Riding on a pony;
Stuck a feather in his hat,
And called it macaroni."*



The Tune

Although "Yankee Doodle" is known as a song about America, it likely originated in Europe even before the American colonies were started. There is some evidence that the words were developed from a song that was sung in Holland as early as the 1400s. It is also believed that the tune to which it is sung was borrowed from a popular English nursery rhyme called "Lucy Locket." How did these early versions become the popular American song?

Standards Addressed: Soc: 5.1.12, 5.1.20, 5.1.21, 5.1.22
Sci: 5.1.2

A Write one opinion about "Yankee Doodle" that you read in this paragraph.

1 pt *You probably know it; it was written during the French and Indian War; it is patriotic.*

Write one fact that you read in the paragraph.

1 pt *American soldiers sang it during the American Revolution; it was written to make fun of American soldiers; American soldiers didn't have as nice of equipment as the British soldiers; Yankee meant an American who didn't know very much; doodle meant fool; scholars disagree about who wrote it and when; most scholars agree it was written during the French and Indian War.*

Fact & Opinion

Fact & Opinion Lesson 4: *Yankee Doodle*

B In your own words, explain the opinion that Richard Shuckburgh wrote “Yankee Doodle.”

1 pt *Many scholars believe Shuckburgh wrote “Yankee Doodle” at Fort Crailo when he saw badly equipped American soldiers preparing to attack Fort Ticonderoga, or any other appropriate response.*

Now list at least one fact that supports this opinion.

1 pt *Shuckburgh was at Fort Crailo in 1755; many men who lacked training and equipment were at Fort Crailo when Shuckburgh was there; or any other appropriate response.*

B In your own words, explain the opinion that Richard Shuckburgh wrote “Yankee Doodle.”

Now list at least one fact that supports this opinion.

The Words

Many people believe that “Yankee Doodle” was first written by **Richard Shuckburgh**. Shuckburgh was a surgeon in the British army. There are stories that say Shuckburgh wrote the song at Fort Crailo in New York when he saw a group of American soldiers preparing for an attack on Fort Ticonderoga. This would mean that the song was written sometime in the 1750s. But there are no documents to back up this version of the song’s origin. Documents do prove, however, that Shuckburgh was at Fort Crailo in 1755. This was a time when many men from the countryside had come to train for the army. These men would have lacked training and equipment. So many scholars believe they were Shuckburgh’s inspiration for the character of Yankee Doodle.

The Inspiration

The oldest written version of “Yankee Doodle” is from 1775. It tells the story of a man named Brother Ephraim. Brother Ephraim travels to Canada to fight as a soldier. But he returns home a coward who will not fight. This version of the song includes instructions for the singer to sing “through the Nose” with a “West Country drawl & dialect.”

Scholars believe that this version of the song was based in part on **Ephraim Williams**. Williams was a colonel in the Massachusetts Militia. Unlike Brother Ephraim, however, Williams was a brave soldier. He died in the Battle of Lake George. No one knows for sure who wrote this version of the song.



C Write one opinion that the songwriter had about Ephraim Williams.

1 pt *He was a coward; he had a country accent; or any other appropriate response.*

Now write two facts about him.

2 pts Accept any two of the following for 1 pt each: *He was a colonel in the Massachusetts militia; he was a soldier; he died in the Battle of Lake George.*

Fact & Opinion Lesson 4: Yankee Doodle

Father and I went down to camp,
 Along with Captain Gooding,
 And there we saw the men and boys
 As thick as hasty pudding.

Chorus
Yankee Doodle keep it up,
Yankee Doodle dandy,
Mind the music and the step,
And with the girls be handy.

There was Captain Washington
 Upon a slapping stallion,
 A-giving orders to his men,
 I guess there was a million.

Chorus
Yankee Doodle keep it up,
Yankee Doodle dandy,
Mind the music and the step,
And with the girls be handy.

And then the feathers on his hat,
 They looked so 'tarnal fine, sir,
 I wanted pockily to get
 To give to my Jemima.

Chorus
Yankee Doodle keep it up,
Yankee Doodle dandy,
Mind the music and the step,
And with the girls be handy.

"Yankee Doodle" Today

"Yankee Doodle" remained even after the Revolutionary War. Some supporters of the Confederacy adapted the song to support their cause. Many Americans hear the song, they think about the mismatched clothing soldiers. Instead, they think about their country.



George Washington was the commander of the American forces during the Revolutionary War.

D In your own words, explain the author's opinion of George Washington.

1 pt *He had a nice horse; he was bossy; he had a nice hat; he was well dressed; or any other appropriate response.*

D In your own words, explain the author's opinion of George Washington.

E Even though the song is full of opinions, it also contains some statements that might be facts. Write one of them.

E Even though the song is full of opinions, it also contains some statements that might be facts. Write one of them.

1 pt *George Washington was a captain/leader; there were many men who fought in the war; Washington gave orders to his men; or any other appropriate response.*

opinion? _____

Fact & Opinion

Fact & Opinion Lesson 4: *Yankee Doodle*

Discussion Prompts Following the Lesson

- Sometimes you have to know a song's history better in order to understand it. What words could you research further to add to your understanding of the song? Judging from the context of the song, what do you think these words might mean?

A: *Answers will vary. Ask students to explain their answers.*

- Is it possible to tell who wrote "Yankee Doodle" from the facts in this passage? What are some kinds of extra information that would help you to know the truth about who wrote the song and when?

A: *You need more information about the people who may have written it; you need to know more about their lives and whether they would have seen or known about the events described in the song, etc.*

Fact & Opinion Lesson 4: *Yankee Doodle*

What do you know about the song “Yankee Doodle”?

Standards Links

English/Language Arts 5.5.6 - Write for different purposes (information, persuasion, description) and to a specific audience or person, adjusting tone and style as appropriate.

Suggested Activity: Explain that “Yankee Doodle” was written for a specific purpose and that sometimes music is the appropriate medium for prose. Poetry, letters, essays, etc. may be appropriate at other times. Ask students to write about the American Revolution for second graders. Remind them to write for conveying facts as well as meeting the needs of their audience in style and tone.

Music 5.7.2 - Describe ways that music is related to other subjects.

Suggested Activity: Have students discuss how understanding the background of a piece of music such as “Yankee Doodle” can help with learning about history.

Fact & Opinion Lesson 5: *The Stamp Act*

Reading Difficulty: 5.9

Guided Reading Boxes: 6

Vocabulary

- boycott
- Parliament
- Stamp Act

Skills and Standards

English/Language Arts Focus:

- 5.2.5 Distinguish among facts, supported inferences, evidence, and opinions in text.

Social Studies Standards Addressed:

- 5.1.12 Identify major British and American leaders and describe their roles in key events, such as the First and Second Continental Congresses, drafting and approval of the Declaration of Independence (1776), publication of *Common Sense*, and major battles of the Revolutionary War.
- 5.1.22 Identify and interpret primary source and secondary source materials that pertain to a problem confronting people during the founding period of the United States.

Science Standards Addressed:

- 5.1.2 Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.

Background Prompt

Have you ever encountered a rule that you thought was unfair? What was it? What did you do about it?

Fact & Opinion Lesson 5: The Stamp Act

A Write one fact about a law that passed in 1764.

1 pt *It was called The Sugar Act; it increased the taxes on non-English goods shipped to the colonies.*

What was the colonists' opinion of this law?

1 pt *It was not fair.*

MAIN IDEA

Colonists rebelled against the Stamp Act because they had no voice in Parliament.

A Write one fact about a law that was passed in 1764.

What was the colonists' opinion of this law?

B Based on what you have read, what is *your* opinion of the Stamp Act?

Why is this an opinion?

B Based on what you have read, what is your opinion of the Stamp Act?

1 pt *Accept any reasonable response related to the lesson.*

Why is this an opinion?

1 pt *It can't be proven; it is what I think/believe; or any other appropriate response.*

LESSON 5

FACT & OPINION

The Stamp Act

Colonists and Rebellion in the Colonies 1764-1765

Have you ever felt that a rule was unfair? Have you ever been upset because no one asked your opinion in a decision being made about you? That is what American colonists were feeling in the 1760s.

Parliament and the Colonies

By the 1760s, hundreds of thousands of people had moved to North America from England and Europe. These people, or colonists, were ruled by England. In England, the king and a group of lawmakers called **Parliament** made the rules. All English people had to follow the rules, or laws. It did not matter if you lived in England or in the new English colonies. One law, The Sugar Act (1764) increased the taxes on non-English goods shipped to the colonies. Another, The Currency Act (1764), made it illegal for the colonists to create their own money.

As Parliament passed more laws telling the colonists what they could and couldn't do, some colonists began to rebel. It wasn't the laws themselves that angered these colonists, it was how the laws were made. These colonists didn't like that Parliament wasn't asking their opinions.

The Stamp Act

By 1765, England needed more money to protect the colonies. So, on March 22, 1765, England's Parliament passed **The Stamp Act**. It required merchants to buy stamps and put them on all printed papers like newspapers and even playing cards. Purchased stamps had to be placed on court documents and business papers too. This made these papers more expensive for the colonists.

Standards Addressed: Soc: 5.1.12, 5.1.22
Sci: 5.1.2

1

Fact & Opinion Lesson 5: The Stamp Act

The Stamp Act made many colonists angry. They began to speak out and write about how unfairly they were being treated. Many colonists said they would boycott all English products if the Stamp Act wasn't repealed. To **boycott** means to refuse to support or buy something. When the colonists boycotted English products, they refused to buy goods sent from England.

The End of the Stamp Act

Eventually, England repealed the Stamp Act. But many more laws followed. Many colonists joined together and fought against the laws they felt were unfair. They fought because they felt they were being taxed by England without having a voice in England's Parliament. They argued that they were being forced to pay "taxation without representation," because they did not have any representatives in Parliament. The colonists' frustration over what they felt were unfair taxes would eventually lead to the American Revolution.

C Is this statement a fact or an opinion?

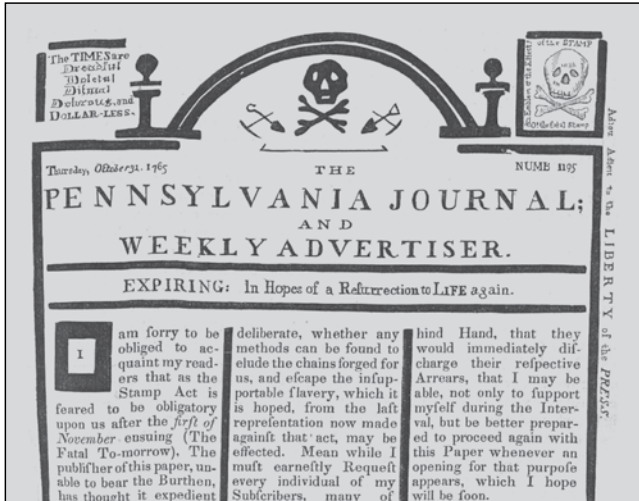
How do you know?

C Is this statement a fact or an opinion?

1 pt *fact*

How do you know?

1 pt *It can be proven; there is evidence in the text that they were angry; or any other appropriate response.*



Newspapers like this one were one place colonists voiced their opinions.

2

Fact & Opinion Lesson 5: The Stamp Act

Taxes and Tempers

Below are some quotations from the 1760s with their modern-day translations. Read what people were saying about the Stamp Act.

"We...do hereby promise...not to buy any goods...that shall be shipped from Great Britain after the first day of January unless the Stamp Act shall be repealed."

- Notice in the *New York Mercury* Nov. 7, 1765

We will refuse to buy anything made in England after January 1st if the Stamp Act isn't repealed!

D Write one fact from this notice.

"Upon the whole, I will beg leave to tell the House what is really my opinion. It is, that the Stamp Act be repealed absolutely, totally, and immediately; that the reason for the repeal should be assigned, because it was founded on an erroneous principle."

- William Pitts speech about the Stamp Act, January, 1766

After all that I have said, I would like to tell all of you in the House of Burgess my opinion once and for all. The stamp act should be repealed totally and immediately. That is because it was never a good law in the first place since it never made sense.

E Write one opinion from Pitt's speech.

1 pt *The Stamp Act should be repealed immediately; it was never a good law; it did not make sense.*

"It has been commonly understood...that the consent of the British Lords and Commons, i.e. of all the men within the realm, must be obtained to make a tax legal there. The consent of the lords and commons of his majesty's ancient and very respectable kingdom of Ireland, has also been deemed necessary to a taxation of subjects there."

- Lawyer James Otis pamphlet published in Boston, 1765, "Considerations on behalf of the Colonists"

We all know that in order to enforce a tax in England, all of the men in Parliament must agree. And if England wants to tax subjects in the ancient and very respectable kingdom of Ireland, England must have the agreement of the Irish members of the Parliament, too.

E Write one opinion from Pitt's speech.

F Write two facts from Otis's pamphlet.

F Write two facts from Otis's pamphlet.

2 pts 1 point each for any of the following: *all men in Parliament must agree to enforce a tax in England; England needs to have the agreement of Irish members of Parliament to enforce a tax in Ireland; Ireland is an ancient kingdom.*

D Write one fact from this notice.

1 pt *It was written in 1765; the colonists would refuse to buy British goods; it appeared in the New York Mercury.*

Fact & Opinion

Fact & Opinion Lesson 5: *The Stamp Act*

Discussion Prompts Following the Lesson

- Look at the three laws discussed in this passage: The Stamp Act, The Sugar Act, and The Currency Act. What do they have in common?

A: *They all tax goods in the colonies.*

Looking at each act, why do you think that people in England might have held the opinion that it was a good idea?

A: *They raised money for England, etc.*

- If you were a colonist arguing against the Stamp Act, what facts from the passage could you use to support your argument?

A: *The colonists had no representation in Parliament, the laws did not make sense, etc.*

- What might be some other points you might make to argue against The Stamp Act?

A: *Answers will vary. Ask students to justify their choices.*

- Look at the second paragraph on page 2. Why does the author write "fought against the laws they felt were unfair" instead of "fought against the unfair laws"?

A: *It makes it clear that the colonists were the ones who thought the laws were unfair, not the author.*

Fact & Opinion Lesson 5: *The Stamp Act*

Standards Links

English/Language Arts 5.5.4 - Write persuasive letters or compositions that...

Suggested Activity: Show students the Editorial and Letters section of a newspaper. Remind students that in colonial times, the newspaper, not television, was the main media. Opinions and facts were spread via print. Ask students to write persuasive letters that include facts about an issue that is bothering them, as well as their personal opinion about the issue.

Health 5.7.4 - Demonstrate the ability to work cooperatively when advocating for healthy individuals, families, and schools.

Suggested Activity: Review that the colonists used letter writing, pamphlets, and newspapers to advocate for their rights. In cooperative groups, have students brainstorm ways to advocate for something that is necessary to improve the health of schoolmates or family members. Have students create posters or essays that are persuasive in convincing others to follow healthy lifestyles. The posters should contain facts about the health problem addressed as well as impact the emotion of the reader.

Social Studies 5.1.18 - Explain the development of the first American political parties and describe the presidential elections of 1792 (re-election of George Washington), 1796 (election of John Adams), and 1800 (election of Thomas Jefferson).

Social Studies 5.2.3 - Give examples of how the British colonies developed forms of representative government, self-government, and democratic practices within the British imperial political system, including town meetings, colonial legislative bodies, and charters on individual freedoms and rights.

Suggested Activity: Explain that our government set up ways for people to discuss their differing opinions such as town meetings, legislative bodies, etc. As a class, create a compare and contrast chart showing the opinions of the loyalists and patriots regarding taxes. Explain that over time, people with similar values developed into political parties. Have students research to learn about the major political parties. Have small groups create compare and contrast charts about the parties.

Fact & Opinion: *Colonial Life*

Scoring Rubric Concluding Project

The following rubric is provided to assist you in scoring the culminating project for the Colonial Life set. It is intended only as a guide. Feel free to adjust the scoring to reflect your own teaching goals and expectations.

Step 1: Complete Initial Research (25 pts.)

- ___ /10 points Student has completed the chart.
- ___ /5 points Student has listed resources used.
- ___ /5 points Student includes evidence of note taking.
- ___ /5 points Chart reflects an understanding of facts and opinions.
- ___ TOTAL

Step 1: Complete Initial Research

Name: _____ Date: _____

Historical Event: _____

List the information you know. After research, check a check in the correct column.

Determines if Fact	Contains Fact	Fact Supports or Disproves	No Evidence of Fact or Opinion
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sources used for researching event: _____

(Attach your notes to this page.)

Step 2: Review Primary Source Documents (25 pts.)

- ___ /10 points Available primary source information is completed (author, date, etc.).
- ___ /10 points Comments show understanding of facts and opinions.
- ___ /5 points Student's choice of documents reflects an understanding of primary source documents.
- ___ TOTAL

Step 2: Review Primary Source Documents

Name: _____ Date: _____

Historical Event: _____

Name of Primary Source A: _____

Author of Document: _____

Date of Document: _____

Title: _____ (Type journal, newspaper)

Date of Source: _____

Facts:

1. _____
2. _____

Additional facts: _____

Opinions:

1. _____
2. _____

Additional opinions: _____

Name of Primary Source B: _____

Author of Document: _____

Date of Document: _____

Title: _____

Facts:

1. _____
2. _____

Additional facts: _____

Opinions:

1. _____
2. _____

Additional opinions: _____

(Attach your rough draft to this page.)

Step 3: Write Factual Report (50 pts.)

- ___ /10 points Paper is free from factual errors and opinions.
- ___ /10 points Paper includes at least 5 facts.
- ___ /10 points Paper gives a clear summary of the historical event.
- ___ /10 points Student incorporates research into paper.
- ___ /10 points Student shows evidence of rough draft and editing.
- ___ TOTAL

Step 3: Write Factual Report

On a separate piece of paper, write the rough draft for your factual report. Remember to include at least five facts about the historical event you researched. Do not include any opinions, and you have edited your draft, write your final copy here.

(Attach your rough draft to this page.)

___ /100

Fact & Opinion: *Colonial Life*

Teacher Tools

Additional Practice Activities:

- Graphic Organizer: Give students a chart that they can fill out as they read.

Fact	Opinion	Needs Further Investigation

- Have students look at a piece of colonial art (see **Useful Web Sites on page 189**) and write five sentences about it. Have the students share their sentences with the class. Decide if each is a fact or an opinion. Talk about what words in the sentences provide clues.
- Have students go through a recent lesson in a science or social studies book and write down every opinion signal word or judgment word that they find. Have students compare the results to see which words are used most frequently.

Extension Activities:

- Have students watch a news program and take notes on facts and opinions heard. Have a small group discussion on journalistic truth and if opinions should be expressed. Ask if the video clips and pictures shown on the news can express only facts or opinions.
- Extend the lesson on quilts by having students work on determining the area of the quilt and quilt square.

Fact & Opinion: *Colonial Life*

Teacher Tools

Useful Web Sites:

Please note that web site content may change at any time.

Colonial Quilting Myths

<http://www.womenfolk.com/historyofquilts/quiltmyth.htm>

K-12 Colonial Resources

<http://falcon.jmu.edu/~ramseyil/colonial.htm>

Samplers

Dorothy Williams' 1761 sampler at Boston's Museum of Fine Arts 16 15/16 x 13

http://www.mfa.org/collections/search_art.asp?recview=true&id=66273

Mary Eaton's 1763 sampler at Vermont's Shelburne Museum approximate size 11 1/2 x 15 1/4

<http://www.shelburnemuseum.org/collections/detail.php?id=9&flash=true>

Elizabeth Hudson's 1737 sampler Philadelphia's Museum of Art reproductions size 15 1/2 x 11 1/4

<http://www.scarlet-letter.com/rsdescr/18tham/hudson.htm>

Hannah Trecothick 1738 sampler at Boston's Museum of Fine Arts 18 1/2 x 8 15/16

http://www.mfa.org/collections/search_art.asp?recview=true&id=67112

Colonial Life

<http://www.history.org/Almanack/life/life.cfm>

http://www.kidinfo.com/American_History/Colonization_Colonial_Life.html

<http://www.historyplace.com/unitedstates/revolution/rev-early.htm>

<http://library.thinkquest.org/J002611F/?tqskip=1>

<http://falcon.jmu.edu/~ramseyil/colonial.htm#K>

http://www.east-buc.k12.ia.us/00_01/CA/home.htm

<http://www.history.org/>

<http://www.libsci.sc.edu/miller/Colony.htm>

<http://www2.lhric.org/pocantico/earlyam/earlyam.htm>

<http://www.pbs.org/ktca/liberty/>

<http://www.42explore2.com/colonial.htm>

<http://www.dasd-ew.org/history.htm#colonial>

http://mcgee.berlinschools.org/Library/colonial_life.htm#Personalities

<http://www.digitalhistory.uh.edu/>

<http://www.digitalhistory.uh.edu/historyonline/handouts.cfm>

Word Knowledge Lesson 1: *Beaver Pelts*

Reading Difficulty: 5.5

Guided Reading Boxes: 5

Vocabulary

- beaver ponds
- currency
- pelts

Skills and Standards

English/Language Arts Focus:

- 5.1.3 Understand and explain frequently used synonyms (words with the same meaning), antonyms (words with opposite meanings), and homographs (words that are spelled the same but have different meanings).

Social Studies Standards Addressed:

- 5.4.7 Analyze how the causes and effects of changes in price of certain goods and services had significant influence on events in United States history.

Science Standards Addressed:

- 5.4.4 Explain that in any particular environment, some kinds of plants and animals survive well, some do not survive as well, and some cannot survive at all.
- 5.4.5 Explain how changes in an organism's habitat are sometimes beneficial and sometimes harmful.

Background Prompt

Have you ever traded something like a baseball card or part of your lunch? How do you know what your item is worth?

LESSON 1

WORD KNOWLEDGE

VOCABULARY

- beaver ponds
- currency
- pelts

MAIN IDEA

The popularity of beaver fur led to economic and environmental changes.

Beaver Pelts

How much do you know about beavers? You might know that they have big tails and strong teeth, or that they build dams in rivers. But did you know that beavers have had an effect on the economy of North America? In fact, because their fur was so popular, beavers changed life in the early United States and continue to affect how we live today. What kinds of changes did the popularity of beaver fur bring about?

Changes in the Economy

What do beavers and dollar bills have in common? Both have been used as currency in the United States. **Currency** is anything that is used as a means of exchange. Today when we use the word *currency*, we are usually talking about paper money. But many other things can be used as currency as well.

A Write at least two ways you know that *currency* is an important word in this lesson.



A Write at least two ways you know that *currency* is an important word in this lesson.

2 pts: Accept any of the following for 1 pt each: It is included in the vocabulary box; it is in bold type; it appears many times in the text; it is included in the caption of the pictures; or any other appropriate response.

Word Knowledge Lesson 1: Beaver Pelts

Before the United States became a country, people needed a form of currency. Because hats made from beaver fur were popular in Europe, there was a high demand for beaver skins, or **pelts**. This high demand made the pelts very valuable. People decided to use them as a form of currency.

Beaver pelts could be traded for almost anything. Because people agreed about how much a beaver pelt was worth in other pelts and goods, they were able to trade easily. Almost anything that people might want had a set price in beaver pelts. This made it easy to compare the values of other objects. Before pelts were used as currency, people had difficulty paying for goods because they did not agree about how much each different good was worth. Unless they could find someone to trade with, who had exactly what they needed and was willing to trade it for what they had, people were unable to get what they needed. Finding the right person to trade with could take a lot of time.

Because they made trade easier, beaver pelts were a popular form of currency. They remained in use as currency until the middle of the 1800s, when declining demand for the pelts in Europe and the introduction of reliable paper money made them less useful.

Changes in the Environment

The popularity of beaver pelts led to environmental as well as economic changes. When settlers first arrived in the New World, they were surprised by the number of beavers living here. Beavers had been hunted to

How Much Was a Beaver Pelt Worth?



1 beaver pelt =

- 5 pounds of feathers
- 2 fox pelts
- 2 woodchuck pelts
- 4 raccoon pelts
- 1 bear pelt
- 5 pecks of Indian corn
- 10 pounds of pork
- 2 small axes
- 6 knives
- 2 yards of cotton
- 20 skeins of cotton thread

B *Pelt* is an unusual word. Write one thing that you like about this word, or one thing that will help you remember its meaning.

What is a synonym for *pelt*?

C It is important to pay attention to words used in graphics too. Use context clues or a dictionary to write a definition of *peck* as it is used here.

What is another meaning of *peck* that you know?

B *Pelt* is an unusual word. Write one thing that you like about this word, or one thing that will help you remember its meaning.

1 pt Answers will vary. Accept any reasonable response that explains what the student likes about the word or how it could be remembered.

What is a synonym for *pelt*?

1 pt Synonyms for *pelt* include fur and skin.

C It is important to pay attention to words used in graphics too. Use context clues or a dictionary to write a definition of *peck* as it is used here.

1 pt A peck is a unit of volume or capacity equal to eight quarts, or any other appropriate response from a dictionary.

What is another meaning of *peck* that you know?

1 pt A peck is a quick kiss, to tap with a beak, or any other appropriate response.

Word Knowledge Lesson 1: Beaver Pelts

extinction or near extinction in most parts of Europe. It is estimated that there were several hundred million beavers living in North America when Europeans began to arrive.

Because beaver pelts were so valuable, people wanted to get as many of them as possible. Many people began to trap beavers for their pelts. Trappers killed many of the beavers in North America. By the early 1900s, there were only about 100,000 beavers remaining.

A declining beaver population was not the only environmental change that was caused by the demand for beaver pelts. Beavers play an important role in the ecosystems in which they live. Beaver dams create areas of deeper water known as **beaver ponds**. Beaver ponds are home to other kinds of wildlife including turtles and ducks. Without beavers and beaver ponds, these animals have fewer places to live.

Beavers also help protect soil from erosion. This is because the trees they use in building their dams compete with small plants for sunlight and nutrients. When beavers tear down these trees, the plants can grow bigger and their roots help hold the soil in place.

Although the demand for beaver pelts is not nearly as great as it once was, people continue to trap beavers for their pelts today. In most places, beaver populations are growing, but in others beavers are still endangered. In some parts of the United States and Canada, people are working to protect beavers from extinction.



In Indiana, beavers were nearly extinct. Two beavers were brought to Indiana in 1935 and their population grew.

E This lesson includes many new and unusual words. Choose one of them and write it below.

Write one thing that you know about this word and how it is used.

D This paragraph does not give a definition of *erosion*. Use what you learned from the paragraph to write a definition in the space below.

How did you figure out your answer?

D This paragraph does not give a definition of *erosion*. Use what you learned from the paragraph to write a definition in the space below.

1 pt *Erosion is when soil is moved from one place to another, or any other appropriate response.*

How did you figure out your answer?

1 pt *Students might say they looked for context clues, reasoned that if the plants prevent erosion by keeping soil in place, erosion must mean the movement of soil, or any other appropriate response.*

E This lesson includes many new and unusual words. Choose one of them and write it below.

1 pt *Student should have listed at least one word from the lesson.*

Write one thing that you know about this word and how it is used.

1 pt *Accept any reasonable response related to the chosen word.*

Word Knowledge Lesson 1: *Beaver Pelts*

Discussion Prompts Following the Lesson

- What is one word that you learned from today's lesson? What is another situation in which you would use this word?
A: *Answers will vary. Have students explain their answers.*
- *Pelt* has another meaning besides "animal skin" and can be a verb as well as a noun. Do you know what it means to pelt something? What is a sentence that you can make with the verb *pelt*?
A: *Meanings include: to throw, hit with a series of blows, to move quickly. Sentences will vary. Look for the correct use of the verb pelt.*
- Judging from what you have learned from this lesson, what are some things that could be considered to be currency?
A: *Just about any answer can be correct as long as students show the understanding that if something is valuable, can be traded, and has a value that people can agree on, then it could be used as a form of currency.*

Word Knowledge Lesson 1: *Beaver Pelts*

Standards Links

English/Language Arts 5.5.5 - Use varied word choices to make writing interesting.

Suggested Activity: Have students think of as many synonyms for money as they can (*coins, currency, funds, loot, bills, dollars, change, allowance, dough, greenback, etc.*) Have students compare the subtle differences in meaning. Have students each write a paragraph that explains an event that involved money without using the word *money*.

Social Studies 5.1.19 - Develop and interpret timelines showing major people, events, and developments in the early history of the United States from 1776-1801.

Suggested Activity: Help students examine the history of the United States Treasury Department through timelines beginning with the act of Congress to establish the Treasury in 1789 and biographies of influential leaders such as Alexander Hamilton, the first Secretary of the Treasury (**see Useful Web Sites on page 225**).

Art 5.1.3 - Identify themes and symbols used in works of art and artifacts throughout history that portray universal ideas and beliefs.

Suggested Activity: Have students examine the artwork on coins produced by the U.S. Mint for symbols and themes. Explore how the artwork is produced on coins from original sculptures as well (**see Useful Web Sites on page 225**).

Word Knowledge Lesson 2: *Making a Budget*

Reading Difficulty: 5.7

Guided Reading Boxes: 4

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

- budget
- circle graph

Skills and Standards

English/Language Arts Focus:

- 5.1.2 Use word origins to determine the meaning of unknown words.
- 5.1.3 Understand and explain frequently used synonyms (words with the same meaning), antonyms (words with opposite meanings), and homographs (words that are spelled the same but have different meanings).

Social Studies Standards Addressed:

- 5.4.8 Identify the elements of a personal budget and explain why personal spending and saving decisions are important.

Science Standards Addressed:

- 5.2.2 Use appropriate fractions and decimals when solving problems.

Math Standards Addressed:

- 5.1.4 Interpret percents as a part of a hundred. Find decimal and percent equivalents for common fractions and explain why they represent the same value.
- 5.2.1 Solve problems involving multiplication and division of any whole numbers.
- 5.5.7 Add and subtract with money in decimal notation.
- 5.6.1 Explain which types of displays are appropriate for various sets of data.
- 5.7.2 Decide when and how to break a problem into simpler parts.

Background Prompt

Do you keep track of how much money you have and how you spend your money?

USING MATH

LESSON 2

Making a Budget

Maria is a member of the chess club at her school. As the club's treasurer, it is her job to keep track of how much money the club earns and how it spends that money.

At the beginning of the year, the club had \$125.50 in its account. At its fundraiser, the club earned an additional \$274.50. Then, the club received a donation of \$100.00.

With this money, the club needs to pay for travel, snacks, and supplies for the year. They know that traveling to matches will cost \$250.00. They estimate that snacks for the year will cost approximately \$100.00, and that other supplies for the year will cost approximately \$100.00.

Maria needs to figure out if the club has enough money to pay for all of these expenses. She also needs to create a **budget**. A budget is a plan for spending money. The budget will show how much money the club has and how it will spend the money.



1 Standards Addressed: Soc: 5.4.8 Sci: 5.2.2, Math: 5.1.4, 5.2.1, 5.5.7, 5.6.1, 5.7.2

VOCABULARY

budget
circle graph

A *Treasurer* may be a new word for you. Notice that it contains the word *treasure*. What do you think *treasurer* means? Write your definition below.

How does noticing the word *treasure* help you understand what a treasurer is?

B How can you tell that *budget* is an important word in this lesson? Write at least two ways.

Write one thing that you know about the word *budget* or how it is used.

A *Treasurer* may be a new word for you. Notice that it contains the word *treasure*. What do you think *treasurer* means? Write your definition below.

1 pt *A treasurer is someone who takes care of money/a treasure, or any other appropriate response.*

How does noticing the word *treasure* help you understand what a treasurer is?

1 pt *A treasure is something you want to protect and a treasurer protects money, or any other appropriate response.*

B How can you tell that *budget* is an important word in this lesson? Write at least two ways.

2 pts: Accept any of the following for 1 pt each: *It is in the vocabulary box; it is in bold type; it is in the title of the lesson; it is repeated many times in the lesson; or any other appropriate response.*

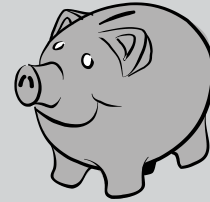
Write one thing that you know about this word or how it is used.

1 pt *Accept any reasonable response. Students might say that it had to do with money, with planning, how to spend money, with saving money, etc.*

Word Knowledge Lesson 2: Making a Budget

Math in Your World

Governments, businesses, and organizations all have budgets. But it is important for individual people to make and use budgets too. Even kids should make budgets. Making a personal budget is important because it helps you spend your money wisely. It will help you figure out what you can afford to buy, and what you cannot. It can even help you make a plan to save money. Learning to make and stick to a personal budget now will help you make wise spending and saving decisions when you grow up.



C Choose one new or unusual word from this lesson and write it below.

Write one thing that you like about this word, or one way you could use this word in your daily life.

First, Maria needs to figure out how much money the club has.

beginning balance	\$ 125.50
fundraiser	\$ 274.50
donation	+\$ 100.00
	<hr/>
	\$ 500.00

The club has \$500.00 that it can spend. Now Maria makes a list of the club's expected expenses.

travel	\$ 250.00
snacks	\$ 100.00
supplies	+\$ 100.00
	<hr/>
	\$ 450.00

The club expects to have \$450.00 in expenses. This means that they have \$50.00 left for miscellaneous expenses.

Now that Maria knows that the club has enough money, she wants a way to share the information with other members of the club. She decides to use a **circle graph**, or pie chart, because it will show the relationship of each item in the budget to the total amount of money that will be spent. A circle graph will help members of the club see and understand the information quickly.

C Chose one new or unusual word from this lesson and write it below.

1 pt Accept any word from the lesson.

Write one thing that you like about this word, or one way you could use this word in your daily life.

1 pt Accept any reasonable response related to the chosen word.

Word Knowledge Lesson 2: Making a Budget

To make a circle graph, Maria needs to convert each expense to a fraction of the total amount of money in the club's budget.

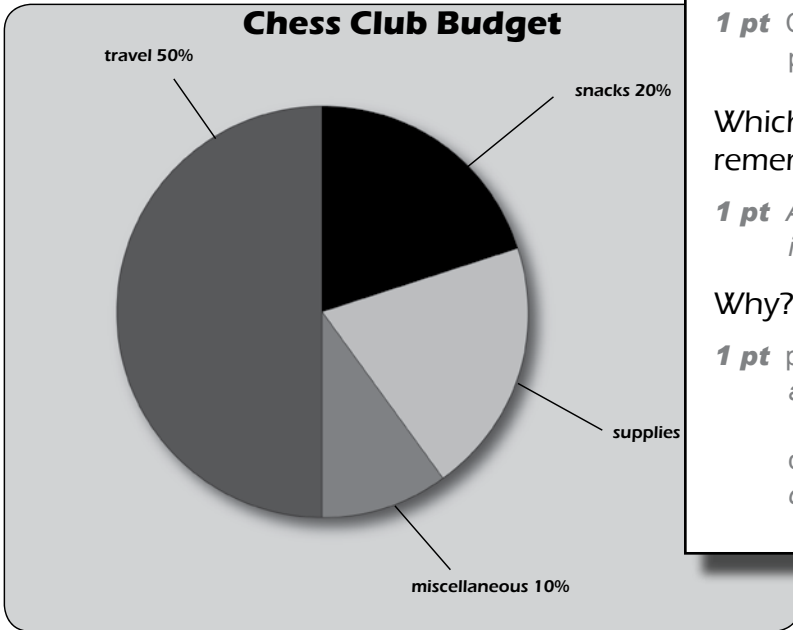
travel: $\frac{\$250}{\$500} = \frac{5}{10}$ or 50%

snacks: $\frac{\$100}{\$500} = \frac{2}{10}$ or 20%

supplies: $\frac{\$100}{\$500} = \frac{2}{10}$ or 20%

miscellaneous: $\frac{\$50}{\$500} = \frac{1}{10}$ or 10%

Using these fractions, Maria creates the following circle graph to help the club understand their budget.



D Write one synonym for *pie chart*. _____

Which term is easier for you to remember? _____

Why? _____

D Write one synonym for *pie chart*.

1 pt Circle graph is a synonym for pie chart.

Which term is easier for you to remember?

1 pt Accept either answer as long as it is appropriately justified below.

Why?

1 pt pie chart: It looks like a pie; or any other appropriate response.

circle graph: It is a circle; or any other appropriate response.

3

Word Knowledge Lesson 2: *Making a Budget*

Discussion Prompts Following the Lesson

- In today's lesson, we figured out the meaning of the word *treasurer* by noticing that the word *treasure* is included in it. Other words for officers in a club also have clue words in them. How do the following clue words help explain what each officer does?

President: *preside*, which means to be in charge.

A: *A President has authority, runs meetings, is in charge of other people.*

Secretary: *secret*

A: *A secretary handles all of the information that is only for club members, keeps secrets.*

- Look at page 3. Maria needed to convert each of the club's expenses to a fraction of the club's total budget. When you convert a number to a fraction, it takes another form. What are some other ways to use the word *convert*?
A: *Answers will vary. Convert means to change, to adopt a new religion, to exchange for something of equal value, to shoot and score a basket or goal after getting a rebound or receiving a pass, to score a spare in bowling, etc. Have students explain their answers.*

Word Knowledge Lesson 2: *Making a Budget*

Standards Links

Health 5.2.5 - Compare the cost of basic health products.

Mathematics 5.2.1 - Solve problems involving multiplication and division of any whole numbers.

Mathematics 5.6.2 - Find the mean, median, mode, and range of a set of data and describe what each does and does not tell about the data set.

Suggested Activity: Explain how budgets can be affected by the brand of product purchased. Have students collect data on the prices for packages of bandages. Have students calculate the cost per bandage, determine the mean and range for prices, discover whether brand name or design affects price, and vote on the bandages they would recommend and why.

Mathematics 5.2.5 - Use technology, such as calculators or spreadsheets, in determining area and volume from linear dimensions. Find area, volume, mass, time, and cost, and find the difference between two quantities of anything.

Suggested Activity: Have students plan to build a fence around a space at home or school. Have them calculate the perimeter of the space they wish to fence in. Have them use this information in conjunction with the Internet or printed materials, to write a budget for building the fence. Have them calculate the time it will take to construct the fence, the cost of the materials, and the area of the space that will be fenced in.

Word Knowledge Lesson 3:

How Does a Market Economy Work?

Reading Difficulty: 5.7

Scaffolding/Guided Reading Boxes: 6

Note: Students are not expected to complete the activities included in this lesson. They only need to read the material and answer the questions in the Guided Reading Boxes. However, teachers may choose to have students complete these activities.

Vocabulary

- demand
- entrepreneurs
- market economy
- supply

Skills and Standards

English/Language Arts Focus:

- 5.1.3 Understand and explain frequently used synonyms (words with the same meaning), antonyms (words with opposite meanings), and homographs (words that are spelled the same but have different meanings).

Social Studies Standards Addressed:

- 5.4.2 Summarize a market economy and give examples of how the colonial and early American economy exhibited these characteristics.
- 5.4.6 Predict the effect of changes in supply and demand on price.

Background Prompt

Who do you think decides how much things will cost? When you need something, how much are you willing to pay? Will you buy something sometimes just because it's inexpensive? Will you pay more for some thing because you really want it?

Word Knowledge Lesson 3: How Does a Market Economy Work?

ACTIVITY!

LESSON 3

WORD KNOWLEDGE

A The word *consumer* isn't defined as a vocabulary word. What are two ways you can find out the meaning of a word you don't know?

2 pts 1 point each for any of the following:

Look in a dictionary; use a glossary; ask someone; or any other appropriate response.

A The word *consumer* isn't defined as a vocabulary word. What are two ways you can find out the meaning of a word you don't know?

B *Entrepreneur* is a vocabulary word in this lesson. What is one way you can remember this word?

Did You Know?

Market economies are sometimes called free markets, free economies, or free enterprise systems.

How Does a Market Economy Work?

A s a consumer, you make decisions about how you will spend your money. You may make your choices based on price, on what you know about a product, or on what is popular. You may even base your decision on all of these factors. You have these choices as a consumer because of the kind of economy that we have in the United States.

The economy of the United States is what is known as a **market economy**. In a market economy, sometimes called a "free market," businesses are owned by citizens instead of the government. Prices are determined by competition. How does a market economy work?

Private Ownership

In some countries, the government owns all of the businesses. It decides how they should be run. It controls the prices of goods and services. In a market economy, like the one we have in the United States, citizens own businesses. These business owners are known as **entrepreneurs**. The government makes sure that entrepreneurs follow certain rules and protects consumers from unsafe products, but it does not control the businesses.



Standards Addressed: Soc: 5.4.2, 5.4.6

1

B *Entrepreneur* is a vocabulary word in this lesson. What is one way you can remember this word?

1 pt *Accept any reasonable response. Examples might include: It has a lot of letters and entrepreneurs can make a lot of money; it begins with entre, and entrepreneurs enter into business, etc.*

Word Knowledge Lesson 3: How Does a Market Economy Work?

Competition

One of the most important features of a market economy is that it is controlled by supply and demand. Supply and demand are related to competition in the market. **Supply** means what producers are willing and able to sell at various prices. **Demand** means what consumers are willing and able to buy at various prices. Together, supply and demand determine the prices of goods and services offered for sale in a market economy.

When supplies are low, consumers must compete with each other to get the good or service that is in short supply. This is what causes prices to increase. The consumer who

is willing to pay the highest price will get the item or service. When the demand for a good or service is high, prices will increase. The good or service may become very expensive.

When there is less demand for a good or service, and there is a large supply of it, prices will fall. The good or service may become very cheap, and those who are selling it may not make enough money to remain in business. When demand is low, entrepreneurs and businesses must compete with each other in order to attract consumers. This is what causes prices to decrease. The entrepreneur or business that is willing to sell its good or service at the lowest price is most likely to attract consumers.

C What is another definition of *demand* that you know?

How is your definition related to the economics term *demand*?

Use the word *demand* to describe a product that is popular at your school.

Create a Business Plan

Imagine that your school allowed students to work as entrepreneurs and sell products or services in booths around the school. What product would you sell? Would you make cards, bookmarks, or something else? What service could you offer? Would you offer to carry backpacks to the bus, clean out desks, or a different service?

Before you start a business, you need to have a business plan. This plan should include the product information, goods, and expenses of your business. First, you need to decide on the product or service you want to sell. Second, you will need to research the current market's supply and demand for your product or service. Third, you will need to calculate your costs and how much you expect to earn.

C What is another definition of *demand* that you know?

1 pt Demand can mean to ask for, or claim something.

How is your definition related to the economics term *demand*?

1 pt When a product is in high demand, many people want to claim it; or any other appropriate response.

Use the word *demand* to describe a product that is popular at your school.

1 pt Answers will vary. Examples include: Light-up sneakers or video games are in high demand at our school.

Word Knowledge Lesson 3: How Does a Market Economy Work?

Business Plan

Business Information

Owner's name : _____

Product to be sold/service offered: _____

Product will be made by/service supplied by: _____

Market Research

Who are your customers? _____

Is your product in low or high demand? How do you know? _____

How does your product compare to the current market supply in quality and price? _____

Where else can your customers get your product? _____

How will you advertise your product? _____

What supplies will you need? How much will they cost? _____

D What vocabulary word above could be substituted for 'owner's name' here?

1 pt Entrepreneur could be substituted.

D What vocabulary word above could be substituted for "owner's name"?

E Is a customer the same as a consumer?

How are they the same or different?

1 pt Yes/No.

1 pt Accept any answer that appropriately justifies the yes/no answer above. Examples include:
Yes: Both use a product.
No: A consumer doesn't necessarily buy a product, but a customer does.

F The word *supplies* is similar to the verb *supply*. In your own words, write definitions of both of these words.

supply:

1 pt Supply means to provide with needed materials.

supplies:

1 pt Materials used or necessary to complete a task, or any other appropriate response.

Word Knowledge Lesson 3: *How Does a Market Economy Work?*

Discussion Points Following the Lesson

- *Entrepreneur* is one of the vocabulary words we learned in this lesson. It comes from another language. What language do you think it comes from and why?

A: *It comes from the French language. Have students discuss their answers and ideas.*

Its parts mean between (*entre*) and taker (*preneur*). How could these parts be connected to the meaning of the word *entrepreneur*?

A: *Business owners convey products from workers to consumers, other answers could also be acceptable.*

- Judging from this lesson, what do you think the term *market value* means?

A: *It means the amount that something can be sold for, the amount that something is worth based on supply and consumer demand.*

- In this lesson, you read about a business plan. What is the purpose of a business plan?

A: *It can help you figure out what you will sell, how much it will cost, and how much you will earn.*

What factors or events might make you change your business plan?

A: *Factors might include changes in the supply of the good or service you are selling, an increase or decrease in the demand for the good or service, knowledge of competitors' plans, etc.*

Word Knowledge Lesson 3: *How Does a Market Economy Work?*

Standards Links

Health 5.4.3 - Analyze how messages from media and other sources influence health behaviors.

Suggested Activity: Discuss how a market economy depends on advertising to market products. Discuss terms used in advertising (such as *direct marketing*, *bait advertising*, *target audience*, *infomercial*, *jingle*, *subliminal persuasion*, *telemarketing*, etc.). Discuss how advertising affects your food choices (snack food consumption etc.) and how this affects overall health.

Mathematics 5.3.7 - Use information taken from a graph or equation to answer questions about a problem situation.

Suggested Activity: Inform students that the top snack food for students ages 8-12 is fruit. (According to the NPD Food Group) Have students research this statistic in their own school by making a graph of top snack choices. Have students find out if advertising or parents influence their classmates' snack food choices (**See Useful Web Sites on page 225**).

Word Knowledge Lesson 4: Adam Smith

Reading Difficulty: 5.7

Guided Reading Boxes: 7

Vocabulary

- economics
- laissez-faire
- philosophy

Skills and Standards

English/Language Arts Focus:

- 5.1.3 Understand and explain frequently used synonyms (words with the same meaning), antonyms (words with opposite meanings), and homographs (words that are spelled the same but have different meanings).

Social Studies Standards Addressed:

- 5.1.12 Identify major British and American leaders and describe their roles in key events, such as the First and Second Continental Congresses, drafting and approval of the Declaration of Independence (1776), publication of Common Sense, and major battles of the Revolutionary War.
- 5.1.22 Identify and interpret primary source and secondary source materials that pertain to a problem confronting people during the founding period of the United States.
- 5.2.4 Identify and explain key ideas about government as noted in founding documents of the United States, such as the Declaration of Independence, Articles of Confederation, Northwest Ordinance, United States Constitution, and the Bill of Rights.
- 5.4.2 Summarize a market economy and give examples of how the colonial and early American economy exhibited these characteristics.

Background Prompt

What do you think an economist does for a living?

Word Knowledge Lesson 4: Adam Smith

BIOGRAPHY

LESSON 4

WORD KNOWLEDGE

A This lesson does not have a section that lists vocabulary words on the first page. What should you do to identify

A This lesson does not have a section that lists vocabulary words on the first page. What should you do to identify important words?

1 pt You should skim the lesson to look for bolded words; look at the word boxes on the side of the page; look for words that are repeated; or any other appropriate response.

Adam Smith: Father of Economics

A lthough Adam Smith never lived in the United States, he had a great effect on our country and our way of thinking about economics.



Adam Smith

Adam Smith was born in Scotland in 1723. He was interested in learning from an early age. He began to study philosophy at Oxford University when he was only seventeen years old. When he was in his twenties, Smith began to develop a theory of economics. In the next 30 years, he traveled and studied. He also continued to speak about economics.

In 1776, Smith published a book entitled *An Inquiry into the Nature and Causes of the Wealth of Nations*. He had spent more than ten years working on this book. It took a lot of hard work, but it made him famous all over the world. It was very influential in the American colonies.

Smith's book drew attention to the study of economics. For this reason, he is often known as "The Father of Economics." One of the most famous parts of the book

important word in this lesson. Write one thing you know about this word.

B *Economics* is an important word in this lesson. Write one thing you know about this word.

1 pt Accept any reasonable response. Answers will vary. Students might say that it has something to do with money, etc.

Write one thing you know about how *economics* is used.

1 pt It is used when talking about goods and services; it is used when talking about money; it is used to describe Adam Smith's work; or any other appropriate response.

Write one thing you know about how *economics* is used.

C *Philosophy* is an important word in this lesson. How do you know?

C *Philosophy* is an important word in this lesson. How do you know?

1 pt It is defined in a box on the side of the page.

D Write one thing that you know about the word *influential* (What does it mean? How is it used? What other words is it related to?).

D Write one thing that you know about the word *influential* (What does it mean? How is it used? What other words is it related to?).

1 pt Accept any reasonable response. Students might say that it means something affects someone or something, that it is related to the word influence, that it describes something that is important to someone, etc.

Use *influential* to describe something in your life.

1 pt Accept any reasonable response that uses the term appropriately.

Word Knowledge Lesson 4: Adam Smith

E *Economy* is another form of the word *economics*. Using what you know about economics and the context from the paragraph, write a definition of *economy*.

1 pt *Economy means a country's production and use of goods and services, or any other appropriate response.*

Where have you heard the word *economy* before?

1 pt *Accept any reasonable response. Students might say they have heard it on the news, from adults, or that they have read it in a book, newspaper, etc.*

ADAM SMITH

laissez-faire
French term which is used to describe a kind of economics in which the government interferes as little as possible

E *Economy* is another form of the word *economics*. Using what you know about economics and context from the paragraph, write a definition of *economy*.

Where have you heard the word *economy* before?

F *Laissez-faire* is in italic print because it is a French word. What is one thing you like about this word?

G You probably know one meaning of the word *truck*, but that meaning does not make sense here. Use a dictionary to find a meaning that makes sense in this quotation and write it below.

"The propensity [tendency] to truck, barter, and exchange one thing for another is common to all men" - Adam Smith

F *Laissez-faire* is in italic print because it is a French word. What is one thing you like about this word?

1 pt *Accept any reasonable response. Students could say it looks interesting; it sounds different than English words; it is fun to use words from another language; or any other appropriate response.*

G You probably know one meaning of the word *truck*, but that meaning does not make sense here. Use a dictionary to find a meaning that makes sense in this quotation and write it below.

1 pt *Truck means to carry, or any other appropriate response from a dictionary.*

Word Knowledge Lesson 4: Adam Smith

Discussion Prompts Following the Lesson

- Adam Smith had a philosophy of economics that still affects the way we think about the economy today. How do you think his *laissez-faire* attitude might appeal to American colonists struggling with many restrictive laws made for them in England?
A: *Business owners might like the idea of less control by a government far away.*
- Imagine your parents decided to have a *laissez-faire* attitude toward everything that happens at your house. How would this be a good thing? How would this be a bad thing?
A: *Answers will vary. Have students explain their answers.*
- Read the Adam Smith quotation aloud. What do you think *barter* means? Would you agree with his statement? Why or why not?
A: *Barter means trade. Answers will vary to the other questions. Have students explain their answers.*

Word Knowledge Lesson 4: Adam Smith

Standards Links

English/Language Arts 5.6.7 - Spell roots or bases of words, prefixes (understood/misunderstood, excused/unexcused), suffixes (final/finally, mean/meanness), contractions (will not/won't, it is/it's, they would/they'd), and syllable constructions (in•for•ma•tion, mol•e•cule) correctly.

Suggested Activity: Explore how Adam Smith did not believe in monopolies. Discuss the students' word knowledge of *monopoly* and the dictionary meaning: students' prior knowledge of the word (Monopoly game), economics definition, and understanding of the prefix (*mono* meaning "one"). Note: *Poly* as the root in this word does not mean the same as *poly* as a prefix. *Poly* comes from the word that means "to sell."

Social Studies 5.2.9 - Demonstrate civic responsibility in group and individual actions, including civic dispositions—such as civility, cooperation, respect, and responsible participation.

Suggested Activity: Explain the meaning of the word *philanthropy*. Explore how many successful business people who have thrived in the economy that Adam Smith envisioned have also been notable philanthropists. Have students debate if philanthropy is a civic responsibility. Have students study the biographies of philanthropists such as George Peabody, Henry Ford, Eli Lilly, Paul Getty, Cornelius Vander Starr, Bill Gates, etc.

Word Knowledge Lesson 5: *Copper: The Great Conductor*

Reading Difficulty: 5.9

Guided Reading Boxes: 5

Vocabulary

- capital
- conduction

Skills and Standards

English/Language Arts Focus:

- 5.1.3 Understand and explain frequently used synonyms (words with the same meaning), antonyms (words with opposite meanings), and homographs (words that are spelled the same but have different meanings).

Social Studies Standards Addressed:

- 5.4.4 Explain how education and training, specialization, and investment in capital resources increase productivity.
- 5.4.5 Use economic reasoning to explain why certain careers are more common in one region than in another and how specialization results in more interdependence.

Science Standards Addressed:

- 5.3.10 Investigate that some materials conduct heat much better than others, and poor conductors can reduce heat loss.

Background Prompt

Where do you think copper comes from?

Word Knowledge Lesson 5: Copper: The Great Conductor

A What does the word *conductor* mean to you?

1 pt Accept any reasonable response. Students will likely think of a train or music conductor.

See if you have the same idea about *conductor* when you finish reading.

VOCABULARY
conduction
conductor

MAIN IDEA
 Copper mining is a profitable industry because copper has many uses.

A What does the word *conductor* mean to you?

See if you have the same idea about *conductor* when you finish reading.

B This paragraph gives the definition of *conduction*. What two other forms of the word *conduction* did you read?

B This paragraph gives the definition of *conduction*. What two other forms of the word *conduction* did you read?

2 pts: 1 point each for
conductor
conduct(s)

LESSON 5

WORD KNOWLEDGE

Copper: The Great Conductor

A Natural Element

Copper is an element found in the Earth. It is one of the Earth's metals, like silver and gold. The demand for copper is high because it is used to make many goods. It also has many useful qualities. It can be shaped or stretched, it lasts a long time, and it can be recycled. Importantly, it also helps move energy.



Pennies are copper-plated.

A Conductor of Energy

Like other metals, copper is a good conductor of energy such as heat. A conductor is able to move heat through matter. Heat can easily move from one piece of copper to another. You may have felt heat **conduction** when you ate something hot with a metal spoon. When you put a metal spoon into hot soup, the handle becomes warm. It becomes warm because the metal of the spoon conducts the heat. The spoon moves the heat from the soup to the handle. If you use a wooden spoon, the handle does not become warm. This is because wood is not a good conductor of heat.



You feel heat when you slide down a metal slide on a hot day because it conducts heat from the sun.

Standards: Soc: 5.4.4, 5.4.5, Sci: 5.3.10

Word Knowledge Lesson 5: Copper: The Great Conductor

Copper is used to conduct energy in a number of products. Pots and pans, car radiators, and water heaters are made with copper to help move heat energy. Copper is also a good conductor of another kind of energy—electrical energy. Copper wire is used in many things in your house. It moves electrical energy in phones, toys, televisions, and computers.

Copper Production

Because copper is such a good conductor, people dig or mine the Earth in search of it. The United States is the world's second largest producer of copper. This is good because the United States is the world's largest user of copper. Though copper is found in many places in the United States, copper is mostly mined in places with the highest amounts of copper. This is because mining and producing copper requires a lot of **capital** and labor resources.



Wires, like the ones shown above, are one common use of copper.

Capital resources (equipment and tools) and a large labor force (miners and smelters) are needed for getting the copper out of the Earth, transporting it, and preparing it for use in other goods. Because of the need for a large supply of copper, miners, and equipment, it is most profitable for companies to dig a large mine or many small mines that are close together. If all of the equipment and miners are in one place, the job of mining is easier and more profitable. Companies that make goods used in mining, such as mechanical shovels, often open their businesses near the mines.

C *Mine* can have more than one meaning. It can be a noun or a verb. It can also show possession. Write at least three meanings for *mine*.

C *Mine* can have more than one meaning. It can be a noun or a verb. It can also show possession. Write at least three meanings for *mine*.

3 pts 1 point each for any of the following: *Mine* means belonging to me, to dig natural resources from the Earth, a place where natural resources are dug from the Earth.

D Do you know what a *smelter* is? How does the text help you learn the meaning?

Find out the meaning of *smelter* and write it below.

D Do you know what a *smelter* is? How does the text help you learn the meaning?

1 pt *It indicates that smelters are part of a labor force; they help get copper out of the Earth, transport it, or prepare it for use; or any other appropriate response.*

Find out the meaning of *smelter* and write it below.

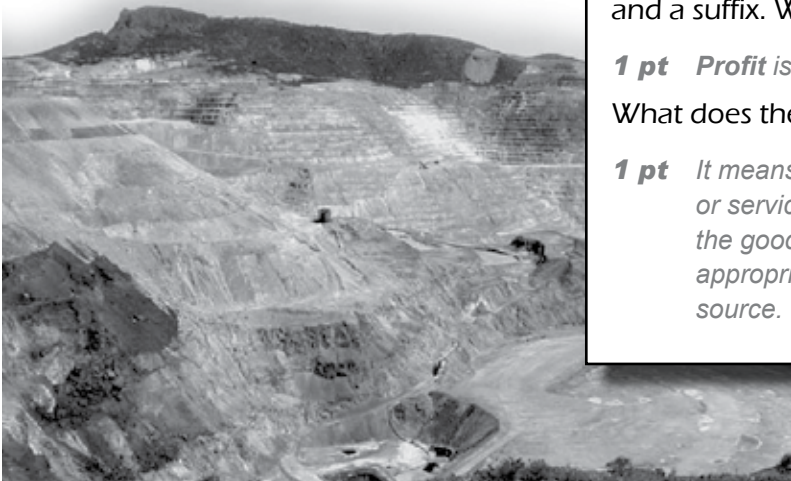
1 pt *A smelter is a worker who smelts (melts or fuses) ore, a device for smelting, or any other appropriate response from a dictionary or other resource.*

Word Knowledge Lesson 5: Copper: The Great Conductor

States that have profitable copper mines include Arizona, Utah, New Mexico, Montana, and Nevada. If you want to talk to a copper miner or smelter to learn more about the job of mining and producing copper, you should visit one of these states. Copper mining has also taken place in Michigan, Alaska, and Connecticut. You may be able to see the remains of mining towns or mining pits in these states too.

E *Profitable* is made up of a root word and a suffix. What is the root word?

What does this root word mean?



This copper mine is located in New Mexico, a state that is home to many such mines.

E *Profitable* is made up of a root word and a suffix. What is the root word?
1 pt *Profit is the root word.*
What does the root word mean?
1 pt *It means money from selling a good or service minus the cost of producing the good or service, or any other appropriate response from a reliable source.*

Word Knowledge Lesson 5: Copper: The Great Conductor

Discussion Prompts Following the Lesson

- In this lesson we learned that *conduction* is a word form related to the verb *conduct*. What are some of your favorite verbs? What other forms do they take? Are they all verbs or do they serve other functions as well?

A: *Answers will vary. Have students explain their answers.*

- Look at the caption under the picture of the penny. What do you think copper-plated means?

A: *It means the pennies are made out of another metal (zinc) and covered with a layer of copper.*

How could you remember what this means?

A: *Answers will vary. Have students explain their answers.*

- Look at the Guided Reading Box D. You may not have seen the word *smelt* before, but it contains a word that describes part of the process of smelting. What is that word?

A: *melt*

What is the difference between smelting and melting?

A: *Smelting is using heat to separate a metal from something else, while melting can be a way of combining things together and relates to materials other than metal.*

Why is it important to understand the difference between these two words?

A: *It helps you to better visualize the process of obtaining copper; it helps you to understand what the workers have to do to separate copper from the rocks in which it is found; etc.*

Word Knowledge Lesson 5: *Copper: The Great Conductor*

Standards Links

English/Language Arts 5.4.7 - Use a thesaurus to identify alternative word choices and meanings.

Suggested Activity: Have students identify alternative choices for the word *mine* as a noun (*deposit, pit, quarry, source*, etc.) and as a verb (*dig, quarry, excavate, unearth*, etc.).

Health 5.1.5 - Discuss how one's surroundings influence mental, emotional, social, and physical health.

Suggested Activity: Discuss how working in a mine may affect a person's health (inhalation of particles, hearing damage, etc.). Discuss how mining practices can affect people who live in area surrounding mines (environmental issues with mining, such as land and air pollution) (**See Useful Web Sites on page 225**).

Mathematics 5.1.4 - Interpret percents as part of a hundred. Find decimal and percent equivalents for common fractions and explain why they represent the same value.

Suggested Activity: Explain to students that copper is a main component in coins used in the United States. Have students compare the percentages of copper in different U.S. coins from informational charts produced by the U.S. Mint (**See Useful Web Sites on page 225**).

Word Knowledge: *Economics*

Scoring Rubric Concluding Project

The following rubric is provided to assist you in scoring the culminating project for the Economics set. It is intended only as a guide. Feel free to adjust scoring to reflect your own teaching goals and expectations.

Step 1: Market Research (15 pts.)

- ___ /5 points Student filled in all 5 columns of survey chart.
- ___ /5 points Student surveyed students.
- ___ /5 points Student tallied student opinions and circled top three choices.
- ___ TOTAL

Step 2: Survey the Competition (75 pts.)

- ___ /15 points (5 points per competitor) Student determined 3 competitors' and included their prices for item 1.
- ___ /15 points (5 points per competitor) Student determined 3 competitors' and included their prices for item 2.
- ___ /15 points (5 points per competitor) Student determined 3 competitors' and included their prices for item 3.
- ___ /15 points (5 points per item) Student set a reasonable price for the 3 items to sell in the school store.
- ___ /15 points (5 points per item) Student correctly determined the profit per item.
- ___ TOTAL

Step 3: Summary (10 pts.)

- ___ / 5 points Student includes at least 5 business terms.
- ___ / 5 points Student writes a clear explanation of his/her purchasing and pricing plan.
- ___ TOTAL

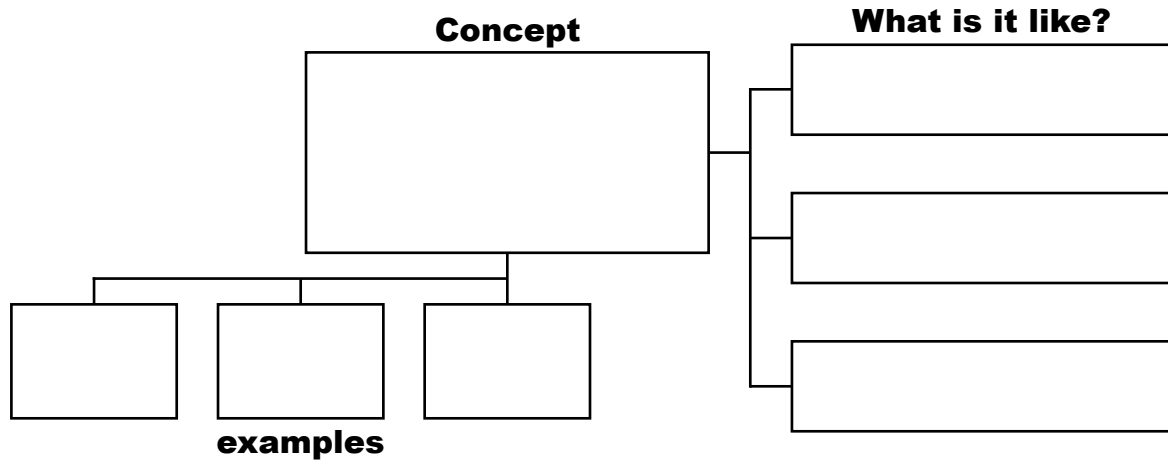
___ / 100

Word Knowledge: *Economics*

Teacher Tools

Additional Practice Activities:

- Graphic Organizer: Give students a blank concept map to fill in as they read new words. This will help them to illustrate the meaning of the words and think about their familiarity with them.



- For students that have difficulty understanding new terms in textbooks such as *democracy*, *magnitude*, etc., introduce them to picture books with the same terms or similar concepts in them. The non-threatening nature of the picture books will help them gain some background knowledge so they can better attend to their textbooks (idea from "Should Social Studies Textbooks become History? A look at Alternative Methods to Activate Schema in the Intermediate Classroom." *The Reading Teacher*. Volume 59, No. 2 October 2005 pp 122-130).

Extension Activities:

- If students already understand the vocabulary in an upcoming lesson, challenge them to expand their vocabulary by finding words that have the same root, prefix, or suffix as words in the lesson (Example: *monarchy*—*monocle*, *tetrarchy*, etc.).

Word Knowledge: *Economics*

Teacher Tools

Useful Web Sites:

Please note that web site content may change at any time.

Examine the US treasury history

<http://www.ustreas.gov/education/history/>

Snack food statistics

http://www.npdfoodworld.com/foodServlet?nextpage=pr_body.html&content_id=2167

For a complete list of advertising terms and definitions

<http://advertising.utexas.edu/research/terms/>

Environmental influences from copper mining

<http://www.azcu.org/cumightymetal/index.html#environment>

All about mining for kids

<http://www.azcu.org/cumightymetal/index.html>

Information on careers associated with mining

<http://www.azcu.org/cumightymetal/index.html#careers>

Graphs and charts of copper use

<http://www.auresources.com/copper.htm>

Coin specifications

http://www.usmint.gov/about_the_mint/index.cfm?action=coin_specifications

Bureau of engraving and printing for kids:

<http://www.bep.treas.gov/kids/start.html>

http://www.usmint.gov/about_the_mint/

Appendix A

The Scientifically-Based Reading Research (SBRR) Behind Grade 5 ITRI

Grade 5 ITRI is based on scientifically-proven reading comprehension strategies identified by the National Reading Panel in their 2000 report.

The National Reading Panel identified proven reading comprehension strategies.

- **Question Answering** is a strategy in which teachers pose questions and guide students to the appropriate answers. It has been proven effective in increasing comprehension in grades three through eight.

Grade 5 ITRI models this strategy through the use of Guided Reading Boxes which pose questions and guide students to analyze appropriate parts of the text or text features. Teachers facilitate this process through the in-class discussion session which follows each Grade 5 ITRI lesson.

- **Question Generating** encourages students to ask who, what, where, when, and why and how questions as they read.

The Guided Reading Boxes that appear in all Grade 5 ITRI lessons model this strategy by asking students the kinds of questions that proficient readers ask themselves. In | the Inference lessons, the Guided Reading Boxes and Concluding Project ask students to generate their own questions as well. Grade 5 ITRI is designed so that students will internalize the process of generating questions and begin to employ it independently when reading.

- **Summarization** involves identifying the main idea of a passage and analyzing the degree of importance of the supporting details. This skill is a critical part of Indiana's Academic Standards for English/language arts in grade 5.

Students will see the main idea identified in the text features of many of the lessons. Grade 5 ITRI's Guided Reading Boxes often point out this main idea, helping students realize its importance. Other Guided Reading Boxes, activities, and concluding projects ask students to put ideas into "their own words," list important steps, and identify key details in an effort to help them summarize effectively.

Appendix A

- **Comprehension Monitoring** involves making students aware of the text and text features so that they can use appropriate comprehension strategies. It asks students to engage in “thinking about thinking.” Comprehension monitoring has been proven to improve performance on standardized tests of reading comprehension.

Comprehension monitoring is the core of Grade 5 ITRI. ITRI teaches students to think about their own thinking as they work. Teachers model this strategy and Guided Reading Boxes probe students to identify why they answered a question a particular way, teach text structure, and draw student attention to the features of informational text.

- **Cooperative Learning** encourages students to work together to increase comprehension. Cooperative learning has been scientifically-proven to increase comprehension and to boost performance on standardized tests.

Each Grade 5 ITRI lesson begins with a large group discussion aimed at activating prior knowledge and closes with a group self-checking session and discussion in which students share their answers and reading strategies and learn from each other.

- **Graphic Organizers** help students visualize the relationships between important ideas. They have been proven to improve memory and to boost performance in social studies and science.

The Grade 5 ITRI teacher’s manual includes a graphic organizer idea for each unit. These graphic organizers are designed to enhance the reading skills which are the focus of the unit.

- **Multiple Strategies** approaches encourage students to employ a variety of comprehension strategies simultaneously. Studies have shown that students whose teachers use demonstrations, guiding, modeling, and scaffolding show improvement on standardized tests. Understanding when to employ specific strategies is key to student success in informational text.

Grade 5 ITRI’s Reading Skill introductions give students clues about what to look for when assessing text so they will know what strategy or strategies to employ. Grade 5 ITRI lessons also demonstrate multiple strategies through the variety of Guided Reading Boxes which help mediate student reading of the text.

Source: National Reading Panel (2000), Report of the National Reading Panel, Washington, D.C.

Appendix A

ITRI promotes reading skills identified as most important to elementary school students.

Research shows that students' comprehension of expository material is impeded by lack of familiarity with vocabulary, concepts, and text structures. Elementary students thus often have trouble comprehending informational text. The most successful readers are those who ask themselves questions about content, are aware of organization and page design, think about what they do and do not know about a subject, and actively apply what they read to their own experiences. These skills can be directly taught.

Grade 5 ITRI models effective reading strategies through Guided Reading Boxes, which focus student attention on text organization by emphasizing signal words and common text structures. The lessons in Grade 5 ITRI encourage students to think critically about text features such as graphics, headings, boldface print, etc. Students practice helpful techniques such as previewing vocabulary, retelling, and summarizing. Teacher-led in-class grading discussions improve comprehension and reinforce these skills by encouraging students to share reading strategies and learn from one another.

Sources:

Bakken, J. P., and C. K. Whedon. 2002. Teaching text structure to improve reading comprehension. *Intervention in School and Clinic* 37:229-33.

Olson, M. W., and T. C. Gee. 1991. Content reading instruction in primary grades: perception and strategy. *The Reading Teacher* 45:298-307.

Pressley, M., and R. Wharton. 1997. Skilled comprehension and its development through instruction. *School Psychology Review* 26:448-67.

ITRI uses methods proven to help students improve vocabulary acquisition.

Major differences between vocabulary in reading lessons and content area lessons require students to shift their thinking and teachers to adjust their instruction. Students learn vocabulary better when they are instructed on how to use the text itself to make sense of challenging words.

Grade 5 ITRI includes a unit designed to promote word knowledge acquisition. These lessons focus on strategies to help students make sense of challenging words and encourage students to develop an appreciation for vocabulary. Guided Reading Boxes throughout this unit as well as other units ask students to think about the vocabulary and model questions that good readers ask themselves.

Grade 5 ITRI was designed to model the vocabulary structure of Indiana's adopted textbooks. Lessons follow the same number of vocabulary terms per page, the placement and identification of vocabulary terms on the page, the number of difficult words not identified as vocabulary terms per page, and syntactical difficulty. Therefore, skills learned through Grade 5 ITRI are easily transferable to the textbook.

Sources:

Armbruster, B., and W. Nagy. 1992. Vocabulary in content area lessons. *The Reading Teacher* 45:550-51.

Appendix A

ITRI helps students connect what they read to their own experiences.

Research indicates that while elementary students infer in their daily activities, they have a difficult time spontaneously drawing inferences between what they read in school and what they experience. Studies have shown that students rarely practice their inference skills enough in the classroom to sufficiently enhance their performance on standardized tests. Making predictions prior to reading has been shown to help students integrate what they read with their prior knowledge.

The Inference unit in Grade 5 ITRI models thought processes to help students develop and practice their inference skills during their school-related tasks. The Guided Reading Boxes ask students to access their prior knowledge about a subject before they begin the lesson, think critically about why something may have happened, make connections between words they already know and words they are learning, think about the how they made their inferences, and understand why the author provides specific information. Beyond the Inference unit, each lesson is preceded with a background prompt in which the teacher asks a question or set of questions to spark discussion and activate prior knowledge, experiences, or infer about possible or fantastical situations. By practicing inference skills in these lessons, students will transfer them to their own content texts.

Sources:

Hansen, J. and Pearson, P.D. 1983. An Instruction Study: Improving the inferential comprehension of good and poor fourth grade readers. *Journal of Educational Psychology* 75:821-829.

Hansen, J. 1981. The effects of inference training and practice on young children's reading comprehension. *Reading Research Quarterly* 16:391-417.

Grade 5 ITRI builds foundations for a future of enhanced critical thinking skills.

The distinction between fact and opinion is a difficult concept for students to master and it becomes increasingly complicated as informational texts become more complex. Being able to distinguish between the two is an essential skill for better reading and critical thinking. It allows students to identify incorrect or misleading information and accurately articulate opinions and facts in their own oral and written communication.

Grade 5 ITRI has an entire unit in which students distinguish between facts and opinion as well as assess how each is constructed. Guided Reading Boxes prompt students to identify target words, reiterate facts and opinions within texts, write their own opinions, restructure opinions into facts, research to check facts and opinions, and understand differing opinions. The concluding project of this unit allows students to work independently to identify facts and opinions in primary resource material.

Sources:

Dow, C. 1987. Lecture 'step-asides' illustrate difference in opinions, facts. *Journalism Educator* 42:48-50.

Graney, J. M. 1990. Determination of fact and opinion: A critical reading problem. *Journal of Psycholinguistic Research* 19:147-166.

ITRI Instructional Tool	Standards in English/ Language Arts	Standards in Social Studies	Standards in Science	Standards in Mathematics	Standards in Health
Mississippian Culture at Cahokia	5.2.3	5.1.1, 5.3.3, 5.3.7, 5.5.1	5.1.2		
American Indians	5.2.3	5.1.1, 5.1.3, 5.3.7, 5.3.9, 5.3.11, 5.4.1, 5.5.1	5.1.2, 5.4.4, 5.6.2		
Symmetry in Art: Navajo Rugs	5.2.3	5.1.1, 5.5.5	5.1.2	5.4.6	
Chief Pontiac: A Great Ottawa Leader	5.2.3	5.1.1, 5.1.7	5.1.2, 5.6.2		
Algonquin Snow Goggles	5.2.3	5.1.1	5.1.2, 5.2.4, 5.2.7, 5.5.1		5.3.6
How does the Inventor Work	5.2.2	5.4.3, 5.5.6	5.1.1, 5.1.3, 5.1.7, 5.2.6, 5.2.7, 5.5.8		
Algebra: Make a Scale Model	5.2.2		5.2.2, 5.2.7	5.2.4, 5.3.1, 5.7.1	
Make a Polygraph	5.2.2	5.1.12, 5.5.6	5.1.1, 5.1.3, 5.2.6, 5.2.7, 5.5.1	5.4.1, 5.7.1	
Thomas Jennings	5.2.2	5.1.10, 5.1.19, 5.4.3, 5.5.6	5.1.3, 5.1.3		
The Cotton Gin and the Steamboat	5.2.2	5.1.10, 5.3.8, 5.4.3, 5.4.7, 5.5.6	5.1.3, 5.1.5, 5.3.4, 5.3.8		
Mapping a Trail	5.2.1	5.1.12, 5.1.20, 5.3.1, 5.3.2, 5.3.9, 5.3.11	5.6.2		
Colonial Trade	5.2.1	5.1.8, 5.3.2, 5.3.9	5.6.2		
Farming in the United States	5.2.1	5.1.8, 5.3.2, 5.3.8, 5.3.9, 5.3.11, 5.4.2, 5.4.5, 5.5.1	5.4.4, 5.6.2	5.1.4, 5.3.7, 5.6.1	
Ellen Semple and the Study of Human Geography	5.2.1	5.3.2, 5.3.3, 5.3.9	5.1.3, 5.6.2		
Measuring Temperature	5.2.1	5.3.2, 5.3.5	5.1.3, 5.2.1, 5.5.1, 5.6.2	5.2.1, 5.5.6	
Early Navigational Tools	5.2.4	5.1.4, 5.5.1	5.2.4, 5.2.7	5.3.7	
Christopher Columbus	5.2.4	5.1.4, 5.1.6	5.2.4		5.1.5
Using Angles	5.2.4		5.1.4, 5.2.4	5.1.4, 5.4.2, 5.4.7	
The Northwest Passage	5.2.4	5.1.4, 5.3.6, 5.3.9	5.2.4, 5.6.2		
The Exchange of Goods and Cultures	5.2.4	5.1.4, 5.1.6, 5.1.7, 5.4.1	5.4.4		
Anne Hutchinson	5.2.5	5.1.6, 5.1.9	5.1.2		
Writing Factual Reports	5.2.5	5.1.7, 5.1.9, 5.1.21, 5.5.3	5.1.2, 5.2.7		
Measurement: Perimeter of Polygons	5.2.5	5.5.1, 5.5.5	5.1.2, 5.2.1, 5.5.3	5.2.1, 5.4.4, 5.5.1, 5.5.2, 5.5.3	
Yankee Doodle	5.2.5	5.1.12, 5.1.20, 5.1.21, 5.1.22	5.1.2		
The Stamp Act	5.2.5	5.1.12, 5.1.22	5.1.2		
Beaver Pelts	5.1.3	5.4.7	5.4.4, 5.4.5		
Making a Budget	5.1.2, 5.1.3	5.4.8	5.5.2	5.1.4, 5.2.1, 5.5.7, 5.6.1, 5.7.2	
How Does a Market Economy Work?	5.1.3	5.4.2, 5.4.6			
Adam Smith	5.1.3	5.1.12, 5.1.22, 5.2.4, 5.4.2			
Copper: The Great Conductor	5.1.3	5.4.4, 5.4.5	5.3.10		

Appendix C

Scoring Sheet: ITRI Assessments

Diagnostic

Follow-Up

CLASS Average													
---------------	--	--	--	--	--	--	--	--	--	--	--	--	--

Student Name	Multiple Choice Question Numbers	Main Idea & Details		Sequential Order		Interpreting Graphics		Making Inferences		Fact & Opinion		Word Knowledge	
		#1	#7	#2	#8	#3	#9	#4	#10	#5	#11	#6	#12
	TOTAL												
	TOTAL												
	TOTAL												
	TOTAL												
	TOTAL												
	TOTAL												
	TOTAL												

Appendix D

Scoring Sheet: Grade 5 ITRI Lessons

Skill Area:

Student Name	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5

Appendix E

Preparing Students for Research Projects

Because there are numerous sources where students can turn to find information, students need to be taught how to carefully evaluate their sources. Primarily, students should be taught to look for three things:

1 Reliability

Who is the author and what is his or her background in the subject?

Is the author someone who would know about the subject? Is it a pediatric doctor talking about diseases in dogs? Is it a third grader's report on the web?

2 Timeliness

When was the text written? Have inventions or events happened that would change the facts in the text? Is it an article about someday having computers in people's homes? Is it about a country that no longer exists? Are the maps up to date?

3 Validity

If the author comes to a conclusion, does it make sense with the facts presented or is it more of an opinion? When the author uses words such as *thus*, *therefore*, and *in conclusion*, are the facts supported?

Appendix F

ITRI Acknowledgments

Abbreviations used to describe placement on the page are as follows: (T) top, (B) bottom, (INS) inset, (C) center, (L) left, and (R) right.

Diagnostic Assessment

The Search for Vinland 1 L clip art illustration R photo courtesy of Sarah Endres 2 T Center for Innovation in Assessment B photo courtesy of the Canadian Department of National Defence **Pesticides: Two Views** 1 L clip art illustration B clip art illustration/Center for Innovation in Assessment 2 clip art illustration

Main Idea and Supporting Details

Mississippian Culture at Cahokia 2 Cahokia Mounds State Historic Site, painting by William R. Iseninger 3 Center for Innovation in Assessment **American Indians** 1 Center for Innovation in Assessment 2 photo courtesy of Smithsonian Institution, Gertrude Kasebier, "Portrait of Native American" 3 T permission to use granted by Center for Bison Studies B public domain **Symmetry in Art: Navajo Rugs** 2 Center for Innovation in Assessment **Chief Pontiac: A Great Ottawa Leader** 1 Alfred Bobbet, National Archives of Canada, C-11250 2 image courtesy of the Burton Historical Collection, Detroit Public Library **Algonquin Snow Goggles** 1 Center for Innovation in Assessment

Sequential Order

How Does an Inventor Work? 1 photo courtesy of The National Inventors Hall of Fame 2 photo courtesy of A'Lelia Bundles/Walker Family Collection 3 courtesy of Smithsonian Institution Neg#NMAH2002-27377 **Algebra: Make a Scale Model** 1 photo courtesy of Jeff Zody, Timber Framers Guild 2 stock photo **Thomas Jefferson and the Polygraph** 1 Thomas Jefferson Polygraph, Special Collections, University of Virginia Library; image provided by Monticello/Thomas Jefferson Foundation, Inc. **Thomas Jennings: An African American Inventor** 1 public domain 2 public domain **The Cotton Gin and the Steamboat: Changing Life in the 1800s** 1 public domain 2 image courtesy of Culver-Union Township Public Library 3 T public domain B Center for Innovation in Assessment

Interpreting Graphics

Mapping a Trail 1 photo courtesy of T.K. Sharp 2 Center for Innovation in Assessment 3 Center for Innovation in Assessment **Colonial Trade** 2 T Center for Innovation in Assessment B Center for Innovation in Assessment 3 Center for Innovation in Assessment **Farming in the United States** 1 Center for Innovation in Assessment 3 Center for Innovation in Assessment **Ellen Semple and the Study of Human Geography** 1 ©University of Kentucky, all rights reserved, Ellen Semple, Special Collections and Digital Programs, University of Kentucky Libraries. 2 T1 permission granted to use by Matthew Trump T2 public domain C Center for Innovation in Assessment B1 stock photos B2 public domain **Measuring Temperature** 1 Center for Innovation in Assessment 2 C Center for Innovation in Assessment 2 BL public domain BR public domain 3 Center for Innovation in Assessment

Appendix F

Making Inferences

Early Navigational Tools 1 Center for Innovation in Assessment **Christopher Columbus** 1 public domain 2 picture of Santa Maria, Columbus, OH courtesy of Columbus Santa Maria, Inc. **Using Angles** 1 Center for Innovation in Assessment **The Northwest Passage** 1 Center for Innovation in Assessment 2 public domain 3 image of Giovanni da Verrazano: public domain; image of Verrazano bridge: ©2004 Metropolitan Transportation Authority **The Exchange of Goods and Cultures** 1 permission granted to use under GFDL by Kurt Stueber 2 stock photo 3L image courtesy of dirtbrothers.org/Bob Wishoff 3R stock photo

Fact and Opinion

Anne Hutchinson: A Colonial Dissenter 1 public domain **Writing Factual Report** 1 stock photo **The Stamp Act** 2 public domain **Yankee Doodle** 1 public domain 2 clip art illustration 3 public domain **Measurement: Perimeter of Polygons** 3 C Center for Innovation in Assessment

Word Knowledge

Beaver Pelts 1 photo courtesy of thelastbestwest.com 2 clip art illustration 3 stock photo **Making a Budget** 1 stock photo 2 clip art illustration **How Does a Market Economy Work?** 1 stock photo **Adam Smith: Father of Economics** 1 public domain **Copper: The Great Conductor** 1 T 2 stock photo B image courtesy of Landscape Structures Inc. 2 stock photo 3 image obtained from Wikimedia Commons

Follow Up Assessment

The Rights of All Americans 1 L illustration by Greg Harlin - Wood Ronsaville Harlin, Inc. 2 T stock photo **Who Were the First Americans?** 1 L clip art illustration B Center for Innovation in Assessment 2 public domain

We would like to thank the following fifth grade teachers who participated in the 2005-2006 field test of the Grade 5 ITRI materials, and whose detailed feedback has been invaluable in improving these materials for classroom use:

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- Jeff Komins, Cleveland Elementary
- Christine Morris, Cleveland Elementary
- Valerie Priller, Cleveland Elementary
- Jen Rausei, Judith Morton Elementary
- Shelly Riddle, Northern Heights Elementary
- Vondra Ryman, Mentone Elementary
- Tom Stammich, Cleveland Elementary
- Mary Teeter, Beck Elementary
- Sue Ann Volheim, Bristol Elementary

ITRI

**INFORMATIONAL TEXT
READING INVENTORY**

Grade 5

Student Materials

Developed by the Center for
Innovation in Assessment in
conjunction with the Indiana
Department of Education

Main Idea:

Artifacts reveal that Vikings were the first Europeans in North America.

Vocabulary:

saga

Vinland

The Search for Vinland

Was Columbus First?

For many years, Christopher Columbus was honored as the first European to land in North America. In the 1960s though, this title began to change. New facts led many historians to describe him as *one* of the first Europeans to land in North America.

1

The Viking Sagas

For years, scientists and historians wondered if Columbus was really the first European on the North American shores. There are diary accounts of his voyage in 1492. But there are also older Viking **sagas**, or adventure stories, that tell about Vikings sailing to a place that sounded like North America. The sagas called the place the Vikings sailed to **Vinland** (also known as Vineland and Wineland). Year after year, people searched along the Atlantic coast looking for clues that Vikings, including Leif Eriksson, traveled to North America. No evidence was ever found to prove this hypothesis. Many people decided that the place called Vinland was just made up and that the Vikings never landed in North America.

2

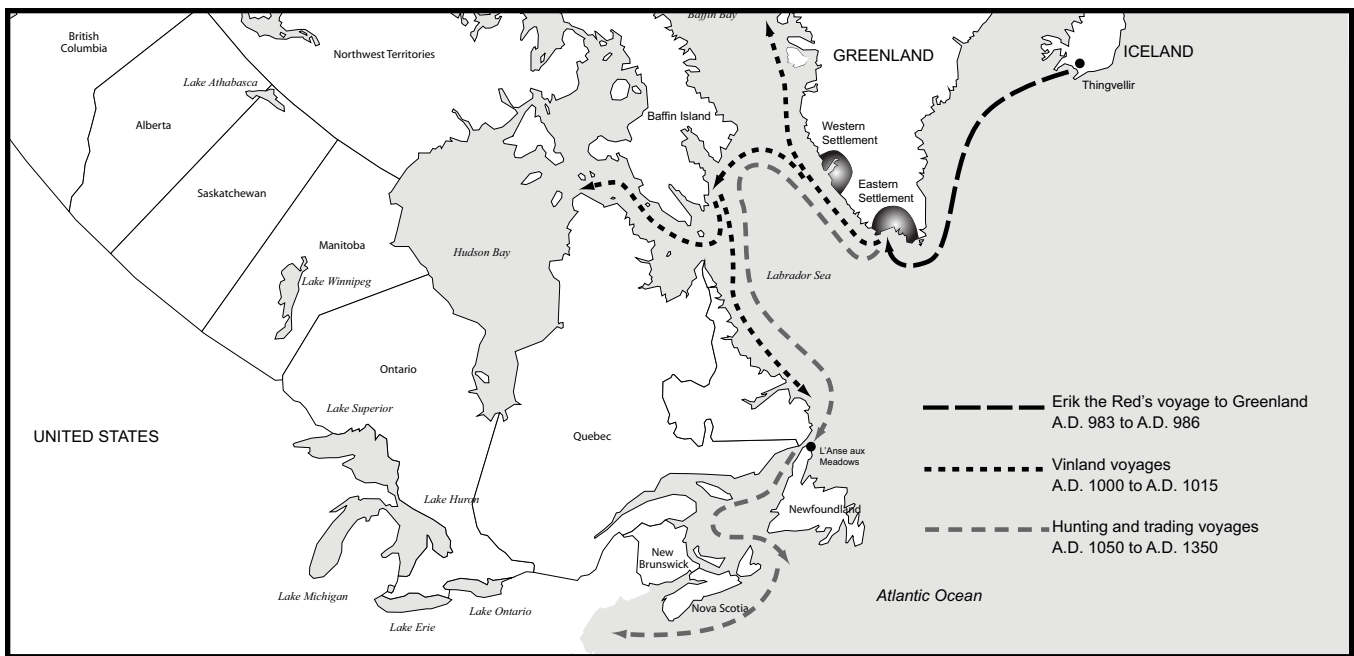
The First Viking Site

In 1960, researchers decided they would look again. They knew many other researchers had been tricked by fake artifacts. They also knew some people had told stories that were false. But still they believed that part of the Viking sagas might be true. They thought they could prove that Vikings



3

This photo shows L'Anse aux Meadows, the site where Viking artifacts were discovered in northern Newfoundland.



This map shows the routes of Viking trips.

actually did travel to North America. They began to search for artifacts. They found a site that had the remains of houses believed to be built by the Vikings. Earlier researchers had thought these homes were American Indian burial grounds.

4 In 1962, a team of archaeologists, led by historian Helge Instad and his archaeologist wife, Anne Stine, began to excavate this site in Canada. The site was located in northern Newfoundland. The archaeologist team found various artifacts believed to be Viking artifacts. The artifacts were similar to objects Vikings who landed in Iceland and Greenland had used. They found remains of Vikings houses, boats, tools and other



This bronze ring pin was found at the excavation site in northern Newfoundland.

items. The artifacts did not match tools or objects that American Indians used.

The more artifacts the team uncovered, the more they felt the artifacts proved that parts of the Viking sagas were indeed true. They believed they had solid proof that Vikings (both men and women) really did sail to and stay in North America almost 500 years before Columbus. Though they could not prove all parts of the sagas, they believed the artifacts were not fakes. Other researchers agreed. In 1978, the United Nations designated the site where the archaeologists had found the artifacts a World Heritage Site.

Unanswered Questions

Today there are still more questions to answer about the Vikings and their explorations. Are there more places where the Vikings visited? How much of the Viking sagas are factual? Is North America really Vinland? Perhaps you will be the person to discover the answers to these and other important questions.

5

6

Questions

- What is the main idea of the fifth paragraph?
 - The artifacts proved some information about the Vikings.
 - The artifacts made Helge Instad famous.
 - The artifacts were found in Vinland.
 - The artifacts were from the sagas.
- The United Nations gave the place where Viking artifacts were found special recognition in the _____.
 - 1400s
 - 1500s
 - 1960s
 - 1970s
- The site where the artifacts were found in Newfoundland is called _____.
 - Iceland
 - Vinland
 - St. Lawrence Rivers
 - L'Anse aux Meadows
- Which of the following can you infer from the fourth paragraph?
 - Instad knew little about archaeology.
 - All of the details in the Viking sagas were true.
 - The artifacts found were fakes like the ones found by other scientists.
 - The homes that were found did not belong to American Indians.
- Which of the following is a fact?
 - People believed Vinland had been made up.
 - Before 1960, many early researchers were foolish.
 - Columbus should not be honored as an explorer.
 - Leif Eriksson was a more skilled explorer than Columbus.
- In the second paragraph, the term *hypothesis* means _____.
 - evidence needed
 - a clue to a solution
 - an idea to be proved
 - the answer to an experiment
- Which of the following details is *most* important to the main idea of the lesson?
 - Christopher Columbus kept a diary of his voyage.
 - Instad and Stine began excavations in 1962.
 - Leif Eriksson was a famous Viking explorer.
 - Vinland is also known as Wineland.
- The Vikings arrived in North America around the year _____.
 - 500
 - 1000
 - 1490
 - 1960
- One of the artifacts found by the Instad and Stine team was a(n) _____.
 - pin
 - axe
 - pot
 - helmet
- Which of the following can you infer from this lesson?
 - Most of the Viking sagas were true.
 - The diary accounts of Columbus's voyage were false.
 - American Indians used tools similar to those used by the Vikings.
 - It is possible that there are other undiscovered Viking sites in North America.
- Which of the following is an opinion?
 - Historians wondered if Columbus was the first European to reach North America.
 - Some people believed the Viking sagas might be true.
 - Scientists should have believed that Vinland was real.
 - Researchers had been tricked by fakes.
- Which of the following is closest to a *saga*?
 - a fable
 - a fairy tale
 - a story about a hero
 - an encyclopedia entry

Main Idea:

Although pesticides can be helpful for growing crops, they can also be damaging to the environment.

Vocabulary:

DDT
pesticides

Pesticides: Two Views

Do you know what pesticides are? **Pesticides** are chemicals that are used to kill insects and animals that eat crops. Why do people use pesticides? Why do some people believe that we should not use pesticides at all? Read the two views below to find out. 1



Pesticides Help Crops Grow

Do you like to eat fresh fruits and vegetables from the farm? Many of these treats would not be available if it weren't for pesticides. 2

Farmers grow crops in order to make a living. When the crops are harvested, farmers sell them to stores and restaurants. This is how farmers make money to buy the things that they need to live. Many farmers also depend on the plants that they grow to feed their families. When a farmer plants a crop, he or she needs to make sure that it is safe from insects that want to eat it. If insects eat a farmer's crop, there will not be enough for the farmer to sell or to use to feed his or her family. 3

There are many insects that will try to eat a farmer's crops. The chart below shows common crops that farmers grow, and the many different kinds of insects that like to eat them. As you can see from the chart, farmers need help to protect their crops from all of these damaging pests. Pesticides help farmers protect their crops by killing these pests before they can eat the fruits and vegetables that farmers grow. 4

Common Pests



Crop	Common Pests
beans	bean aphid, Mexican corn maggot, European corn borer,
corn	seed corn maggot, corn flea beetle, corn earworm, European corn borer
eggplant	flea beetle, Colorado potato beetle
potatoes	Colorado potato beetle ("potato bug"), flea beetle, garden centipede, peach aphid, potato leafhopper
tomatoes	aphids, cutworm, flea beetle, Colorado potato beetle, hornworm, whitefly

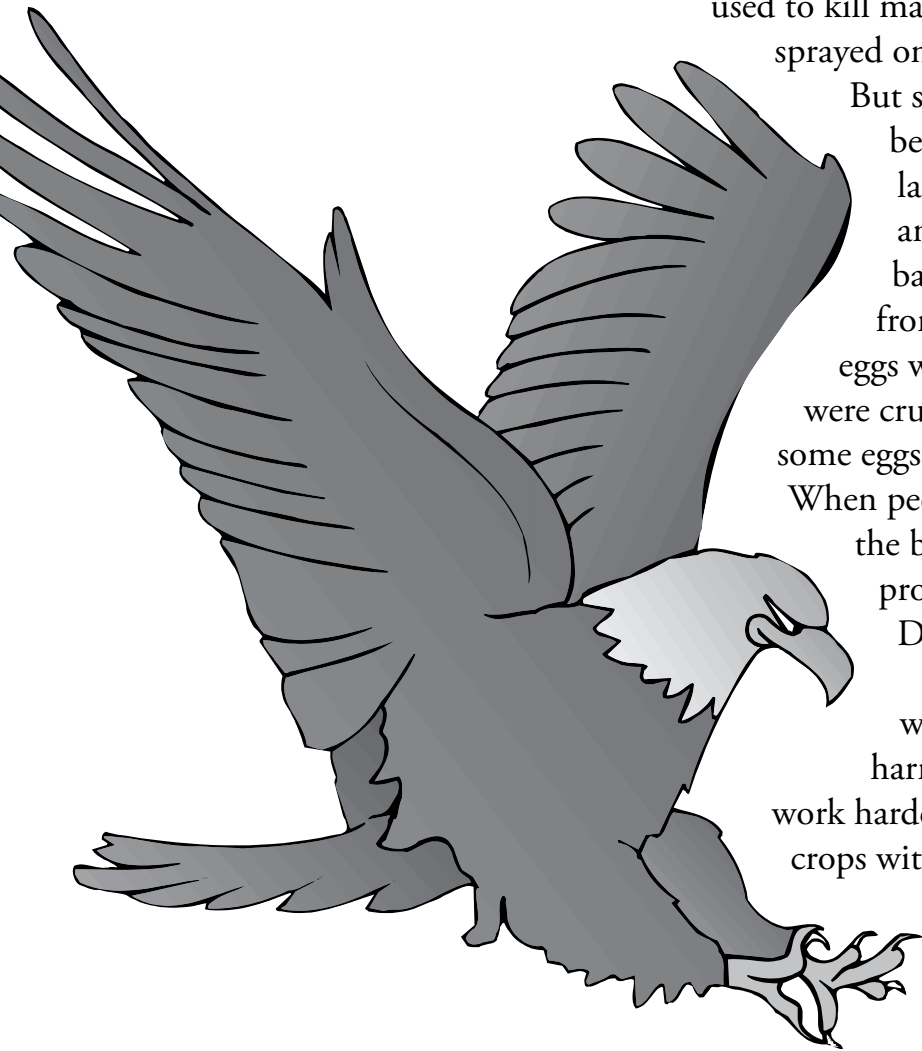
Pesticides are Harmful to the Environment

Pesticides may make it easier for farmers to grow large amounts of food, but they are not always safe for the environment. Sometimes, pesticides that are used to kill insects can be harmful to people or other animals. 5

One animal that has been greatly harmed by the use of pesticides is the bald eagle. The bald eagle was once a very common bird in the United States. Bald eagles were once found all over the country. But bald eagle populations began to decline as people moved into more and more new areas where the eagles lived. Then, during World War II, many people began to use a pesticide known as DDT. **DDT** is a pesticide used to kill many common farm pests. DDT was sprayed on plants to protect them from insects. 6

But small animals ate the plants that had been sprayed. And bald eagles and other large birds ate some of these small animals. The DDT began to hurt the bald eagles. The adult birds became sick from the poison. They also began to lay eggs with thin shells. Often, these shells were crushed because they were too thin. Even some eggs that were not crushed did not hatch. When people realized that DDT was destroying the bald eagle population, they worked to protect this beautiful bird. Eventually, DDT was banned.

Today, we no longer use DDT, but we still use many pesticides that can be harmful to the environment. We need to work harder to find new ways to protect farmers' crops without putting the environment at risk. 7



Questions

- What is the main idea of the third paragraph?
 - Insects often eat farmers' crops.
 - Farmers grow crops in order to make a living.
 - Many farmers depend on their crops to feed their families.
 - Although pesticides can be helpful for growing crops, they can also be damaging to the environment.
- Which of the following happened first?
 - DDT was banned.
 - People began to use DDT as a pesticide.
 - Bald eagle populations declined as people moved into new areas.
 - People discovered a link between DDT and decreased bald eagle populations.
- Which of the following pests eats tomatoes?
 - whitefly
 - peach aphid
 - garden centipede
 - European corn borer
- Which of the following can you infer from the sixth paragraph, which begins "One animal that has been greatly harmed..."?
 - Bald eagle populations would not have decreased if DDT hadn't been used.
 - There are more bald eagles in the United States today than ever before.
 - DDT was popular because it killed many different kinds of insects.
 - DDT is not harmful to people.
- Which of the following is a fact?
 - DDT harmed bald eagles.
 - Pesticides should be banned.
 - There is no reason to stop using pesticides.
 - Farmers should grow different kinds of crops.
- The word *pesticide* means _____.
 - insects that eat crops
 - a popular farm product
 - dangerous sprays that harm wildlife
 - chemicals used to kill insects and animals
- Which of the following details best supports the main idea of the lesson?
 - The bald eagle is a national symbol
 - Farmers sell crops to stores and restaurants.
 - People began to use DDT during World War II.
 - Sometimes pesticides are harmful to people and animals.
- Which of the following paragraphs is arranged in sequential order?
 - paragraph 1
 - paragraph 2
 - paragraph 5
 - paragraph 6
- Which of the following pests preys on the greatest number of different crops?
 - whitefly
 - flea beetle
 - garden centipede
 - European corn borer
- Which of the following can you infer from this lesson?
 - We need to use pesticides carefully.
 - Farmers do not care about the environment.
 - The Colorado potato beetle is the most damaging pest.
 - Americans didn't care what happened to the bald eagle.
- Which of the following is an opinion?
 - Pesticides kill pests that eat farmers' crops.
 - Farmers want to protect their crops from pests.
 - We still use pesticides that can harm the environment.
 - We need to work harder to protect both crops and the environment.
- In the sentence, "But bald eagle populations began to decline as people moved into more and more new areas...", the word *decline* means to _____.
 - deny
 - migrate
 - decrease
 - become extinct

Main Idea & Supporting Details

How do details provide evidence to support the main idea?

The **main idea** of a lesson, section, or paragraph is what it is mostly about. It is the idea that the author most wants you to understand when you read. **Supporting details** in a lesson tell more about the main idea. They help you better understand the **main idea** and why it is important.

The **main idea** of a lesson can often be found on the first page of the lesson. Sometimes, special kinds of lessons in your textbooks, such as biographies, experiments, and activities, may not have a **main idea** written on the first page. You will have to read the lesson in order to figure out the **main idea**. You need to ask yourself what the purpose of the lesson or activity is.

Sometimes the **main ideas** of sections or paragraphs are written in one sentence. Other times, you will have to read the section or paragraph, and ask yourself what is most important. Sometimes, the headings in a lesson can give you important clues about the **main idea**.

Although the **main idea** is the most important idea in a lesson, section, or paragraph, most of the lesson is made up of **supporting details**. Understanding the **supporting details** helps you understand the **main idea**. You can find the **supporting details** that support a **main idea** in many different places in the lesson.

Look at:

- the sentences that make up paragraphs and sections.
- graphics including illustrations, photographs, charts, graphs, and maps.
- the captions, or writing that explains the graphics.
- sidebars, or boxes on the side of the text that provide additional information about the topic.
- vocabulary words, including words that are in bold print, italics, or that are highlighted. These words are often important **supporting details** that support the **main idea**.

Once you find the supporting details, ask yourself:

- how does each **supporting detail** provide evidence to support the **main idea**?
- how important is each **supporting detail** to understanding the **main idea**? (Some **supporting details** will be more important than others.)
- why did the author choose to include that **supporting detail**?
- how does the **supporting detail** help you understand the **main idea**?

Understanding the connection between the **supporting details** and the **main idea** will help you better understand the lesson.

LESSON 1

MAIN IDEA & SUPPORTING DETAILS

VOCABULARY

- **Cahokia**
- **Early Mississippian Period**
- **Middle Mississippian Period**
- **Late Mississippian Period**

MAIN IDEA

Cahokia was a large and important settlement during the Mississippian Period.

Mississippian Culture at Cahokia

If you visit **Cahokia**, near Collinsville, Illinois today, you will see the remains of what was once one of the largest cities in the world. Although the people who lived at Cahokia were a prehistoric people, meaning that they left no written records of their lives, scientists have been able to discover a lot about them and how they lived more than a thousand years ago.

Mississippian Culture

The people who lived at Cahokia belonged to what is known as the Mississippian culture. There were many different groups who made up the Mississippian culture. Although they lived in different parts of North America, most Mississippian peoples lived similar lives. For example, most of them were farmers, growing corn, squash, and beans. Mississippian people also developed governments, religions, and artwork. The Mississippian Period is usually divided into three smaller periods.

A This section tells about Mississippian culture. How does it help you understand the lesson's main idea?

B The purpose of this paragraph is to explain what Mississippian culture was. How can you tell?

Write three details that the author uses to support this main idea.



The **Early Mississippian Period** lasted from approximately 800-1200 A.D. During this period, Mississippian people began to settle in one place and develop farming communities.

The **Middle Mississippian Period** lasted from approximately 1200-1400 A.D. This period is usually considered the peak of Mississippian culture. During this period, the Mississippian people developed their art.

The **Late Mississippian Period** lasted from approximately 1400 A.D. until the arrival of Europeans. During this period, there was a lot of warfare between different Mississippian peoples.

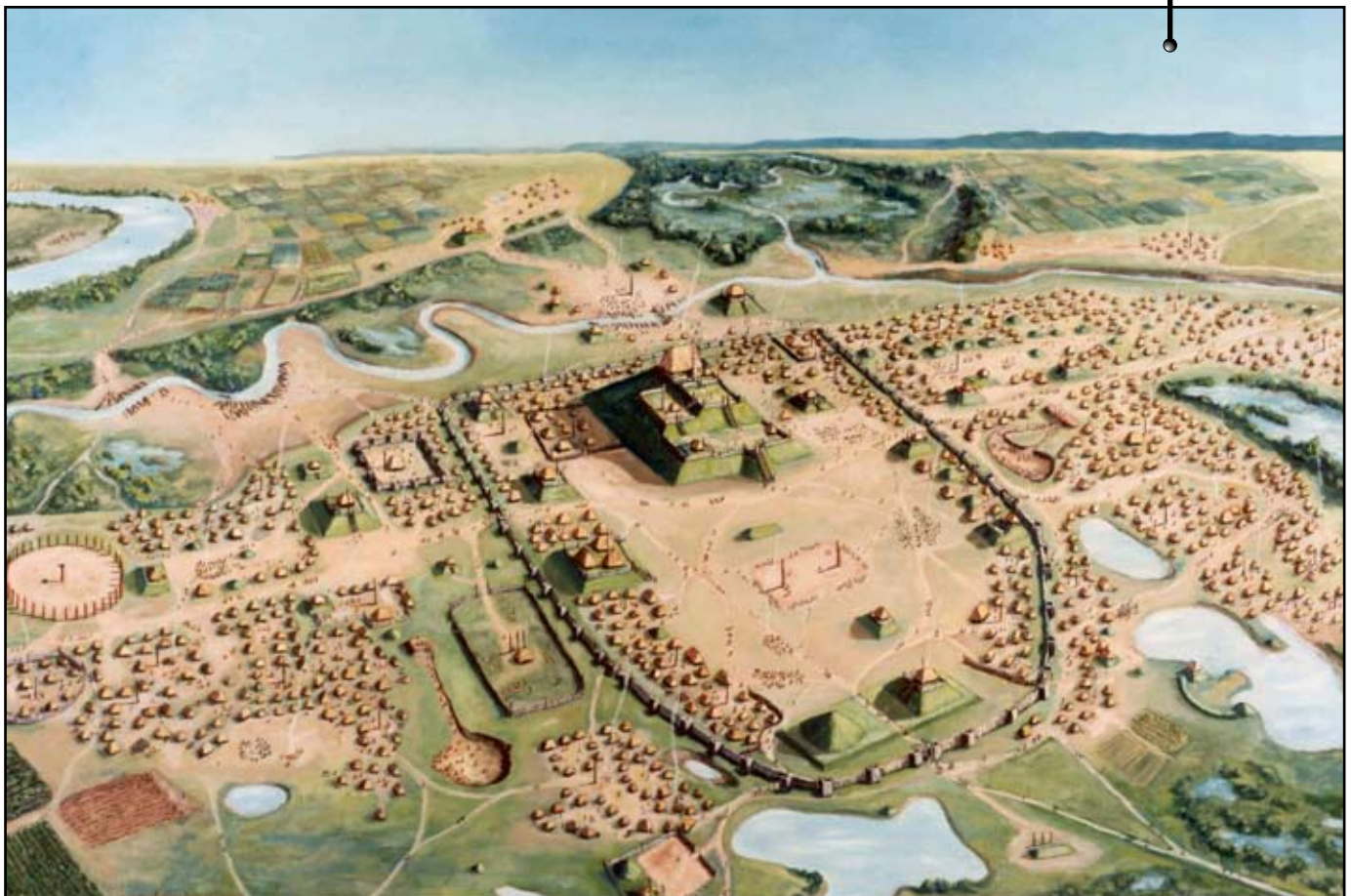
Life at Cahokia

Most people who study Mississippian culture believe that the settlement at Cahokia was one of the culture's most important centers. Cahokia was established as early as 700 A.D., before the official start of the

Mississippian Period. It lasted into the Late Mississippian Period. During its peak, as many as 20,000-30,000 people lived at Cahokia. It was bigger than any city in Europe during that same time period.

Cahokia was also one of the most advanced settlements in North America at its time. Cahokians were skilled farmers who planted many different crops. They also hunted and traded with other Mississippian groups.

C Write one way that this illustration supports the idea that Cahokia was an important cultural center.



This illustration shows what scientists believe Cahokia may have looked like about 1150 A.D.

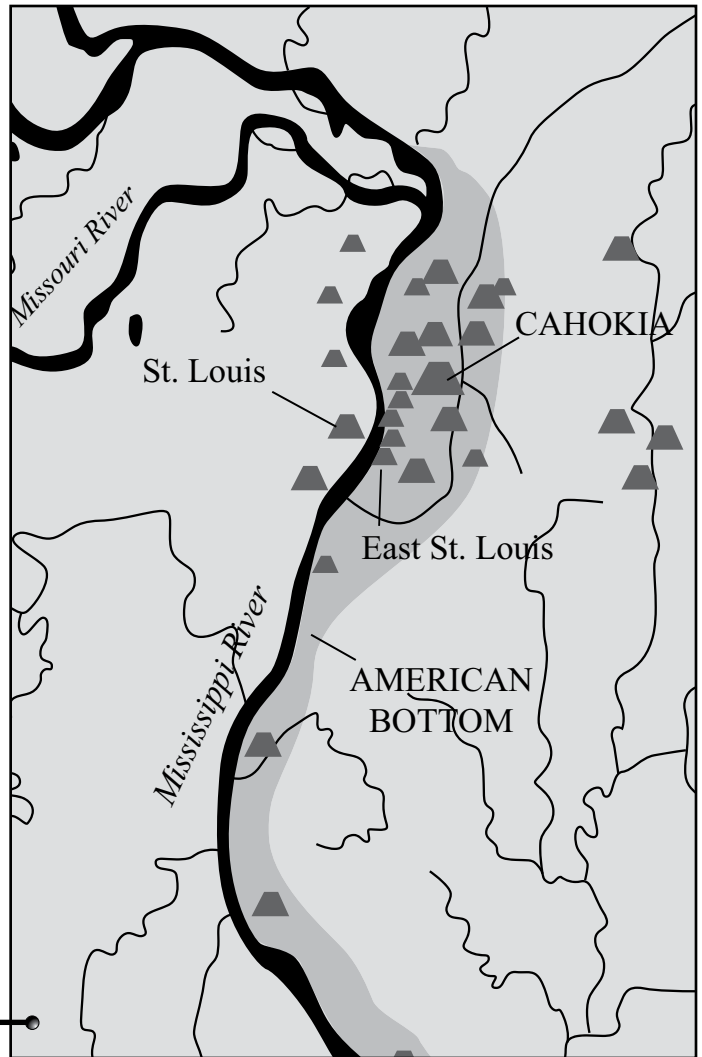
The people of Cahokia are known for the mounds they built. There are more than 104 mounds at Cahokia today, although people who have studied Cahokia believe that there were once 120 or more. These mounds were built for many different reasons. Some of the mounds were used for burial. Others were used to mark the boundaries of the community. The chief of the Cahokian people lived on top of the largest mound, known as Monks Mound. Monks Mound is the largest man-made earthen mound in North America.

The End of Cahokia

No one knows for sure what brought an end to Cahokia, but it is likely that there were several causes. One of these was disease. When European explorers and traders began to pass through the settlement, they brought with them many new diseases. Because people in North America had never been exposed to these diseases, their bodies were not able to fight them. Many people died.

Some scientists think a change in climate may have affected the Cahokians as well. They may have had trouble growing enough food to feed their large population as the climate changed. It is also believed that climate change may have reduced the animal populations that the Cahokians depended on as part of their diet.

People who have studied Cahokia also believe that war may have had an effect on its population and that its rulers may have lost much of their power.



This map shows the location of Cahokia, near present-day St. Louis.

Although scientists will probably never know exactly what brought an end to Cahokian civilization, people will continue to study this fascinating culture and visit the site where it once stood.

D Write one detail that you learned about Cahokia from this map.

E What is the main idea of this section?

Write two details from the section that support the main idea.

LESSON 2

MAIN IDEA & SUPPORTING DETAILS

American Indians

VOCABULARY

- **American Southwest Region**
- **Arctic Region**
- **Eastern Woodlands Region**
- **Great Plains Region**

MAIN IDEA

The American Indian tribes who were living in North America when Europeans arrived can be grouped by the regions in which they lived.

A This section shows the main idea of the lesson. Why is it important to read this section before you begin reading the lesson?

When European explorers began to arrive in the Americas in the 1400s, they discovered that there were already many people living here. These people, American Indians, had been living in North, Central, and South America for thousands of years. Although each tribe developed its own unique way of life, tribes can be grouped according to the regions in which they lived. This is because tribes that lived in similar environments adapted to their surroundings in similar ways.

B This paragraph is an introduction to the lesson. It introduces the lesson's main idea. List two pieces of evidence that it provides to support this main idea.



This map shows some of the many tribes who lived in North America before Europeans arrived.

The Arctic

Several different American Indian tribes, including the Aleuts, Inuits, and Yupiks, were living in the Arctic Region of North America when the first Europeans arrived in the Americas.

The **Arctic Region** includes the western coast of Alaska as well as the northern coast of Canada. The environment in the Arctic can be very harsh. Temperatures are very low, and much of the land is frozen year-round. But Arctic Indian tribes adapted to their environment. Because the weather was so cold and the land was often frozen, Arctic Indian tribes could not grow crops. Instead, they hunted and fished for most of their food. Hunting was important to Indians of the Arctic region in many ways. Not only did they use the animals they hunted for food, but they also used their skins and furs to make warm clothing and their bones to make tools. Some Arctic Indians lived in tents made from animal skins. Without these things, Arctic tribes would not have been able to survive in their environment.

American Southwest Region can be very high, and much of the land is desert. The tribes who lived in this region learned to adapt to their unique environment.

Many of them built homes, called pueblos, out of stones and mud or out of a material called adobe. They were able to farm corn, beans, and squash, but they had to irrigate the land in order to grow these crops in such a dry climate.

C As you read this section, look for the main idea by asking yourself what the author most wants you to know about the Arctic Region. Write your main idea below.

Write two pieces of evidence from the section that support this main idea.

The Great Plains

The **Great Plains Region** is the area between the Rocky Mountains and the

Mississippi River. Before Europeans arrived in North America, many different American Indian tribes, including the Sioux, the Comanche, and the Cheyenne lived in this region. Like other regions of North America, the Great Plains region is a unique environment. Most of the region is made up of flat grasslands or prairies. The weather can be very hot in the summer and very cold in the winter.



These Sioux Indians were photographed around 1898.

The American Southwest

The environment in the American Southwest is much different from the environment in the Arctic Region. The **American Southwest Region** is made up of the land that is now Arizona, New Mexico, and western Texas. Before European explorers arrived, it was home to many different American Indian tribes, including the Hopi, the Apache, the Navajo, and the Pueblo.

The weather in the American Southwest can be harsh, but it is very different from the weather in the Arctic Region. Temperatures in the

D Write one detail that you notice in this photograph.

How does it support the main idea that the people of the Great Plains region adapted to their environment?



Tribes who lived on the Great Plains depended on buffalo for food, clothing, and shelter.

The tribes who lived in the Great Plains adapted well to their environment. One of the most important parts of life on the Great Plains was the buffalo. Most American Indian tribes who lived in this region depended on buffalo meat for food. They also used the hide of the buffalo to make clothing and to build homes known as *tepees*. In addition to hunting buffalo, most tribes of this region grew crops such as beans, corn, and squash, which grew well in the climate of the Great Plains.

The Eastern Woodlands

On the eastern coast of North America, many American Indian tribes built communities long before the Pilgrims arrived. These tribes, including the Iroquois, the Shawnee, and the Cherokee, are sometimes known as Woodlands Indians, because they lived in the Eastern Woodlands Region. The **Eastern Woodlands Region** is made up of the land that is east

of the Mississippi River. As the name suggests, this region is home to many trees. American Indian tribes who lived in this region used the wood from the trees that grew there to make their homes. They also used tree bark to build canoes which they used to travel and fish.

Although some parts of the region were too rocky for farming, the land and weather in most of the Eastern Woodlands Region made it ideal for growing crops such as corn, beans, and squash. In addition, the woodlands were full of many fruits and nuts that the Eastern Woodlands tribes gathered for food. They also hunted the animals that lived in these forests. Animal skins were used to make clothing and blankets.

E This sentence mentions three different Woodlands tribes, but there were many others as well. Write two resources you could use to find out more details about other Woodlands tribes.



This photograph shows a group of Woodland Indians.

USING MATH

LESSON 3

MAIN IDEA & SUPPORTING DETAILS

VOCABULARY

line of symmetry
reflectional symmetry
symmetry

A How do these words help you figure out the main idea of the lesson? _____

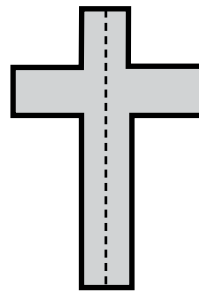
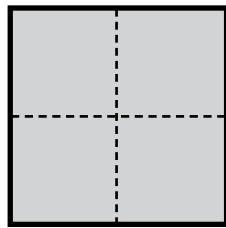
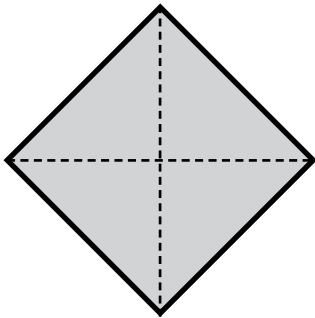
B This is a math lesson. It does not list a main idea. What is the purpose of the lesson? What does the author most want you to know? _____

Symmetry in Art: Navajo Rugs

Navajo Indians have been weaving beautiful rugs for hundreds of years. These rugs are made using many different colors and patterns. One thing that makes these rugs so attractive to look at is that they have reflectional symmetry.

Reflectional symmetry occurs when two congruent halves are divided by a line known as a **line of symmetry**.

Look at the shapes below. All of them have reflectional symmetry. The dotted lines are lines of symmetry. Notice that some of these shapes have more than one line of symmetry.



C What is the main idea of this paragraph? _____

Write two details from the paragraph that support this main idea. _____

D These shapes are details. How do they help you understand symmetry? _____

All of these shapes are commonly used in Navajo designs. But the reflectional symmetry of Navajo rugs is due to more than just the shapes that are used in their designs. The patterns on the rugs often have reflectional symmetry too.

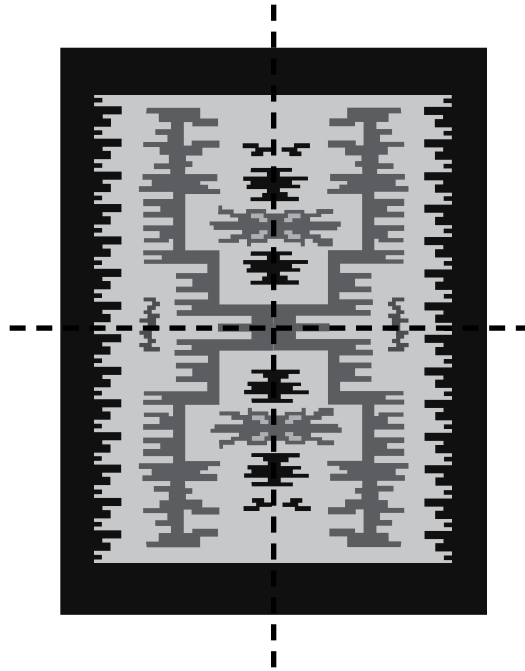
E Now that you have read the lesson, choose one detail that you think is very important to the main idea, and write it in the space below.

Why is it so important?

Now write one detail from the lesson that you don't think is very important to the main idea.

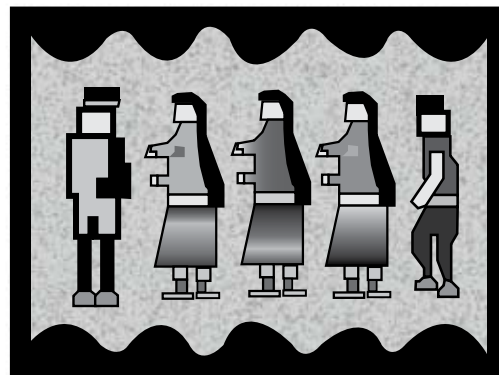
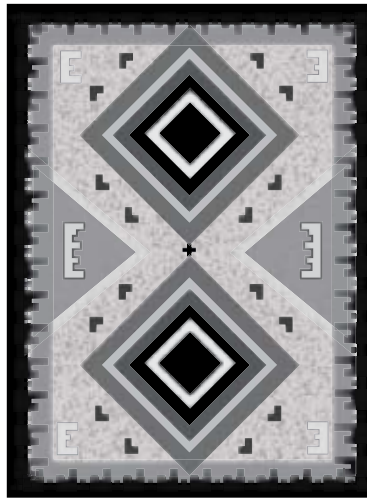
Why did the author include this detail?

Look at this popular Navajo design, known as the *storm pattern*.



Notice that it has two lines of symmetry.

Now look at these other patterns from Navajo rugs. Do they have reflectional symmetry? Why or why not?



BIOGRAPHY

LESSON 4

MAIN IDEA & SUPPORTING DETAILS

Chief Pontiac: A Great Ottawa Leader

Pontiac was a great leader of the Ottawa tribe. He is best known for fighting to protect American Indian land from the British. Although he lived more than 200 years ago, historians have learned a lot about this great leader.

Pontiac, also known as Obwandiyag, was born around 1720. He grew up in an American Indian village near what is now Detroit, Michigan.

Pontiac was a good leader, and he was popular with his people. Soon after becoming chief in 1755, he became the leader of the Council of Three Tribes. These tribes got along well with each other and with the French traders who traveled through their lands.

When the British captured French forts in 1760, they did not treat the American Indians well. Pontiac decided to lead his people against the British. In 1762, he gathered all of the tribes in his area. On

A This lesson does not have a section that tells the main idea. What should you do?

B The main idea of this paragraph is that Pontiac was a good and respected leader. How does this sentence support that main idea?

Council of Three Tribes

a group of three American Indian tribes (the Ottawa, the Ojibwa, and the Potawatomi) that belong to the Algonquin language family

C Write at least two details that this illustration adds about Pontiac as a leader.



This illustration shows Chief Pontiac addressing tribesmen in the Great Lake West region.

CHIEF PONTIAC

May 7, tribes attacked the British at Fort Detroit. But the British had been warned of the attack, and they were able to hold off the American Indians. Pontiac and his men were forced to retreat. Although the attack on Fort Detroit failed, American Indians were able to capture eight other British forts.

By 1764, the American Indians had lost the support of the French. The British were able to take back many of the captured forts. In July 1766, Pontiac signed a peace treaty with the British. He died three years later. Although he could not stop the British from taking over American Indian land, he is remembered today as a brave and strong leader.

treaty

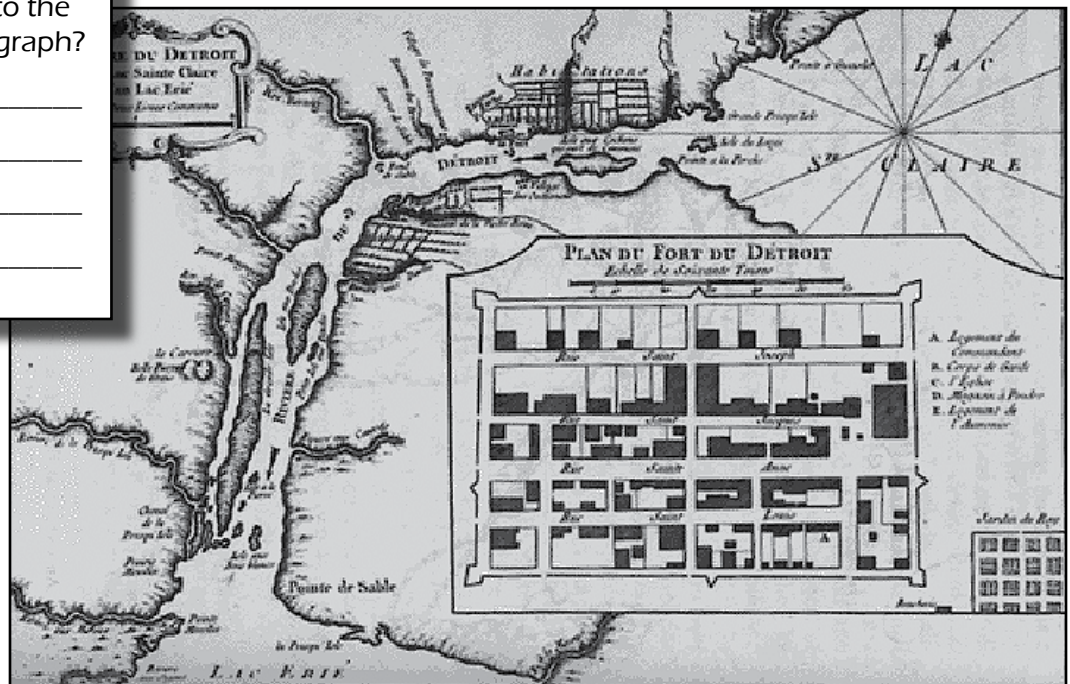
an agreement to make peace

D Vocabulary words can be important details. How does this word relate to the main idea of this paragraph?

E What is the main idea of this lesson?

How do you know?

Write three details that the author uses to support this main idea.



This map shows the area around Fort Detroit and the plans for the fort.

ACTIVITY!

LESSON 5

MAIN IDEA & SUPPORTING DETAILS

A This page does not have a section that tells the main idea of the lesson. What are two strategies you can use to figure it out?

B Now that you have read these paragraphs, you should know the main idea. Write it in the space below.

How did you know this was the main idea?

C Which detail about the Algonquin Indians best explains why they needed the goggles?

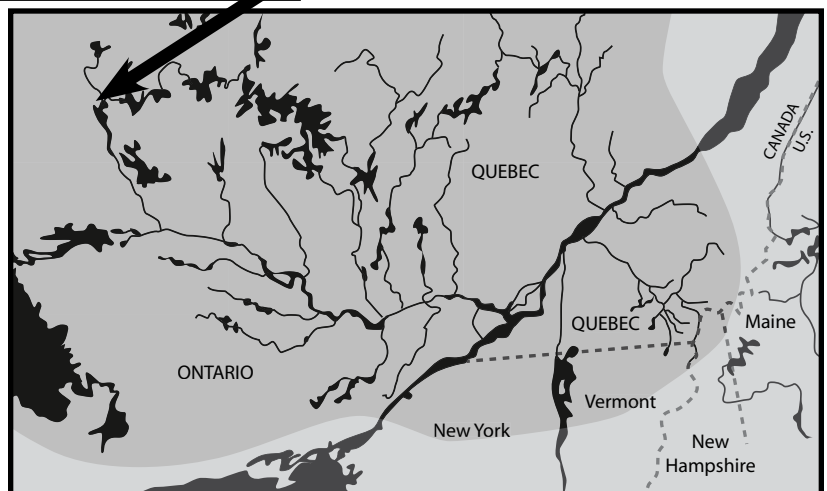
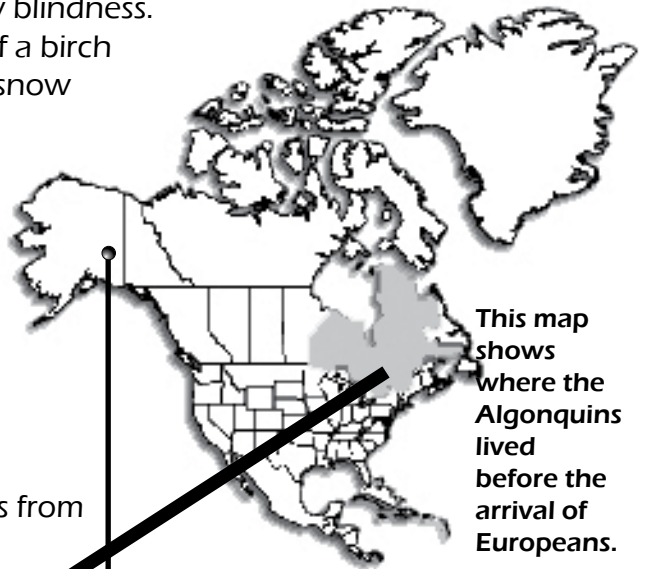
D How do the details in this graphic support the main idea of the lesson?

Algonquin Snow Goggles

American Indian tribes were very good at adapting to the climates in which they lived. Before the arrival of Europeans, the Algonquin Indians lived in the northeastern part of what is now the United States and the southeastern part of Canada. This part of the world gets a lot of snow every year. If you have ever been outside on a snowy day, you know that when sunlight reflects off of snow, it can make it very hard to see.

The Algonquin Indians came up with a solution to the problem of snow blindness.

Using the bark of a birch tree, they made snow goggles. These goggles had small slits for the eyes. When they looked through the slits, the Algonquins were able to see much better and protect their eyes from the sun's glare.



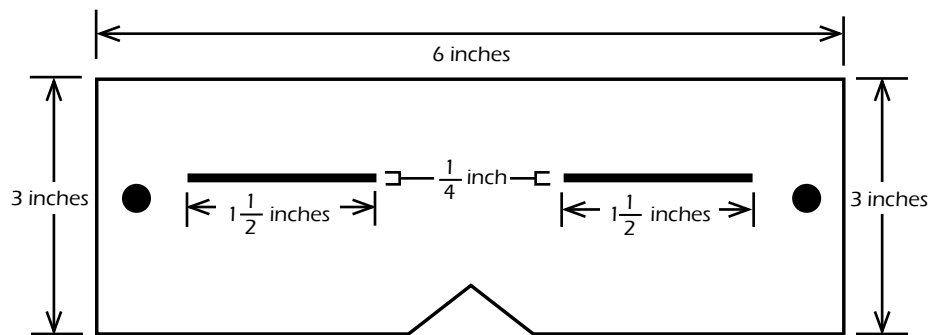
Make Algonquin Snow Goggles

It is easy to make a pair of Algonquin snow goggles. Just follow the instructions below. You will need a partner and adult help.

MATERIALS

- black poster board
- ruler or tape measure
- pencil
- scissors
- paper punch
- yarn or string
- a craft knife
- science journal

1. Measure and cut a piece of poster board three inches tall and six inches wide.
2. Hold the poster board up to your eyes. Have your partner draw a $1\frac{1}{2}$ inch line in front of each of your eyes.
3. Measure $\frac{1}{8}$ of an inch above and below the eye lines, for a total of one quarter of an inch.
4. Ask an adult to cut out the rectangular eye slits using the craft knife.
5. Cut a small triangle out of the bottom of your goggles for your nose.
6. Using the hole punch, punch holes in both sides of your goggles.
7. Tie string through each hole. Use the yarn or string to tie them in back.
8. Wear your goggles outside on a sunny day. Practice looking through the eye slits.
Warning: Do not look directly at the sun. It could hurt your eyes!
9. Take the goggles off and compare the results.
10. Record your observations in your science journal.



E This is an activity. Does an activity have a main idea? Write one reason why or one reason why not.

F How would making the goggles help you understand the main idea of the lesson?

G Which detail in the directions is most important?

Why?

CONCLUDING PROJECT

Main Idea & Supporting Details: American Indians

Now that you have learned a little bit about main ideas and the many American Indian cultures in the United States, you will do research to learn more about one tribe in particular. Using books, the Internet, or any other sources your teacher wants you to use, you will gather information about the tribe. You will decide which details about the tribe are most important. Using these details, you will create a learning kit to share with other students. This kit will include information, maps, and traditional crafts associated with the tribe that you chose. Then you will write a paragraph about the tribe that has a clear main idea.

The worksheet will help you get started.



Background: Research & Planning

Name: _____ Date: _____

A. Choose a Native American tribe. You might want to look at the map in Lesson 2 to find a tribe from a region that interests you.

Which tribe did you choose?

B. Using appropriate research materials such as textbooks, library books, encyclopedias, and the Internet, research the tribe. On a separate piece of paper, take notes about the tribe's history and culture, as well as past and present tribal lands. Be sure to look for maps, photographs, and other illustrations as well as written text.

What resources did you use for your research?

C. Which details do you think are most important or interesting about this tribe? What would someone else studying the tribe need to know?

D. What craft or artifacts from the tribe could you make or draw yourself?

(Attach your notes to this page)

Steps 1-3: Make A Learning Kit

Now, use your research to help you construct a learning kit that another student could use to learn about the tribe you chose. After you have completed all three steps, place your crafts, maps, and paragraph in a box. Label the box with the tribe's name. If you would like to, you may decorate the box.

Step 1: Traditional Craft

- Draw or make at least two traditional tribal crafts. Choose crafts that you believe are especially important to the tribe. Be prepared to explain why these objects were important to the tribe and how they were used.

Step 2: Map

- Create a map showing lands once controlled by the tribe. Create another map showing the lands controlled by the tribe today. Be prepared to explain your maps and point out important details.

Step 3: Paragraph

- Write a short paragraph about the tribe's history and culture. Make sure that your paragraph has a clear main idea and that you only include important details. Underline your main idea.

Sequential Order

What is sequential order?

Many lessons in your textbooks are written to emphasize **sequential order**. This means that they are written to describe events in the order in which they happened. **Sequential order** is also used to write instructions, such as those you might find in a science experiment or recipe.

If a text is organized to emphasize **sequential order**, the author wants you to pay careful attention to the order in which events or steps take place. You may be asked questions about that order.

How can you tell if a text is organized sequentially?

Recognizing that a text is written to emphasize **sequential order** can help you read the text better. To identify **sequential order**, look for:

- headings/subheadings that describe specific events or steps. These headings will usually begin with a verb (action word).
- special signal words (*before, after, next, then, etc.*) that are used to indicate sequence.
- timelines or illustrations that indicate the order of events (look for arrows, etc.).
- numbers that may indicate steps.
- dates that indicate when events happened.
- a main idea that explains how events or steps are related.

What should you do if events are not presented in sequential order?

Some texts that emphasize **sequential order** may not describe the steps or events in the order they happened. Pay attention to all signal words. Sometimes the steps or events may not be described in the order in which they happened. You will need to use the sequence signal words to help you put them in order. You may want to take notes on a separate piece of paper or draw yourself a timeline. This will help you organize the information in the correct order. It will help you keep track of when events occurred.

LESSON 1

SEQUENTIAL ORDER

VOCABULARY

- Morse code
- observation
- telegraph

MAIN IDEA

Most inventors follow important steps when they invent.

A Before you read, look at the headings in the lesson. How do the headings give you a clue that the text is written to emphasize sequential order?

How Does an Inventor Work?

Every day, your life is made easier because of science and technology. But things that we take for granted like electric lights, televisions, telephones, and cars, would not be possible were it not for the ideas of inventors. Inventors are people who have ideas to build new things. Using imagination and existing technology, inventors create machines that make life easier, and materials such as plastic, concrete, and some kinds of cloth that are not available in nature. Anyone can become an inventor. Men, women, and children all over the globe have been inventing for thousands of years. How does an inventor create an invention that people can use?



The National Inventors Hall of Fame in Akron, Ohio honors the best American inventors.



Observe the Problem

Usually, inventors get ideas from their everyday lives. Have you ever been working on a project or doing a chore and thought, “this would be easier if I had different tools to work with”? When an inventor encounters a problem, he or she thinks about what kind of tool would help solve it. He or she begins to think up a new invention. Observation is therefore one of the most important steps in invention.

Observation means gaining information through the use of one or more of the senses, such as sight, smell, etc.

Brainstorm Solutions

Once an inventor has observed a problem, he or she can begin to think of ideas for an invention that could solve the problem by doing a job faster or more easily. Sometimes, it is easy to come up with ideas for a new invention. But it is not always easy to figure out how to build the invention and make it work. Inventors choose the idea they think will work best.

B What word in this sentence tells you that an inventor must observe *before* inventing?

Experiment

Once an inventor has chosen an idea for a new invention, he or she has to experiment to find the best way to make it. Most inventors follow certain steps when they experiment. They want to make sure that they carefully follow the same steps each time they try something new. This way, it is easier to compare the results of different experiments. If an inventor were to change



This product was invented by Madam C.J. Walker, a famous African American inventor from Indiana.

the method that he or she was using, it would not be accurate to compare the results of different experiments.

C Other than the heading, write one way you know this paragraph is written to emphasize sequential order.

Make a Model

After experimenting with different ways of making the new invention, an inventor will find the method or formula that works best. He or she will build an early version of the invention, and test it to make sure that it works. Once the invention is built, the inventor may use it to solve the original problem. The inventor may also demonstrate, or show, it to other people. He or she may even begin to sell it for other people to use.

D Making a model is one step in inventing, but it can be divided into several steps. Write at least two of them.

Make Improvements

Sometimes, the first model of an invention will work perfectly. It may never need to be changed at all. Usually, though, inventions continue to develop over time. The original inventor may think of new ways to make the invention better, faster, or easier to use. Or, other inventors may think of new ways to improve the invention. Can you think of some inventions that have been improved over time?

The next time you run into a difficult job, ask yourself what kinds of tools would make it easier. Who knows, you could become the next great American inventor!

E As you read about Morse's telegraphs, pay careful attention to how he followed each of the steps described in the lesson. When you are done reading, write how Morse followed each step.

INVENTION CLOSE-UP:

Morse's Telegraph



This is what Morse's telegraph looked like.

• Before there were computers, or even telephones, people relied on the telegraph to communicate between distant places. A **telegraph** is a system that uses a signal to carry encoded information from one place to another. The first successful American telegraph was invented by Samuel F. B. Morse.

Although the first telegraph was invented in 1774, the earliest telegraphs had many problems. Telegraphs transmit information using wires. Early telegraphs had to have one wire for each of the 26 letters of the alphabet. This was not practical. Morse wanted to make the telegraph better by making it work with only one wire. He needed to figure out a way to build a new kind of telegraph.

Morse began to experiment. He found that he could avoid having a different wire for each letter if he used a code to represent each letter instead. He experimented to see if he could make a machine that would mark the codes on a piece of paper. Then the person receiving the message could decode the marks to understand the message.

On January 6, 1838, Morse demonstrated his machine for the first time. He was able to successfully send a message. But he wanted to make the machine better. To improve his invention, Morse created a new system of dots and dashes to represent letters. This system of dots and dashes, known as **Morse code**, helped make the telegraph work better. Although telephones and computers have replaced the telegraph, people still use Morse code today.

USING MATH

LESSON 2

SEQUENTIAL ORDER

Algebra: Make a Scale Model

VOCABULARY

scale
scale model

Eli is studying inventions in school. He has to write a report about an invention that changed life in early America. Eli has decided to write about the windmill. He wants to build a model of a windmill as part of his report. Because he wants his windmill to look like a real windmill, but smaller, Eli wants to make a **scale model**. A scale model is a model that is bigger or smaller than a real object. A **scale** is a ratio that compares the real measurements of an object with the measurements of the model.



You can visit this model of a colonial windmill in Kendallville, Indiana.

A Before you read, skim the lesson. Write at least two ways you know this lesson is written to emphasize sequential order.

B Is this paragraph written to emphasize sequential order? How do you know?

To make a scale model, Eli needs to follow the steps below.

1. Find the Size of the Original

Before he can begin, Eli needs to know the size of the original object. While reading, Eli found the following measurements for an early American windmill:

LENGTH	14 feet
WIDTH	12 feet
HEIGHT	30 feet

C Is this chart arranged in sequential order? Write one reason why or why not.

2. Choose a Scale

In order to choose a scale, Eli needs to decide how much smaller than the original he wants his model to be. He decides to make his windmill $\frac{1}{10}$ the size of the original.

The ratio of the size of the model to the size of the original will be 1:10.

3. Set up a Proportion and Solve

In order to figure out how big to make his model, Eli needs to set up proportions for length, width, and height.

He lets l equal the length of his model

$$\text{Scale of model } \frac{1 \text{ ft}}{10 \text{ ft}} = \frac{l}{14 \text{ ft}} \frac{\text{model length}}{\text{actual length}}$$

$$10l = 14 \text{ ft}$$

$$l = \frac{14 \text{ ft}}{10}$$

$$l = 1.4 \text{ ft}$$

Eli's model will be 1.4 feet in length.

D Why is it necessary to choose a scale before setting up the proportion?



Now Eli needs to repeat this step to figure out the width and the height of his model.

He lets w equal the width of his model.

$$\text{Scale of model } \frac{1 \text{ ft}}{10 \text{ ft}} = \frac{w}{12 \text{ ft}} \frac{\text{model width}}{\text{actual width}}$$

$$10w = 12 \text{ ft}$$

$$w = \frac{12 \text{ ft}}{10 \text{ ft}}$$

$$w = 1.2 \text{ ft}$$

He lets h equal the height of his model.

$$\text{Scale of model } \frac{1 \text{ ft}}{10 \text{ ft}} = \frac{h}{30 \text{ ft}} \frac{\text{model height}}{\text{actual height}}$$

$$10h = 30 \text{ ft}$$

$$h = \frac{30 \text{ ft}}{10 \text{ ft}}$$

$$h = 3 \text{ ft}$$

Eli's model will measure 1.4 ft x 1.2 ft x 3 ft.

E Does it matter whether Eli calculates the width or the height first? Write one reason why or why not.

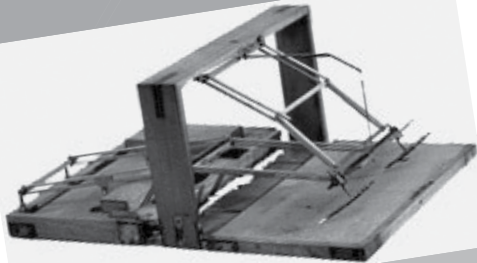
F Eli still needs to add the blades to his windmill. In your own words, describe what he needs to do in order to determine what size to make them. Be sure to write at least three sentences in sequential order.

Which step could be left out? _____
Why? _____

ACTIVITY!

LESSON 3

SEQUENTIAL ORDER



This is one of the polygraphs owned by Thomas Jefferson.

Thomas Jefferson and the Polygraph

Before there were copy machines, people had to copy documents by hand if they needed more than one copy. This was not very practical, because it took a lot of time. People needed a better way to make several copies at once. One solution to this problem was an invention called a **polygraph**. *Poly* means many and *graph* means writing. The polygraph was designed so that when a person wrote with one pen, a second pen made another copy of whatever the person wrote. Polygraphs were made in America by **Charles Willson Peale**, who gave one to his close friend, Thomas Jefferson. Peale had received the right to make polygraphs in America from the machine's inventor, an Englishman named John Isaac Hawkins.

Thomas Jefferson is most famous for writing the Declaration of Independence and for serving as the third President of the United States. But he was also very interested in inventors and inventing. Jefferson became very excited about Peale's polygraphs. He sent the inventor many suggestions about how to make them better. If you visit Jefferson's home, Monticello, you can see one of the polygraphs that is on display there.

A Which of the following happened last?

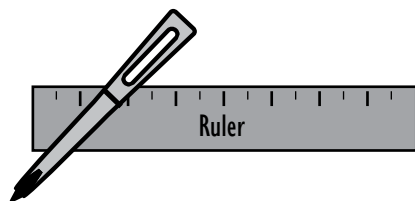
- Hawkins invented the polygraph.
- Peale gave a polygraph to Jefferson.
- Peale received the right to make polygraphs.
- People needed a better way to make copies.

B Before you read, skim the lesson. Write two ways that you know this text is written to emphasize sequential order.

Make a Polygraph

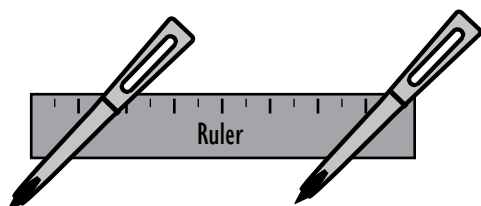
Although the polygraphs that Jefferson used were large and had a lot of parts, it is easy to make a simple polygraph. Just follow the steps below.

1. Using tape, attach one of your pencils or markers to the one inch mark on your ruler. Attach it at a 45 degree angle. Use your protractor to measure the angle. The tip of the pencil or marker should be approximately one inch from the bottom of the ruler.



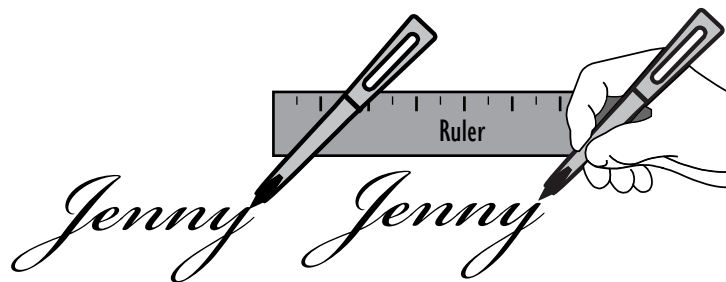
2. Measure six inches from the first pencil or marker.

3. Use tape to attach the second pencil or marker to the ruler at the seven inch mark. Use your protractor to attach it at a 45 degree angle. The tip of the pencil or marker should be slightly less than one inch from the bottom of the ruler.



4. Position the polygraph so that the pencils or markers will both write on the paper, with one next to the other.

5. Holding one of the pencils or markers, use the polygraph to write your name. What happened?



6. Experiment. Move the pencils or markers farther apart or closer together. How does it change the result? Is it easier to write with one pencil or marker than with the other?

MATERIALS

- two pencils or markers of equal length (markers will work best)
- a ruler
- a protractor
- a piece of paper
- sturdy tape, such as masking or strapping tape
- a writing surface, such as a desk or table

C Does the order in which the materials are listed matter? Write one reason why or why not.

D Why is it important to follow these steps in the order in which they are written?



BIOGRAPHY

LESSON 4

SEQUENTIAL ORDER

Thomas Jennings: An African American Inventor

patent

a right given to an inventor by the government to use, make, and sell an invention

Americans have always been great inventors, but it was not always easy for all Americans to get credit for their inventions. Before the Civil War, many African Americans were slaves. The law said that slaves could get patents for their inventions, but slave owners often took credit for their slaves' ideas. Although they often could not get patents, African Americans continued to invent. Thomas Jennings was one such inventor.

Jennings was born in 1791, during the time of slavery. Although Jennings was not a slave, many of his family members were. Jennings lived in New York City, where he worked as a dry cleaner. He was always looking for new ways to make his work easier. When he was 30 years old, Jennings invented a new way of dry cleaning called "dry scouring." He asked the government for a patent. On March 3, 1821, he became the first African American patent holder.

A In your own words, describe what often happened after a slave created a new invention.

- B** This picture was taken
- before Jennings was born.
 - the year Jennings was born.
 - after Jennings was born.

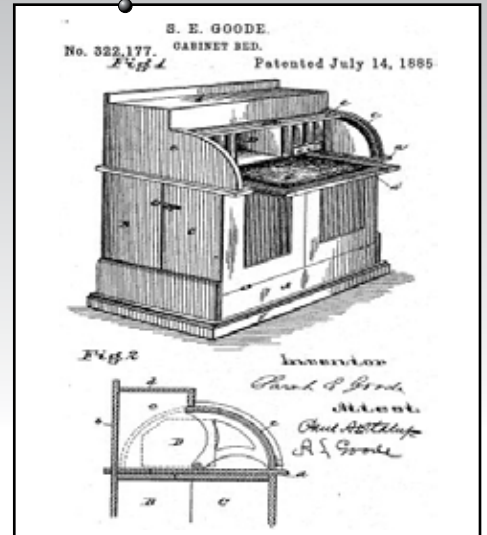
How do you know?



This photograph shows what the United States Patent Office looked like in the 19th century.

THOMAS JENNINGS

C Who received a patent first, Sarah E. Goode or Thomas Jennings?



Sarah E. Goode's cabinet bed made her the first African American woman to receive a patent.

abolitionist
a person who worked to end slavery

Jennings was also an abolitionist. After he received his patent, he used the money from his invention to buy freedom for family members who were slaves. After all of the members of his family were free, he used his money to help the abolitionist movement. In 1831, he was elected the assistant secretary for the First Annual Convention of the People of Color.

Jennings died in 1859, almost four years before the Emancipation Proclamation freed slaves. Although he did not live to see the end of slavery, Jennings's abolition work helped free many slaves. Today he is remembered as a great African American inventor.

D In your own words, explain what happened after Jennings received his patents. Write at least two details in sequential order.

African American Inventors

George Washington Carver (1864-1943)	former slave who invented many products using peanuts and other crops, patented a process of making paint from soybeans in 1925
Lewis H. Latimer (1848-1928)	improved Edison's lightbulb when he invented a carbon filament in 1881
Garrett A. Morgan (1877-1963)	patented the first traffic signal and the gas mask (1914)
Madam C.J. Walker (1867-1919)	invented hair care products (1905) that made her a millionaire

Thomas Jennings was only one of many African American inventors. This chart tells about four others.

E This chart lists the inventors in alphabetical order. Arrange them in sequential order by the dates of their patents instead.

1. _____ 3. _____
2. _____ 4. _____

LESSON 5

SEQUENTIAL ORDER

VOCABULARY

- cotton gin
- Robert Fulton
- steamboat
- Eli Whitney

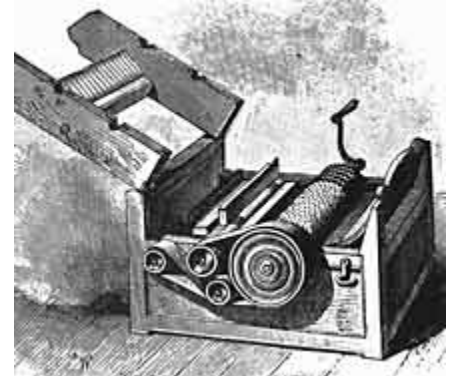
MAIN IDEA

The cotton gin and the steamboat were two inventions that changed American life in the 1800s.

The Cotton Gin and the Steamboat: Changing Life in the 1800s

Eli Whitney's Cotton Gin

In 1793, a man named **Eli Whitney** invented a machine called the cotton gin that changed the way that many people in the southern United States lived and worked. Whitney had worked as both a blacksmith and a teacher, but he loved to invent things. His **cotton gin** could separate cotton seeds from the cotton fiber used to make cloth. The cotton gin was simple to use. Cotton was put into the top of the machine and a handle was turned. As the handle turned, the cotton moved through wires that combed the seeds out. When the job was finished, the seed-free cotton was pulled off the wires.



This is what Eli Whitney's cotton gin looked like.

Before the invention of the cotton gin, it took a long time to separate the seeds from the cotton. Whitney's cotton gin could separate 50 pounds of cotton in just one day. This allowed people to make cotton cloth much more cheaply. Cotton quickly became the biggest crop in the South. It continued to be the South's biggest crop until the Civil War (1861 -1865).

A This paragraph describes how the cotton gin worked. In your own words, write the four steps in sequential order.



The South had been facing hard times because its crops were not growing well. The increased cotton business helped the South grow. But the invention of the cotton gin also had negative effects. Because the cotton gin made it possible to process more cotton than ever before, cotton growers wanted more land to grow more cotton. Some land was taken from American Indians who had been living on it for thousands of years. Also, because more cotton was being grown, more people were needed to work picking the cotton. Growers did not want to pay these workers, which led to an increase in slavery.

B This paragraph tells about the effects that the cotton gin had on the South. How does understanding sequence help you understand causes and effects?

Robert Fulton's Steamboat

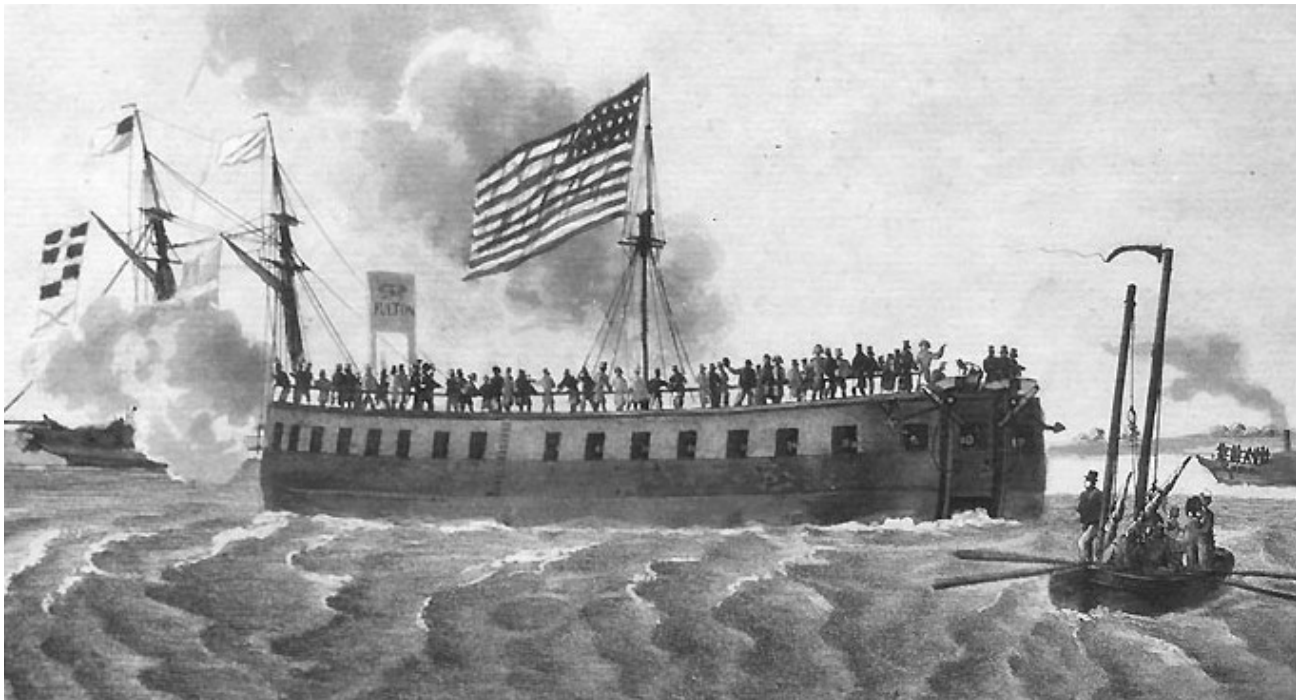
Another invention that changed life in the United States during the 1800s was the **steamboat**. In the early 1800s, river travel was the most common way to move people and goods from one place to another. But it could be very difficult to row boats upstream because of the strong currents. Steam-powered boats had been built in Europe, but they were not very practical. Then an American artist and inventor named **Robert Fulton** had an idea that would make river travel easier. He built a new kind of steamboat.

C In your own words, describe the sequence of events that began with the invention of the cotton gin and ended in an increase in slavery in the South. Be sure to write at least three sentences.

D Fulton's steamboat might not have been built if it hadn't been for other events and inventions that happened before 1807. Using information from the lesson and inferences, list at least two of these events or inventions.



This photograph shows an early steamboat.



This illustration shows the world's first steam warship, *Fulton the First*, in New York Harbor.

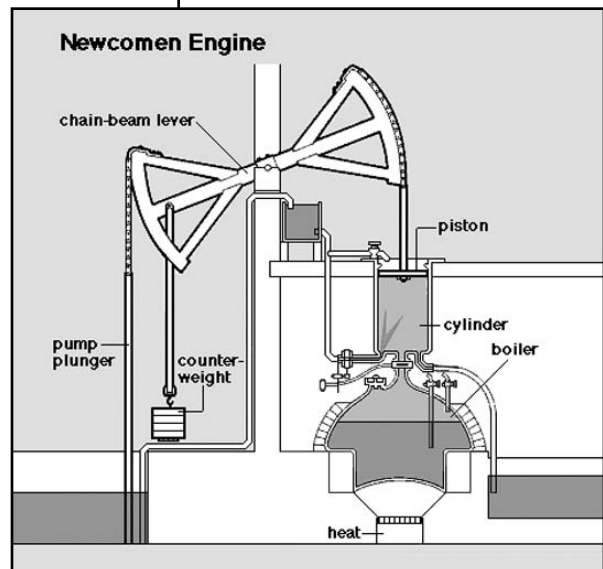
In 1807, Fulton built his first steamboat, the *Clermont*. He tested it on the Hudson River. Although the boat had a little trouble at first, it made it to Albany, New York, traveling against the current. After the success of the *Clermont*,

Fulton built other steamboats. More people became interested in steamboat travel. By 1814, steamboats were making regular trips on America's rivers. They changed the way Americans traveled and transported goods.

Many Americans still enjoy traveling by steamboat today.

How Does a Steamboat Work?

Steamboats are powered by steam engines. Early steam engines burned coal or wood to boil water. When water boils, it turns into a colorless gas known as water vapor, or steam. Steam has more volume than water. When water inside a steam engine begins to boil, the increased volume creates a force that turns a rod. A force is a push or a pull that can cause a change in the motion of an object. The rod turns a big wheel on the boat, pushing it forward. The greater the force of the pressure, the faster the steamboat would move.



This drawing shows how a steam engine works.

CONCLUDING PROJECT

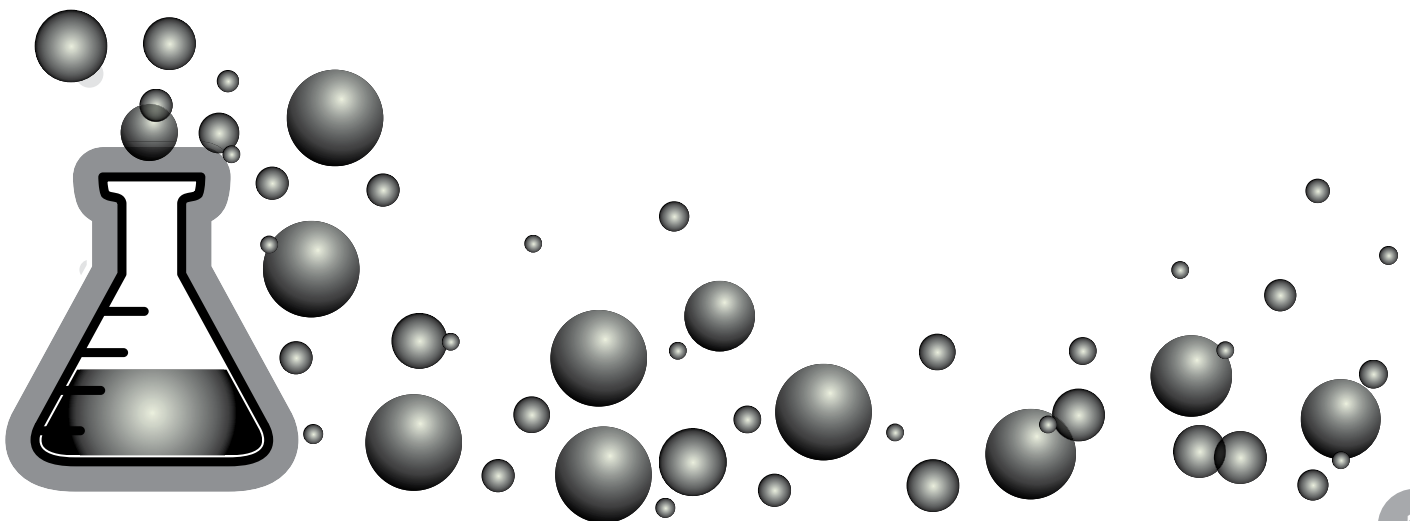
Sequential Order: Inventors

Now that you have learned about how an inventor works, you will design your own invention and demonstrate it to your classmates. You will follow the five steps you learned about in Lesson 1: observe, brainstorm, experiment, create a model, and make improvements.

Step 1: As you work, you will keep a notebook to track your observations, ideas, and experiments. You will research to make sure that your invention is unique.

Step 2: Design your invention by making a storyboard or model that shows how it will work. When you have finished designing your invention, you will demonstrate it for the class.

Step 3: Finally, you will write a brief report about your invention.



Step 1: Inventor's Journal and Research

Name: _____ Date: _____

Use a journal or paper stapled together to record your ideas. Include the following:

A. Observe

Explain the problem you observed.

B. Brainstorm

List ideas to solve the problem.

C. Research

Use research tools (library books, the Internet, encyclopedias, etc.) to make sure that your invention has not already been created. What other inventions have been created to solve the problem you observed? How is yours different?

D. Experiment

How can you tell that your invention will work? If you drew your invention, did you make rough copies of your drawing until you perfected it? If you built your invention, what kinds of experiments did you conduct?

(Turn in your journal when you have completed Step 3.)

Step 2: The Invention

Name: _____ Date: _____

Create and Demonstrate a Model

You will share your invention with the class. You will need to explain how you came up with your idea, share some of your research, and demonstrate (through pictures or a model of the invention) how it will work.

Use the space below to write an outline for your presentation. Remember to keep your presentation organized in sequential order.

Presentation Notes

Step 3: The Written Report

Name: _____ Date: _____

Summarize and develop ideas for improvement.

Write a report that summarizes the steps you followed to design your invention, and information about how your invention works. Based on your classmates questions or your own experience, also write if you would or would not make any changes to your invention before requesting a patent.

NOTE: Remember to include appropriate sequence signal words when you write your report!

Write the rough draft of your report here. After making edits, attach your final copy to this page.

Interpreting Graphics

How can you interpret graphics?

Your textbooks include many **graphics** such as pictures, maps, diagrams, and charts. In order to understand your textbook, you need to be able to interpret these **graphics**. When you interpret a **graphic**, you study it carefully. You discover important details about it and you understand the significance, or importance of the details. Some **graphics** are just for decoration, but many **graphics** contain useful information.

Interpreting a **graphic** means understanding its purpose and the information it shows, not just what it looks like. Remember to look for details in **graphics**:

Ask yourself:

- What kind of map am I looking at (historical map, elevation map, product map, route map, distribution map, etc.)?
- Why did the author choose to include this kind of map?
- How would landforms, such as mountains, affect the people living nearby?
- Why was a certain path followed on a historical route?
- What comparisons can I make between sizes of cities and states?
- What are the longitude and latitude of places mentioned in the text?
- When was the map made and how may it have changed over time?

Maps

- What kind of chart or diagram am I looking at (bar graph, pie chart, web, flow chart, diagram, line graph, etc.)?
- Why did the author choose to include this kind of chart/diagram?
- What comparisons can I make between numerical values or data?
- Is the graphic the best way to present the data?
- How is the data linked to information in the text?
- Is the source of the data a reliable source?

Charts and Diagrams

- What kind of picture am I looking at (drawing, photograph, portrait, landscape, cartoon, etc.)?
- Why did the author choose to include this picture?
- What background details give clues about the picture?
- What are the names of the people or buildings represented in the picture?
- What time (such as the year or season) is represented?
- What is the artist's point of view?

Pictures

ACTIVITY!

LESSON 1

INTERPRETING GRAPHICS

The Knox Trail

The Knox Trail is an important part of American history. During the American Revolution, Henry Knox had an idea to help American troops fight the British. He wanted to bring the cannons from Fort Ticonderoga in New York to General Washington and his troops in Massachusetts. Knox knew these were some of the best artillery available. **Artillery** are large firearms that are mounted on stands – like cannons.

Knox made the incredible journey from Fort Ticonderoga to Cambridge, Massachusetts—just outside of Boston. It was not an easy trip. It was long, and the cannons and other artillery were heavy. And it was the middle of winter! But with careful planning, the cooperation of the weather, helpful locals, and some dedicated troops, most of the artillery made it to Boston.

The trip, which would take about four and a half hours by car today, took about 56 days in the winter of 1775 to 1776. What was incredible about his trip was that Knox was traveling with 40 oxen-pulled sleds carrying tons of artillery.

Mapping a Trail

Jerylyn and her family decide to follow the Knox Trail through New York and Massachusetts. They want to travel on a historical route. The Knox Trail follows the route that Henry Knox, his companions, and oxen traveled in the winter of 1775 to 1776. To make the journey, Jerylyn and her family are using a global positioning system, or GPS. A GPS is used to locate places on the Earth and to map routes. It uses a satellite and a computer to pinpoint places on the Earth. Once a place is located, it can be recorded as a set of numbers called coordinates. These coordinates correspond to longitude and latitude lines. Look at Jerylyn's travel diary on the next page.



A GPS like this one can help you find your location or map a route.

A What graphic would you add to this passage to illustrate Knox's trip?

Why? _____

B Why did this author include this graphic?

What does GPS stand for?

Travel Diary

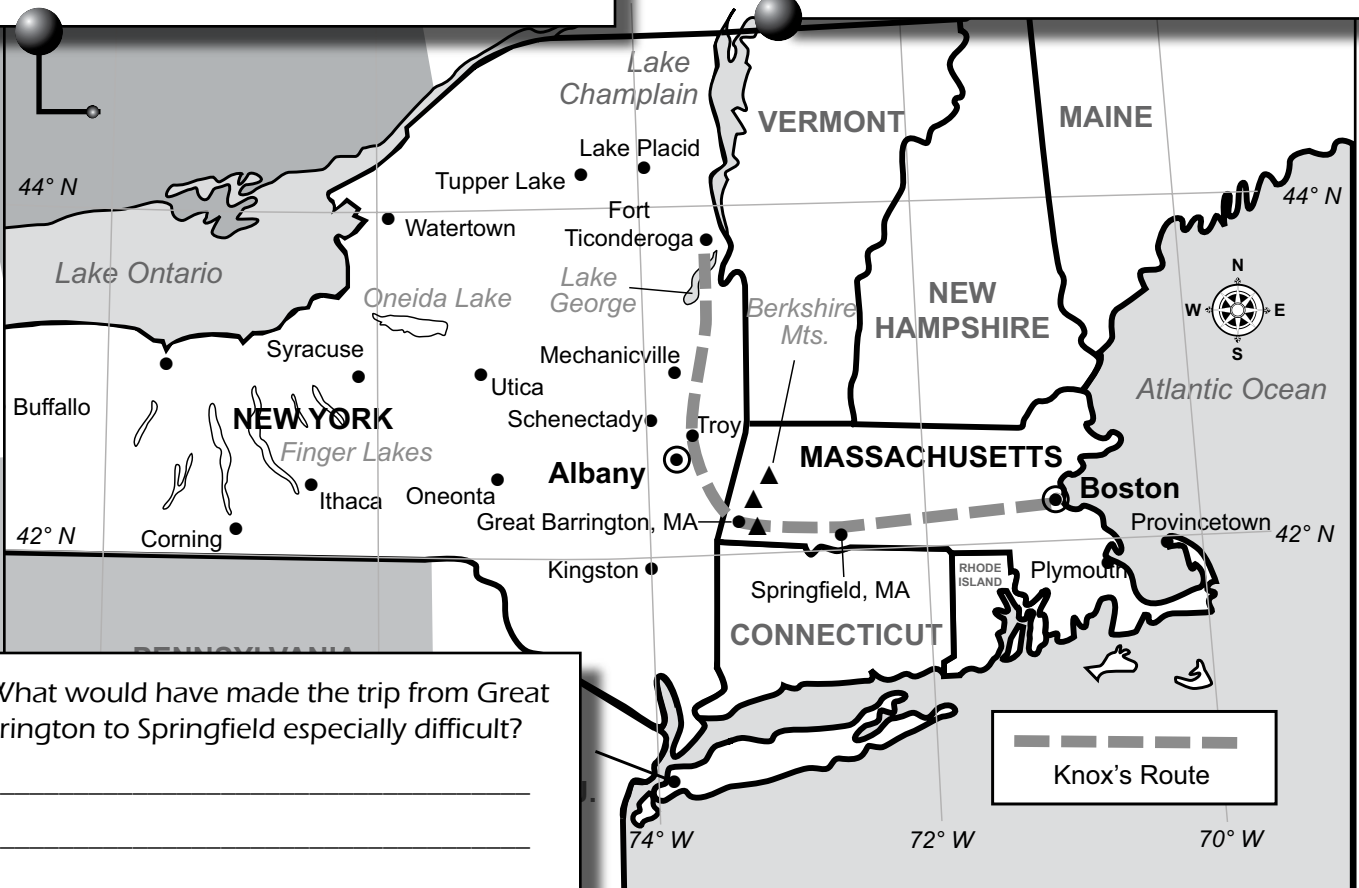
1 p.m. We left Fort Ticonderoga, NY Great Barrington, MA
 Coordinates: 43°49' N 73°24' W Coordinates: 42°13' N 73°19' W

Mechanicville, NY Springfield, MA
 Coordinates: 42°54' N 73°41' W Coordinates: 42°06' N 72°32' W

Albany, NY Boston, MA
 Coordinates: 42°39' N 73°47' W Coordinates: 42°19' N 71°05' W

C Why did the author include this map, instead of a map showing all of the United States?

D When Knox left Fort Ticonderoga he floated the artillery on boats. What body of water was he on?



E What would have made the trip from Great Barrington to Springfield especially difficult?

Longitude and Latitude

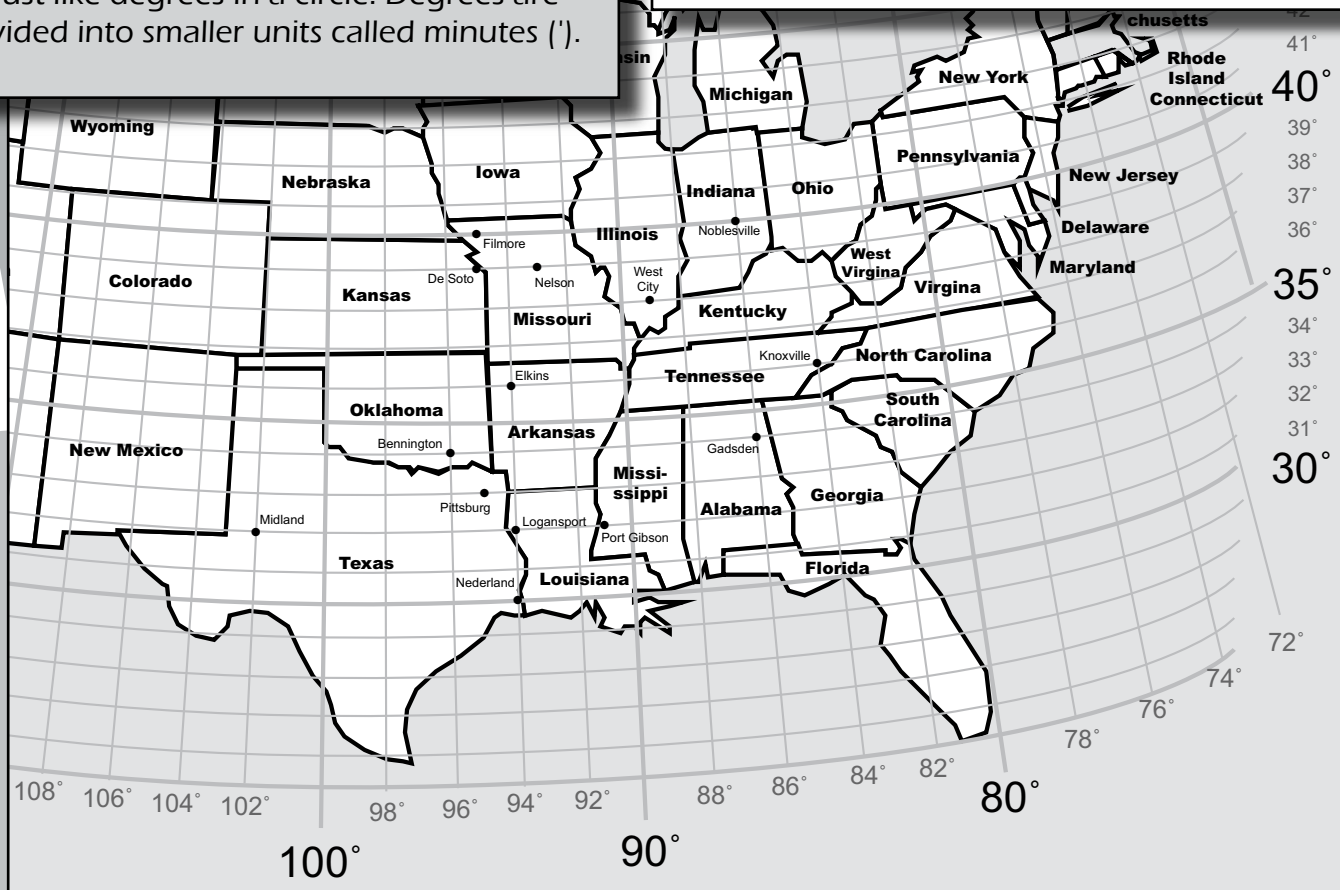
Longitude lines are imaginary lines running north to south on the Earth. Longitude lines divide the Earth into pieces, like wedges of an orange. All of the lines meet at the North and South poles. **Latitude lines** circle the Earth east to west. Latitude lines look like circular rings. Around the equator the circle is the largest. As you move north or south toward either pole, the circles become smaller. If you stood at the North Pole and drew a large circle around you, you would be drawing a line of latitude. If you divided the circle up into parts, you would be drawing lines of longitude.

The point where a longitude line crosses a latitude line is called a coordinate. Coordinates are stated in units called degrees ($^{\circ}$). Coordinate degrees do not have anything to do with temperature. Degrees come from divisions of a circle. Because the Earth is circular, the lines that divide up the Earth are called degrees — just like degrees in a circle. Degrees are divided into smaller units called minutes ($'$).

Plan your own trip!

- 1) Choose six cities on the map below that you plan to visit on your trip.
- 2) On a separate piece of paper, make a trip diary with the coordinates of the cities you'll visit.
- 3) Have a partner read your coordinates and tell you the names of the places you'll visit.

F Drawing your own graphics can help you understand a topic. Draw a sphere (a shape like an orange). Label longitude and latitude lines on it.



VOCABULARY

- exports
- imports
- surface currents
- triangular trade

MAIN IDEA

Colonists depended on trade winds and surface currents to ship goods across the Atlantic Ocean.

Colonial Trade

Trade was a necessary part of colonial life. Settlers in England's North American colonies traded with each other and with American Indians. Settlers also traded across the Atlantic Ocean. In colonial times, like today, this trade involved both imports and exports.

Imports

Imports are goods or materials received by a country. The colonies received imports from Europe, from the Caribbean, and from Africa through the Caribbean. Ships coming to the colonies from England brought many finished goods. These goods included furniture, metal goods, clothing, tea, and paper. Ships from the Caribbean brought molasses and sugar. Ships from the Caribbean also brought slaves from Africa. The colonies used the sugar and molasses to create rum. The rum that the colonists made was then shipped to Africa.

Exports

When the colonies shipped goods or materials out, they were sending exports. **Exports** are goods and materials that are shipped from a country. The colonies exported goods to Europe, the Caribbean, and Africa. Many of the exports that the colonies shipped to England were raw materials. Raw materials are materials that are used to make other products. Iron, furs, and timber were all exported to England from the colonies. The timber was made into fine furniture in English factories and then shipped back as an import to the colonies. Fish, fur, and meat were sent to the Caribbean. Cloth, gunpowder, iron, and rum were exported to Africa.

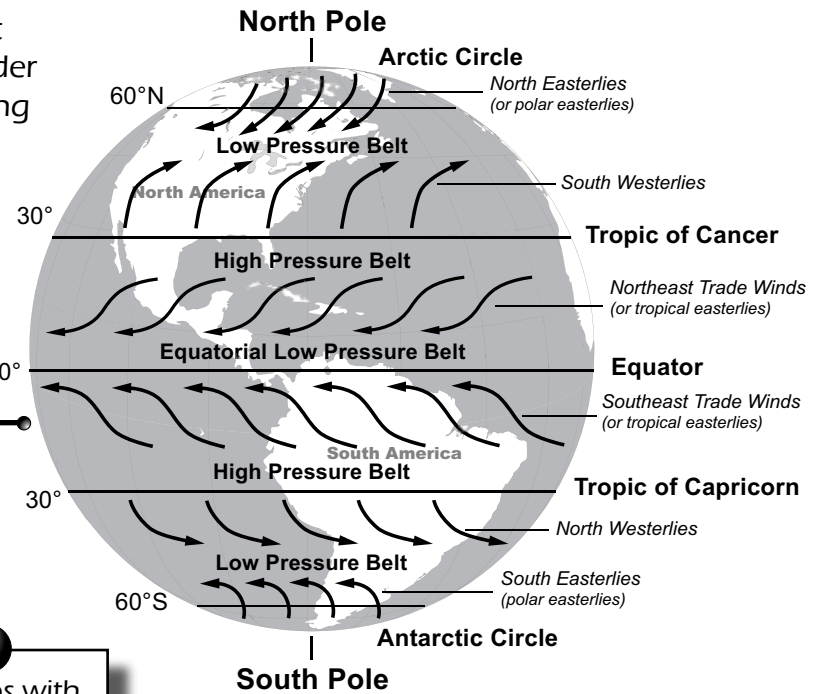
A When you read the names of places, it is important to visualize their locations. If the text does not provide a map, what are two sources you could use to find their locations?



Trade Winds and Surface Currents

How were American colonists able to get their goods across the Atlantic Ocean? In order to trade across the ocean, ships needed strong winds to push their sails. Sailors understood the flow of air across the Earth. They called the strong winds that made sailing easier for their trading ships, "trade winds." The trade winds, on either side of the equator, blow toward the equator. Just above the equator, the winds blow from the northeast. Just below the equator, the winds blow from the southeast. Just above the Tropic of Cancer (30°N) and just below the Tropic of Capricorn (30°S) the winds called westerlies blow from the west and away from the equator.

Global Wind Patterns

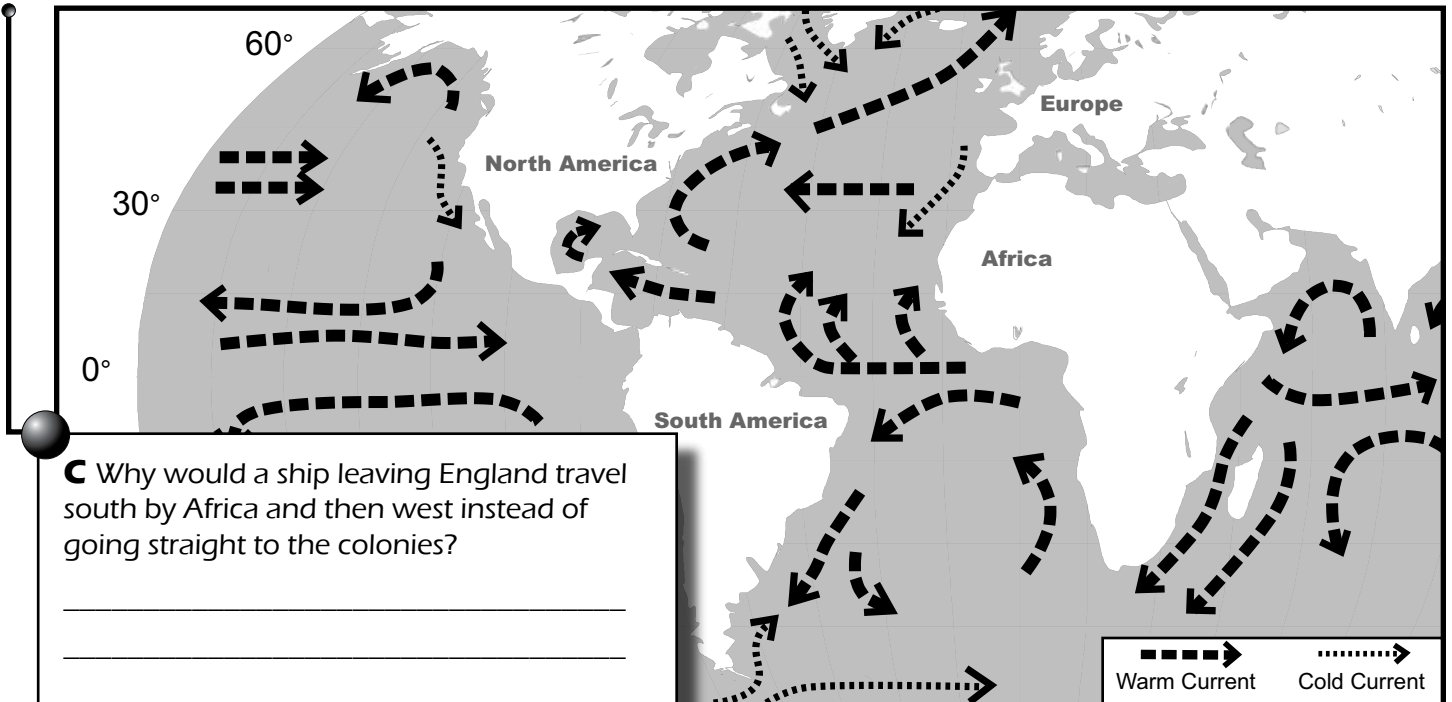


B Why would the author include two maps with arrows showing directions?

Which way do the winds blow near the North Pole? Is it toward the equator or away from it?

The winds also form surface currents in the ocean waters. **Surface currents** are large streams of flowing water on the surface of the ocean. Across the Earth, you can find many currents moving in circular patterns. In addition to the wind, land masses and the movement of the Earth also affect the direction of the currents.

Global Surface Currents



C Why would a ship leaving England travel south by Africa and then west instead of going straight to the colonies?

Trade Routes

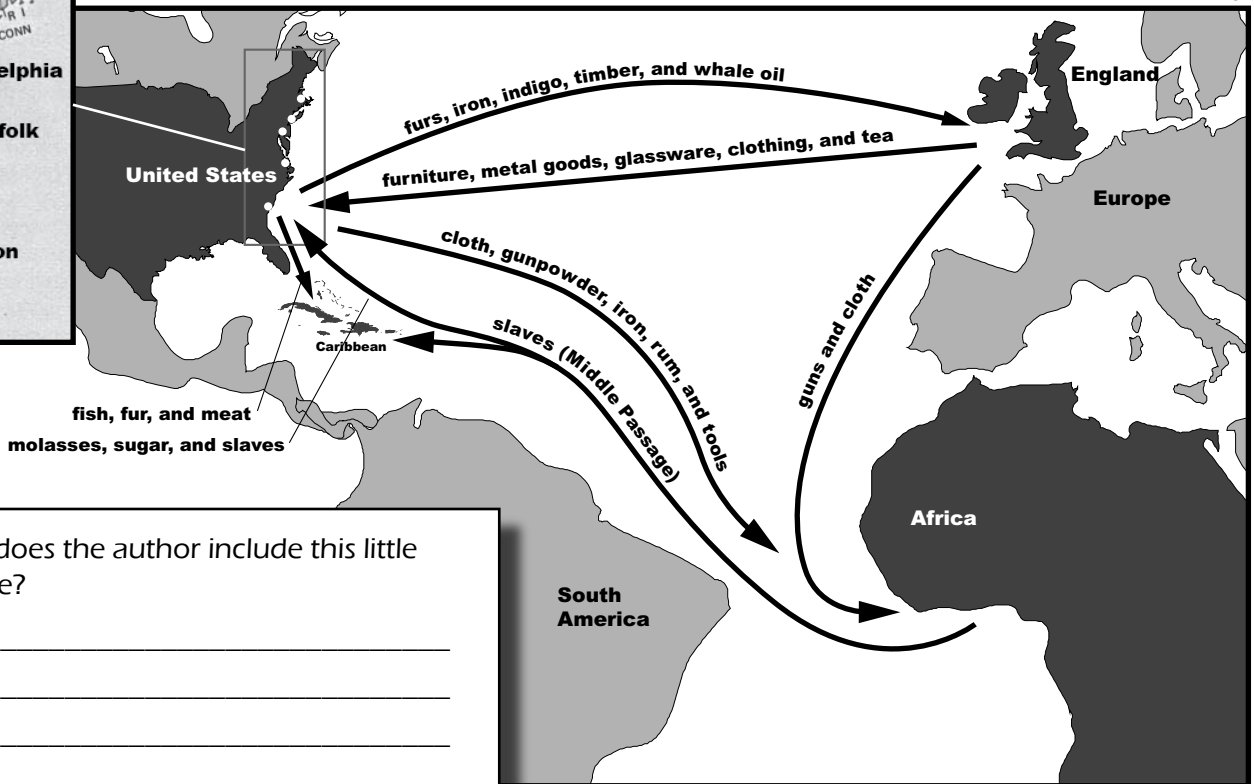
Colonial ships traveled back and forth along the trade routes that followed the ocean currents and winds. They took away exports and brought imports. Because of the way the imports and exports moved, people began to call the pattern of trade between the Americas, Africa, and England the **triangular trade**. The map below shows how triangular trade worked. Without these important trade routes, the colonies might not have survived.

D List at least two imports or exports that you can learn about from the graphic that are not included in the text.

Why do you think fish and meat were traded with the Caribbean and not England?



Triangular Trade



E Why does the author include this little map here?

How do these maps add to your understanding of the lesson?

LESSON 3

INTERPRETING GRAPHICS

VOCABULARY

- cash crop
- plantation
- temperate climate

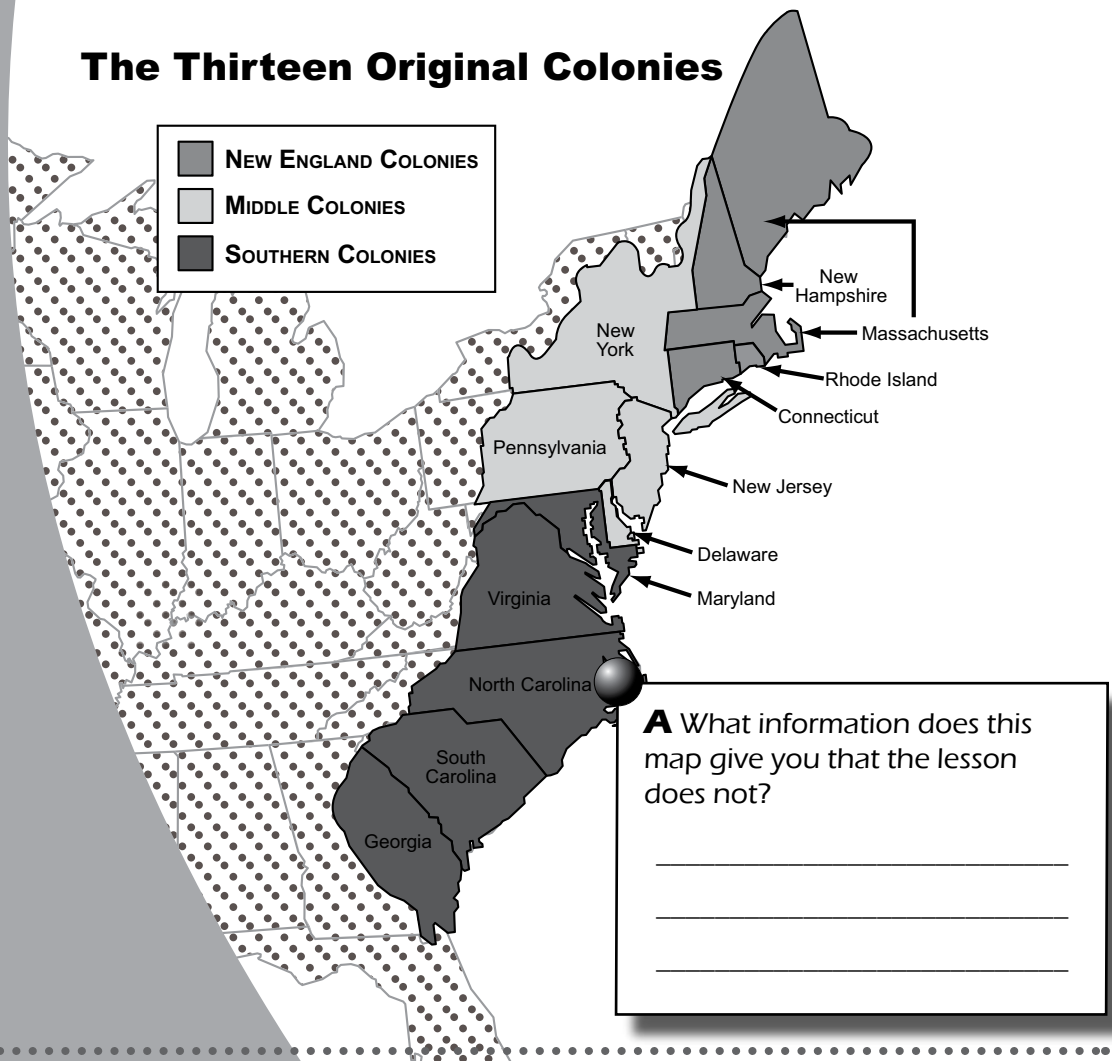
MAIN IDEA

Farming has always been an important part of American life.

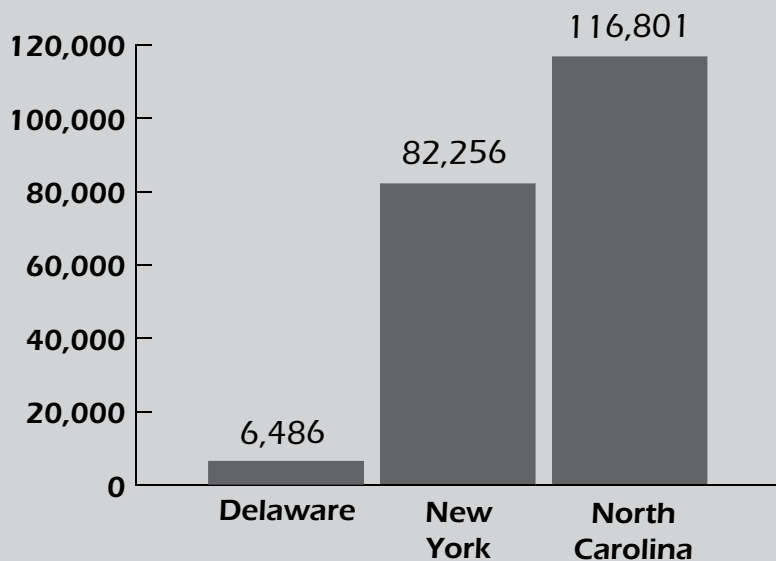
Farming in the United States

Farming has always been an important part of how land is used in the United States. In fact, one of the first things that colonists did when they reached America was to set up farms. All of the 13 original colonies had farms. These colonies can be grouped based on the region in which they are found: New England Colonies, Middle Colonies, and Southern Colonies. Each of these three major regions had different types of farms.

The Thirteen Original Colonies



Farmers Per State Today



Source: US Census Bureau (data from 1990)

B How does this graphic help you compare numbers easily?

Would a pie chart be a better way to present this data? Why or why not?

Farming in New England

In colonial times, most of the farms in the New England Colonies were very small. There were several reasons for this. One is that winters in New England are long and cold. Because of this, the growing season is short. Another reason is that the land is rocky and the soil is not the best for farming. Most of the crops that were grown in the New England Colonies were grown as food for the colonists. They were not sold to other colonies. Since they could not grow enough crops to make a lot of money, most New Englanders looked for other jobs. These jobs included whaling and shipbuilding. Furs and fine crafts were also products of the New England region.

Farming in the Middle Colonies

Unlike farmers in the New England Colonies, farmers in the Middle Colonies were able to grow a lot of crops. They sold

these crops to other colonies and even to other countries. Farmers in the Middle Colonies were successful because of the region's climate. The Middle Colonies have a more temperate climate than the New England Colonies. This makes the growing season longer. More crops can be grown each season. A **temperate climate** is a mild one without extreme heat or cold. Another reason that many crops were grown in this region is that the soil is fertile and good for growing. During colonial times, people in this region were able to grow wheat, barley, oats, rye, and corn. The flour they produced was desired by other American colonies as well as people who lived overseas.

Farming in the Southern Colonies

The Southern Colonies had the longest growing season. This region is often very hot. But the crops that grew there could survive the hot summers. The Southern colonies were home to many large plantations.

A **plantation** was a large farm that also had other trades or craftspeople working on it. Plantations had almost anything that a farmer would need. A single plantation might employ blacksmiths, weavers, basket makers, cooks, and many more skilled workers. Plantations existed to produce cash crops. A **cash crop** is a crop that is grown for the purpose of making money rather than feeding the farmer's family. Cash crops for the Southern Colonies included rice, indigo, and tobacco.

Farming Today

In colonial times, more than 70 percent of people were farmers. While some only grew crops for their own family, others grew cash crops to make a profit. Today our country has grown to include 50 states. All 50 states have farmers. Though farming is still an important way of life, most people are not farmers. Less than 10 percent of the population of the United States farms for a living today.

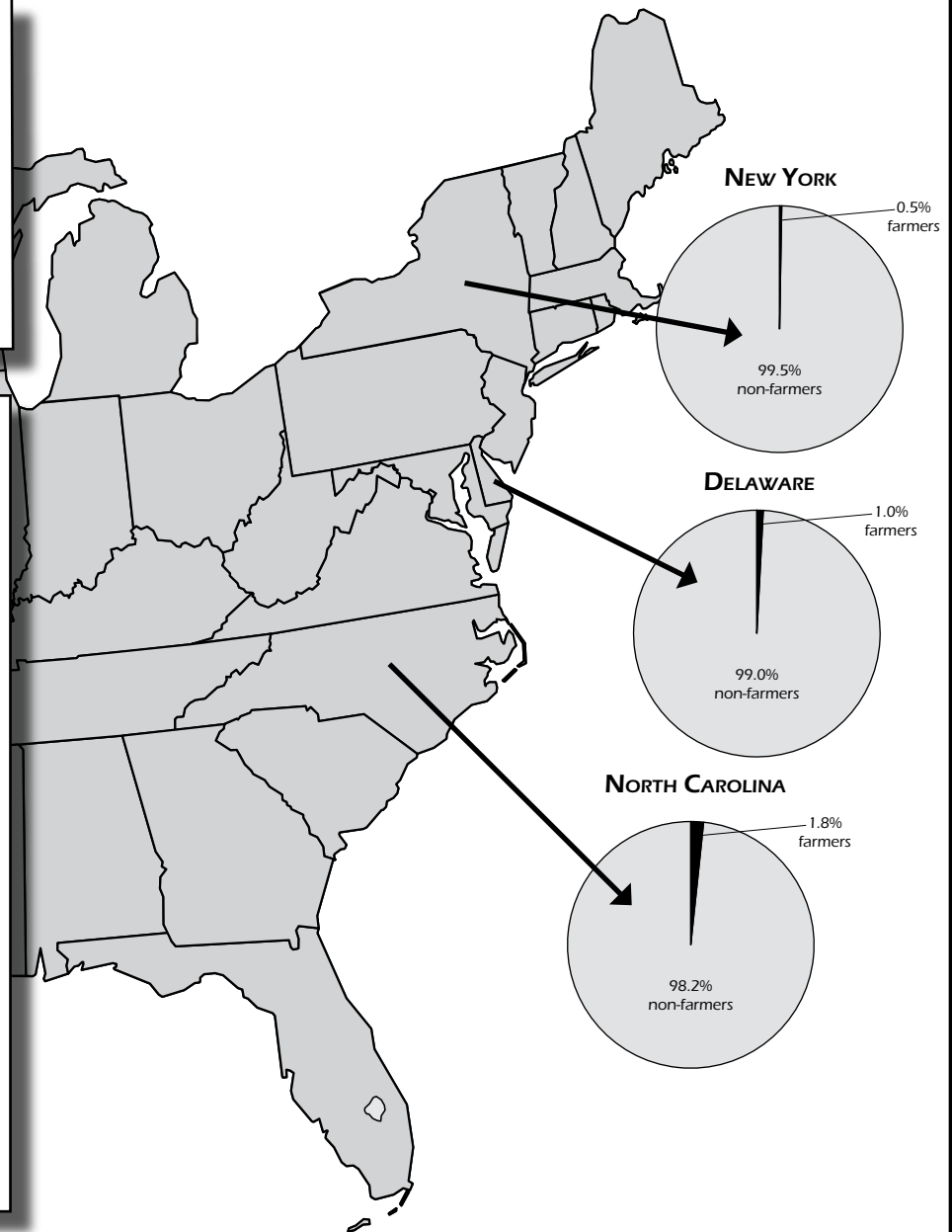
Percent of State Population who are Farmers Today

C Why do you think the author chose to use pie charts to represent this data?

D Compare this data to the data in the graphic on page 2. Does the state with the highest percentage of farmers have the highest number of farmers?

Does the state with the lowest percentage of farmers have the lowest number of farmers?

What can comparing both graphics tell you?



Source: US Census Bureau County & City Data Book, 2000

BIOGRAPHY

LESSON 4

INTERPRETING GRAPHICS

Ellen Semple and the Study of Human Geography

Ellen Churchill Semple was one of the first human geographers in the United States. Becoming a geographer was not an easy task for a woman of her time. Semple was born on January 8, 1863, in Louisville, Kentucky. She liked to read books about history and travel. When she was 16, she went to New York for college. Back then, mostly men went to college. Yet Semple graduated with the highest grades in her class. After college, she came back and worked in Kentucky.

human geography

the study of people and their environment

Later, Semple went to Germany, where she studied geography. There she met a geographer named Ratzel. She was interested in his ideas about human geography and she wanted to learn more. Even though the universities in Germany would not give degrees to women, Semple was allowed to listen to lectures. She brought the information she learned back to the United States. She began to study the people of the United States and how their environments affected them. She started her work in Kentucky. She studied the people who lived in the Appalachian Mountains. She wrote an article about how their lives were different from those of people who did not live in the mountains.

environment

one's surroundings including climate, landforms, habitat, and other living things

In 1903, Semple wrote a book. It explained how the natural environment influenced the growth of our country. She explained how the United States grew from its first settlements along the Atlantic Coast. She explained that railroads and roads were influenced by the physical features of the land such as mountains and streams. She pointed out that when people moved west, they usually followed the pattern of rivers.

Semple believed people's environments determine who they will be. She studied people in the United States and around the world. Her writings inspired many students to study geography. In fact, one man, Charles C. Colby, said that her article about people in the Appalachian Mountains of Kentucky, "fired more interest in geography by American students than any other article ever written."



Courtesy of the Margaret I. King Library Special Collection, University of Kentucky

A Study this picture. Why did the author include it?

What can you learn about Ellen Semple from the photo? Can you tell approximately when she lived? Explain.

Can you tell that she was a geographer? Explain.

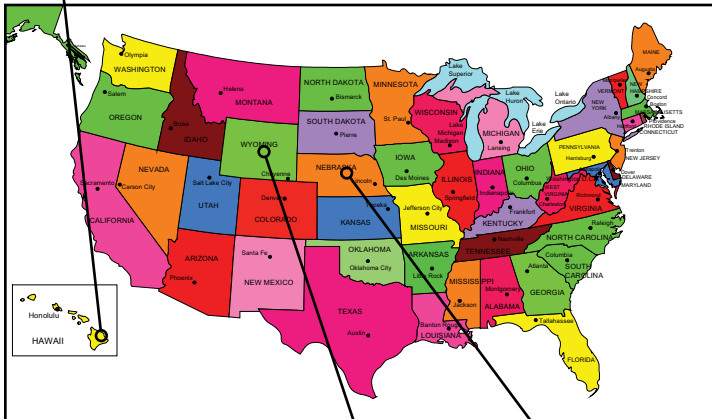
ELLEN SEMPLE



These photos show the island of Hawaii.

B Observe the photos. What geographical features do you see? List at least two.

How would the land influence the people living here? _____



C This photo was taken from the ground. Compare it to the photo of Hawaii. Why would the author choose to show the Great Plains this way?

How would the lives of people living here differ from those of people living in Hawaii?

D How would the lives of people who live here be different from those of people living in Nebraska?



This photo shows the Great Plains west of Kearney, Nebraska.

E How do photos add information to the map graphic?



The Grand Teton mountains are found in Wyoming.

USING MATH

LESSON 5

INTERPRETING GRAPHICS

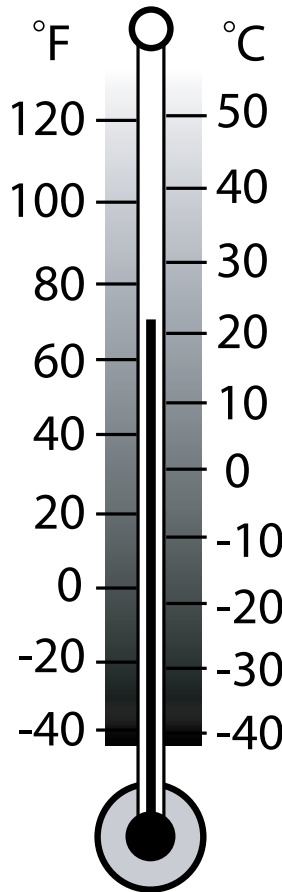
Measuring Temperature

In the United States, we measure temperature using the **Fahrenheit Scale**. But in many other parts of the world, people use a different scale to measure temperature—the **Celsius Scale**. Both scales are divided into a unit of measurement known as a **degree**. Temperatures are often written using the degree symbol ($^{\circ}$).

On the Fahrenheit Scale, water freezes at 32° and boils at 212° . On the Celsius Scale, water freezes at 0° and boils at 100° .

Many thermometers are marked in both degrees Fahrenheit and degrees Celsius. All you need to do to convert from degrees Celsius to degrees Fahrenheit is to look at the other side of the thermometer.

Not all thermometers are marked in both degrees Celsius and degrees Fahrenheit. How can you convert, or change a temperature in degrees Celsius to one in degrees Fahrenheit? A quick way to estimate the temperature in degrees Fahrenheit is to multiply the temperature in degrees Celsius by two and then add 30.



A temperature of 20°C is equal to approximately 70°F .

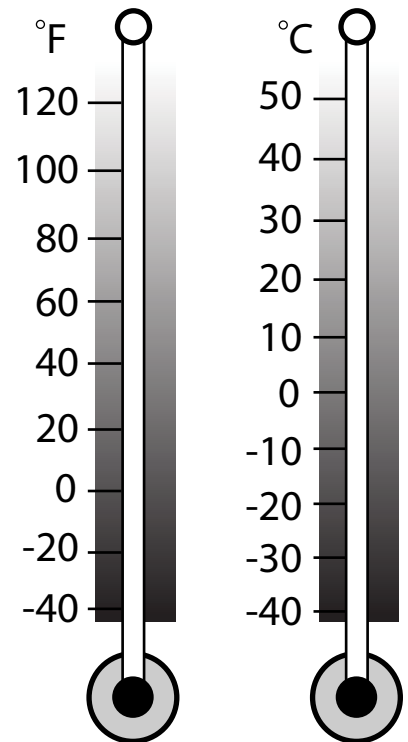
VOCABULARY

Celsius Scale

degree ($^{\circ}$)

Fahrenheit Scale

B Complete the graphic to show the temperature at which water freezes in degrees Fahrenheit and Celsius.



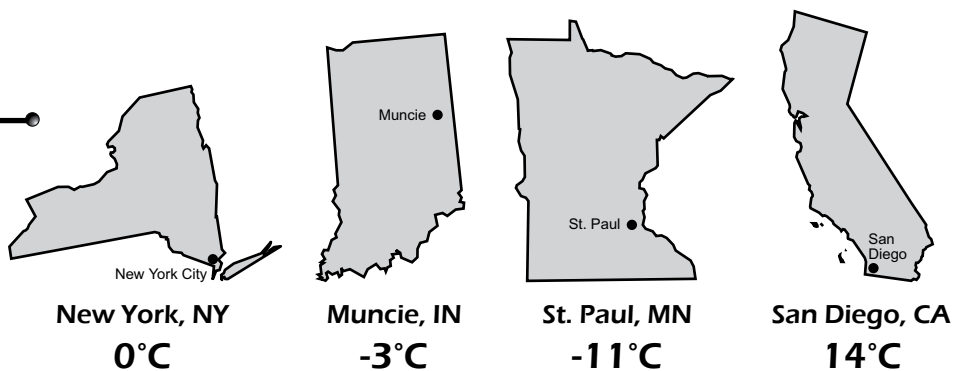
A What comparisons can you make between the Fahrenheit Scale and the Celsius Scale from looking at this graphic? Write at least two.

A temperature of 20 degrees Celsius is equal to approximately how many degrees Fahrenheit?

$$20 \times 2 = 40$$
$$40 + 30 = 70$$

20° C is equal to approximately 70° F.

The picture below shows the average January temperatures of four cities in the United States. What are their approximate temperatures in degrees Fahrenheit?



C Why would the author choose to include graphics of the states with these temperatures?

D Do these graphics help you understand the difference between degrees Celsius and Fahrenheit?

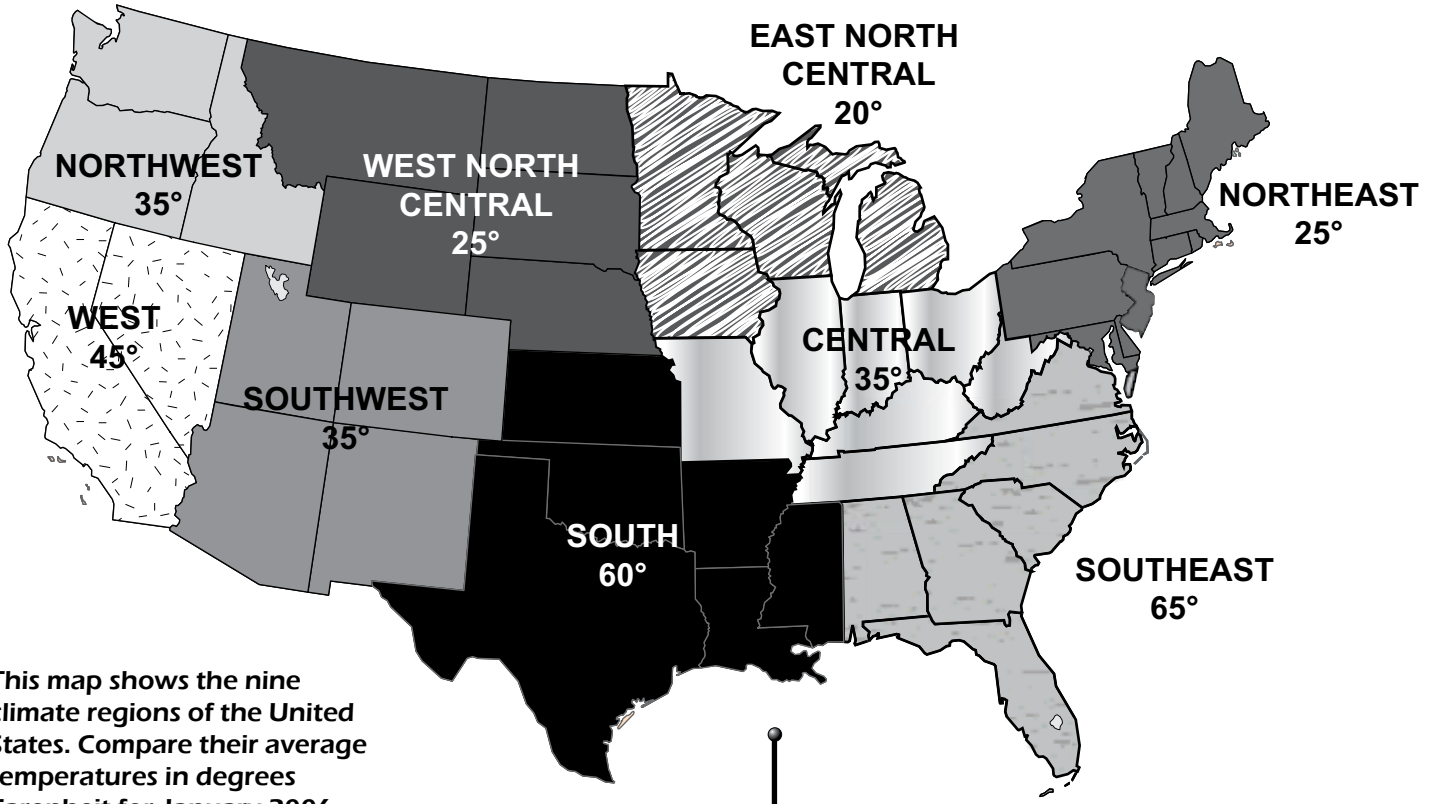
Write one reason why or why not.



The Fahrenheit Scale was named for Daniel Gabriel Fahrenheit (1686-1736), a German physicist.



The Celsius Scale was named for Anders Celsius (1701-1744), a Swedish astronomer.



This map shows the nine climate regions of the United States. Compare their average temperatures in degrees Fahrenheit for January 2006.

Climate Regions of the United States

The Earth is divided into three climate zones: the Polar Zone, the Temperate Zone, and the Tropical Zone. Most of the United States is in the Temperate Zone. Alaska, however, is part of the Polar Zone. Countries to the South of the United States are in the Tropical Zone.

The United States is divided into nine climate regions according to average temperatures and average precipitation. In most climate regions of the United States, the winter is much colder than the summer. Nights are usually colder than days. Look at the map above. Which climate region do you call home?

E Which region has the highest average temperature?

Which region has the lowest?

F What kind of graphic would be a good choice to show average precipitation?

Why?

CONCLUDING PROJECT

Interpreting Graphics: Geography

Now that you have learned to gather information from graphics such as pictures, charts, and maps, you will examine and create graphics about a particular U.S. state.

Using books, the Internet, or any other sources your teacher wants you to use, you will study graphics and complete three steps to show your understanding of both geography and graphics. Study the graphics carefully and complete the graphics worksheets.

You will complete three steps:

Step 1: Examine a map of the state you have chosen. Record information that you can gather from the map.

Step 2: Examine two pictures that depict life in the state. Examine the pictures for details about the state.

Step 3: Research to find numerical data about the state. Create a circle graph, bar graph, or flow chart to present this data. This could be a circle graph showing the percentage of people from different cultures living in the state. It could be a bar graph showing the populations of cities in the state. It could be a flow chart showing movement of goods in and out of the state. Use the numerical data you find to create the most meaningful graphic possible.

Step 1: Examine a Map

Name: _____ Date: _____

State: _____ Map Title: _____

Date of Map: _____

1. What are some important cities in this state? How do you know they are important?

2. List the closest latitude and longitude to three of these cities.

City _____ Latitude _____ Longitude _____

City _____ Latitude _____ Longitude _____

City _____ Latitude _____ Longitude _____

3. What geographical features can be found in the state?

mountains

rivers

lakes

plains

swamps

volcanoes

beaches

streams

wetlands

4. Determine the distance between major areas on your map—these can be cities, towns, or places.

_____ to _____ is _____ # _____ units
Place 1 Place 2

_____ to _____ is _____ # _____ units
Place 1 Place 2

5. What did you learn about the state by examining the map? Write your answer on the back of this page.

Step 2: Examine a Picture (A)

Name: _____ Date: _____

Picture A

Title _____

Date _____

Type (portrait, landscape, event, etc.) _____

Look at the picture for three minutes. Look for as many details as you can. Record your details below. Include:

- common activities
- state symbols
- flags
- foods
- buildings
- types of transportation
- landscape
- weather
- people
- animals
- products made

Picture Details: _____

What information have you learned from this picture about the state?

Step 2: Examine a Picture (B)

Name: _____ Date: _____

Picture B

Title _____

Date _____

Type (portrait, landscape, event, etc.) _____

Look at the picture for three minutes. Look for as many details as you can. Record your details below. Include:

- common activities
- state symbols
- flags
- foods
- buildings
- types of transportation
- landscape
- weather
- people
- animals
- products made

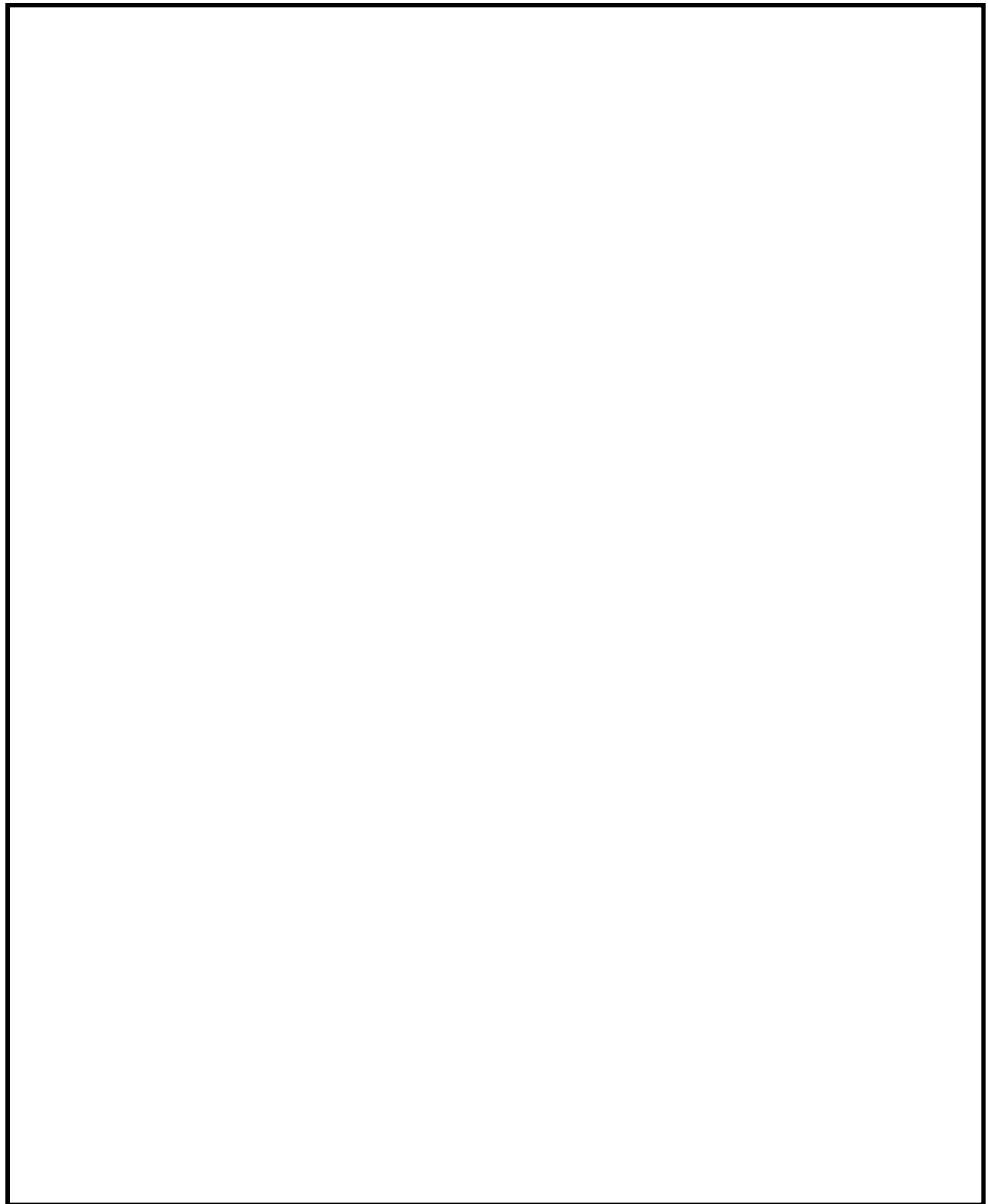
Picture Details: _____

What information have you learned from this picture about the state?

Step 3: Create a Data Graphic

Name: _____ Date: _____

Create a graphic to display the data from your research. You can create a bar, line, or circle graph, or a flow chart. The graphic can be vertical or horizontal.



(Attach your research notes to this page.)

Making Inferences

What does it mean to make an inference?

When you read, you learn many new facts and ideas. Sometimes the facts and ideas that you need to learn are not stated directly in your textbook. You will need to make an **inference** or draw a conclusion. When you make an **inference** or conclusion, you use the information you read and what you already know to figure out something that is not specifically stated in the text. Ask yourself questions about what you already know or have already read.

When should I make an inference?

- when it seems like something has been left out
- when connections or conclusions are unclear
- when the text raises questions but doesn't answer them

What kind of questions should I ask?

The kind of questions that you ask will depend on what you are reading and what you need to know. The list below includes some different kinds of questions that will help you make **inferences**.

- Why would someone act this way?
- What are the likely consequences or effects of a certain action?
- If this statement is true, what else must be true?
- What is the author implying?
- Why would the author choose to include this information?

	Information Read and Questions Asked	Information Known	Inference/Conclusion
Examples	"Maria blew out the candles and ripped open the colorful box." <i>Why would someone act this way?</i>	Blowing out candles and opening presents are birthday traditions.	Maria could be having a birthday.
	"The scientist viewed the rings around Saturn through the night sky." <i>If this statement is true, what else must be true?</i>	You can't see the rings around Saturn if you just look up in the sky.	The telescope must have been invented and the scientist was using the instrument.
	"Sarah needed her umbrella to get to school." <i>What is the author implying?</i>	Umbrellas protect us from the rain.	It was raining where Sarah lives.

Making **inferences** will help you understand your lessons more easily. It will also help you analyze and talk about what you read.

ACTIVITY!

LESSON 1

MAKING INFERENCES

VOCABULARY

- **lead line**
- **log**
- **magnetic compass**
- **navigate**

MAIN IDEA

Early explorers had many navigational tools, but they were not very accurate.

A *Navigator* is not defined in the text. What other word in this paragraph can you use to infer its meaning?

Write a definition of *navigators*.

Early Navigational Tools

Today we have computers and satellites to guide ships. But long ago, explorers did not have these tools to help them navigate. To **navigate** means to plan and control a course of travel. Instead, early explorers had to rely on simple tools. These tools included the magnetic compass, the log, and the lead line. Although these tools helped explorers navigate, they were not very accurate.

The Magnetic Compass

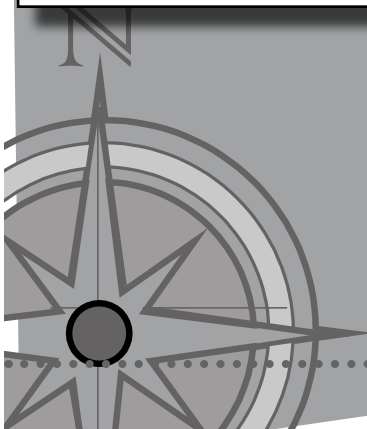
You are probably familiar with one of the most common tools used by early explorers—the magnetic compass. A **magnetic compass** is a tool that indicates geographic direction. A compass works because its magnetic needle always points toward Earth's North Pole. The magnetic compass showed early navigators which direction was north. But early compasses were not very accurate. Navigators also had to rely on the position of the North Star and the sun's location at noon, sunrise, and sunset to find direction.



The needle on a magnetic compass always points north.

B Infer: How would the sun's location at noon, where the sun rose, and set help a sailor find direction?

Why would it be easier to use a compass? _____



The Log

To determine the speed they were traveling, sailors trailed a log behind their ships. The **log** was a small weighted anchor with a long rope attached. The rope had evenly spaced knots along it. To measure speed, the log was dropped into the water. It was left in the water for a certain length of time, which was measured by a sand-glass. When the log was dropped overboard, the rope was pulled off the deck and into the water.

As the ship sailed away from the log, more and more rope was pulled into the water. If the ship sailed away slowly, it would not travel very far from the log. Not very much of the rope would be pulled into the water. When the time was up, the log was pulled back onboard. As they pulled in the log, sailors counted the knots that had been in the water. The speed of the ship was figured by how many knots went into the water during the measured time. The term *knot* was used to measure speed on the water. A knot is one nautical mile per hour.

The Lead Line

The **lead line** was used to measure water depth and location. A piece of rope that had a weight on one end and colored markers tied to it was dropped overboard. Sailors calculated the water's depth by noting which markers went into the water. The markers were labeled with colored cloth, pieces of leather, or different numbers of knots. Sailors knew the meaning of the markers, so they could figure out how much of the rope was overboard. This told them how deep the water was.

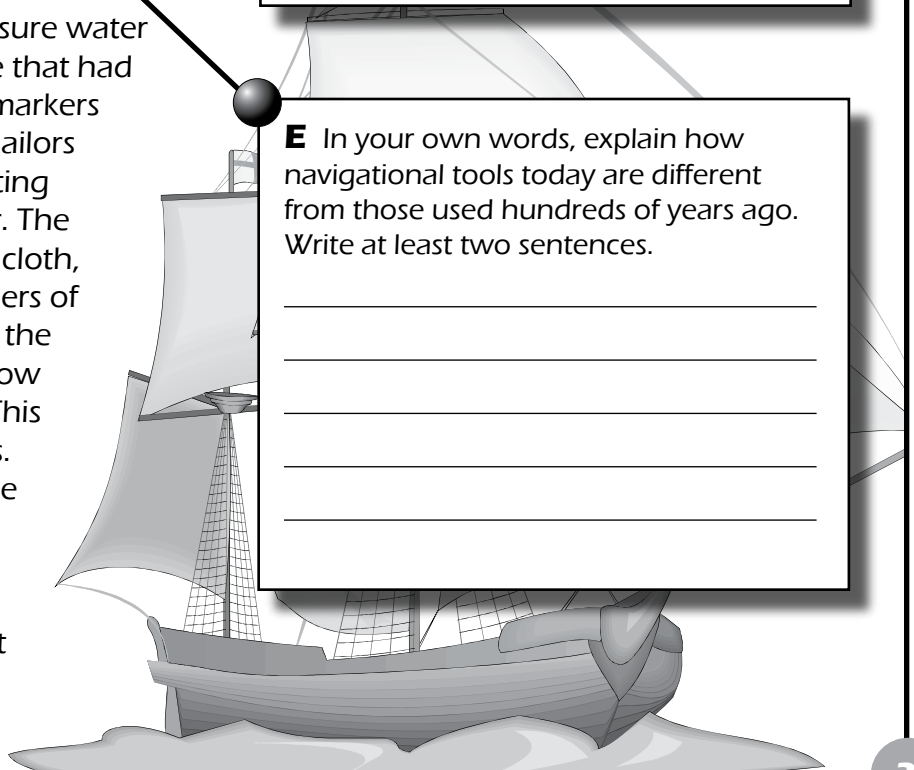
The weight on the bottom of the lead line was often filled with fat. Small bits of the ocean's bottom would stick to the fat. Navigators could tell where they were by what was pulled up from the bottom of the ocean.

C The lesson does not tell you what a sand-glass is, but it does tell you it was used to measure. Using what you know, write a definition of *sand-glass*.

D The paragraph tells what happened if the ship sailed away slowly. Use this information to infer what would happen if the ship sailed away quickly.

How did you make your inference?

E In your own words, explain how navigational tools today are different from those used hundreds of years ago. Write at least two sentences.



MAKE A LEAD LINE

You can make a lead line like the ones used by the earliest navigators. Follow the instructions below.

Materials:

- string or yarn
- scissors
- a marker
- 5 pieces of fabric or yarn in different colors
- a ruler
- a paperclip
- paper and pencil
- 4 glasses or beakers filled with different amounts of water

G Infer: How can you tell the depth of the water if the water level does not line up exactly with one of the fabric pieces?

1. Using your ruler, measure and cut a six inch piece of string or yarn. (Fig. 1)
2. Using your marker and ruler, make a mark at every inch on the string/yarn. You should have a mark at one inch, two inches, and so on.
3. Tie a different piece of colored fabric or yarn to each mark. Tie a paperclip to one end of the lead line. (Fig. 2)
4. Using your pencil and paper, make a chart to record the color of fabric/yarn that is closest to your paperclip. This first color/mark will indicate one inch of depth. The next mark will show two inches of depth. Continue recording until you have recorded a depth for each color/mark.
5. Drop your lead line, paperclip first, into the first glass of water. (Fig. 3)
6. Observe the color of the mark that is visible at or just above the top of the water.
7. Using your chart, calculate how much water is in the glass or beaker.
8. Record your results.
9. Repeat steps 6 through 9, until you have measured the water level in all 4 glasses/beakers.

F Infer: Why is it important to use different colors of fabric?

Fig. 1

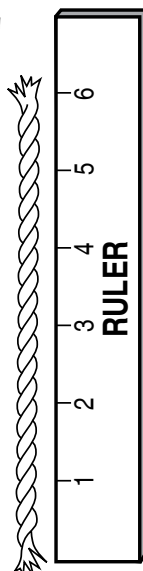


Fig. 2

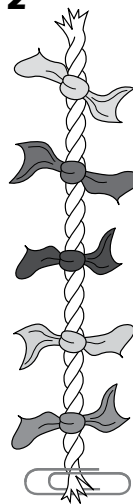
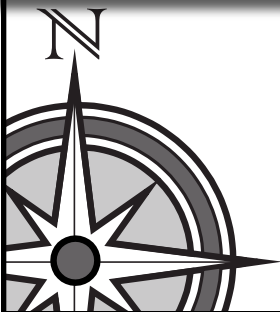
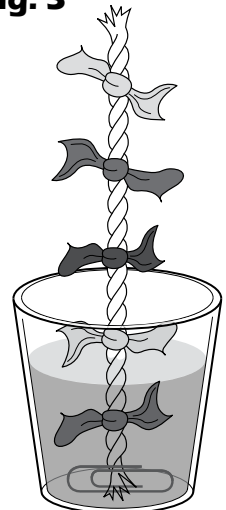


Fig. 3



BIOGRAPHY

LESSON 2

MAKING INFERENCES

A Before you read the lesson, brainstorm what you know about Christopher Columbus.

How can brainstorming *before* you read help you make inferences *while* you read?

B This paragraph tells you that the King and Queen sponsored Columbus, but it doesn't tell you why. Using what you know and what you read in the paragraph, infer why they would act this way.

Why is it important to ask yourself questions like this one and make inferences as you read?

Christopher Columbus

C hristopher Columbus was born in 1451 in Genoa, Italy. He was interested in geography and exploration. He believed the world was round and that he could sail across the Atlantic Ocean from Spain to India. But he needed a wealthy **sponsor** to pay for his trip. In return, Columbus would bring back gold, spices, and silks. In 1492, King Ferdinand and Queen Isabella of Spain agreed to sponsor Columbus.

Columbus left Spain with three ships, the Niña, the Pinta, and the Santa Maria. During the trip, many of his sailors died of disease, hunger, and thirst. They were only given one hot meal a day. The crew became restless, so Columbus offered a reward to the first person to see land. On October 12, a sailor aboard the Pinta saw land. It was the Bahamas. Columbus called it San Salvador. He did not find the riches he had hoped for, so he kept sailing. Everywhere he went, Columbus found native people whom he called *Indians* because he thought he was in the Indies. On March 15, 1493, Columbus left part of his crew behind and returned to Spain. He was welcomed in Spain as a hero.

sponsor
someone who financially supports another person

C Infer: Why did Spain consider Columbus a hero?



Christopher Columbus

Standards Addressed: Soc: 5.1.4, 5.1.6
Sci: 5.2.4, Health: 5.1.5



CHRISTOPHER COLUMBUS

retaliate
to fight back

In September, 1493, Columbus set out on another journey to the west. He wanted to start Spanish colonies and check on the crew he left behind. When Columbus returned to Navidad, the land where he left his crew, he found the crew dead and the fort destroyed. Columbus's men had mistreated the natives. The natives had **retaliated**.

Word reached Queen Isabella and King Ferdinand that Columbus and his crew were mistreating the natives. Columbus sailed back to Spain. The queen and king still liked Columbus despite the bad reports they had received. In May, 1502, Columbus took off on his third voyage, still searching for China. It was on this trip that Columbus reached America.

On May 20, 1506, Columbus died a disappointed man. He did not realize that he had opened a new route from the Old World to the New World. Life on both sides of the Atlantic was forever changed. Today in the United States, we celebrate Columbus Day on the second Monday in October.

D Infer: Columbus was from Italy, why would he want to start colonies for Spain?

F Write one inference you can make from this paragraph. Remember, an inference is something that is not stated in the text, but that is supported by what is written.

How did you make your inference?

E Write one way that life was changed in the Old World and one way it was changed in the New World.



If you visit Columbus, Ohio, you can see a model of the Santa Maria, one of the ships that Columbus used on his voyage to the New World.

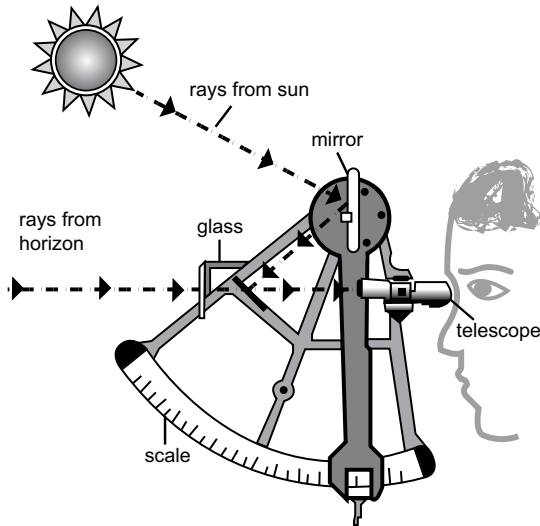
USING MATH

LESSON 3

MAKING INFERENCES

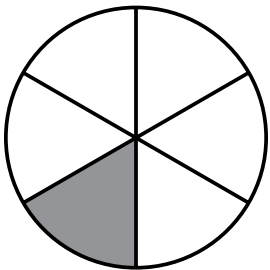
Using Angles

Understanding angles was an important skill for early navigators. They used angles to determine their latitude as they traveled. Navigators had a special tool called a **sextant** that helped them determine the angle between the sun (or a star) and the horizon.



When you use a sextant, you use the angle between the sun or a star and the horizon to determine latitude.

The sextant gets its name from the Latin word *sixtus* which means "sixth." The arc of the sextant is $\frac{1}{6}$ of a circle. The arc of the sextant contained marks for measuring angles. Before the sextant was invented, many sailors used another tool called an *octant*. Can you guess how large the octant's arc was?



The arc on a sextant is $\frac{1}{6}$ th of a circle.

To find out their location on the Earth, sailors looked out across the ocean until they saw the horizon. This is where they saw the sky meet the ocean water. Then they looked through the sextant's mirrors to find the angle between the sun and the horizon. They compared the angle measurement with charts that recorded the time of day to figure out their latitude on the Earth.

VOCABULARY

acute angle
obtuse angle
right angle
sextant
vertex

A When the text asks you a question, it may be asking you to infer. What do you infer here?

Can you infer what *oct* means in Latin?

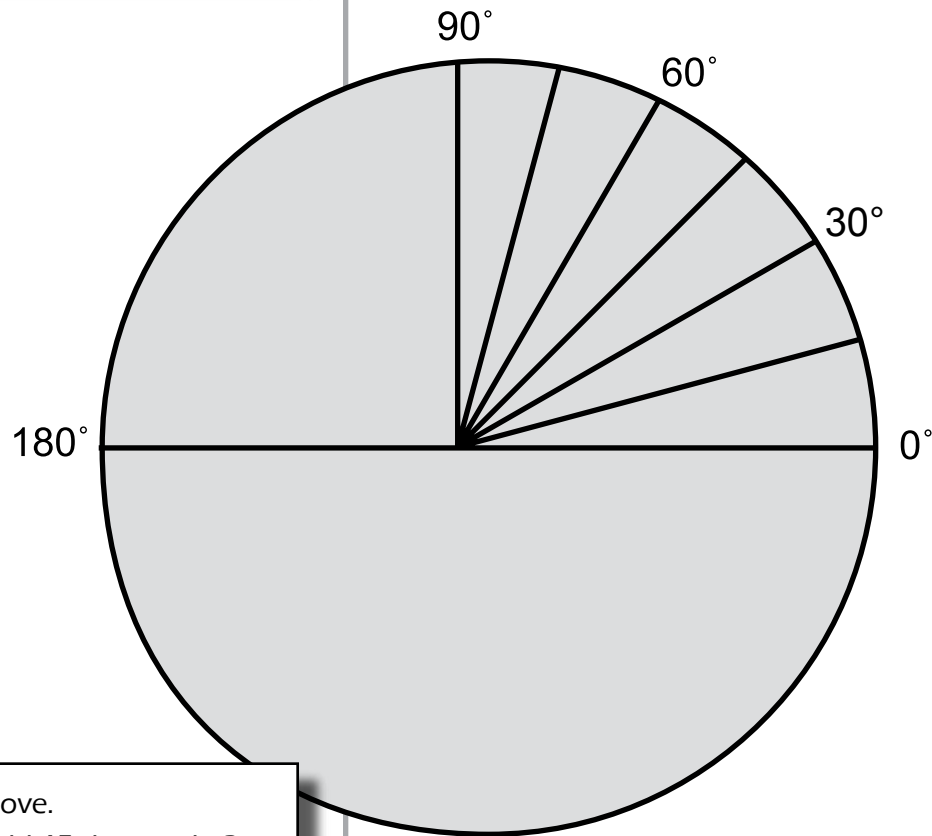
B Why does the author tell you that understanding angles can help you?

Today, even though we use tools like Global Positioning Systems to locate positions on Earth, we still use the measurement of angles in many activities. Construction, sports, crafts, and many more activities all use information about angles. Understanding angles can help you in your daily life.

Angles

An angle is formed when two lines or rays intersect. To intersect means to meet in one point. The point where the rays intersect is called the **vertex**. The rays form the sides of the angle. An angle's measurement is given in degrees of a circle which is marked with a $^{\circ}$ symbol. To show that an angle measures ninety degrees, we write 90° .

C Infer: What would you write to show that an angle measures forty-five degrees? _____



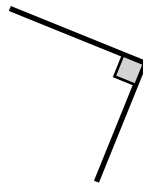
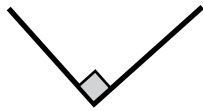
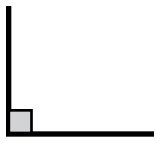
Look at the circle above.

D Infer: where would 45 degrees be?

How do you infer in mathematics?

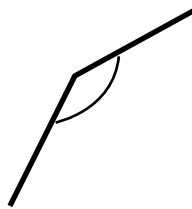
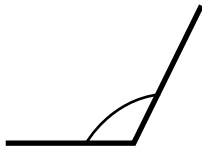
Angles are measured in degrees of a circle.

An angle that is 90° is called a right angle. A right angle can be found in the corner of a square. Below are right angles.



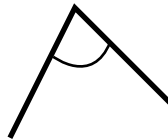
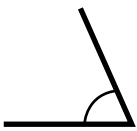
right angles

An angle that is greater than 90° but less than 180° is called an obtuse angle. An obtuse angle can be found in a hexagon. These are obtuse angles.



obtuse angles

An angle that is less than 90° is called an acute angle. An acute angle can be found in an equilateral triangle. Below are acute angles.



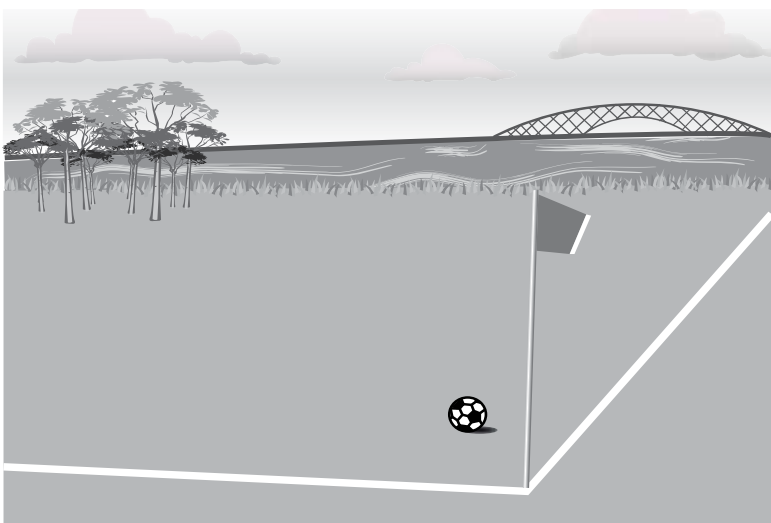
acute angles

E Infer: Write one other shape that has a right angle. _____

F Infer: Write one angle measurement that would be considered obtuse. _____

G Infer: Write one angle measurement that would be considered acute. _____

H When you infer, you apply what you know to understand a new situation. What did you learn that you can apply to answer the question here?



How many angles can you find in this drawing?

.....

LESSON 4

MAKING INFERENCES

VOCABULARY

- John Cabot
- Northwest Passage
- Giovanni da Verrazano

MAIN IDEA

The search for the Northwest Passage led to many discoveries in North America.

A Use the main idea to infer two things this lesson will be about.

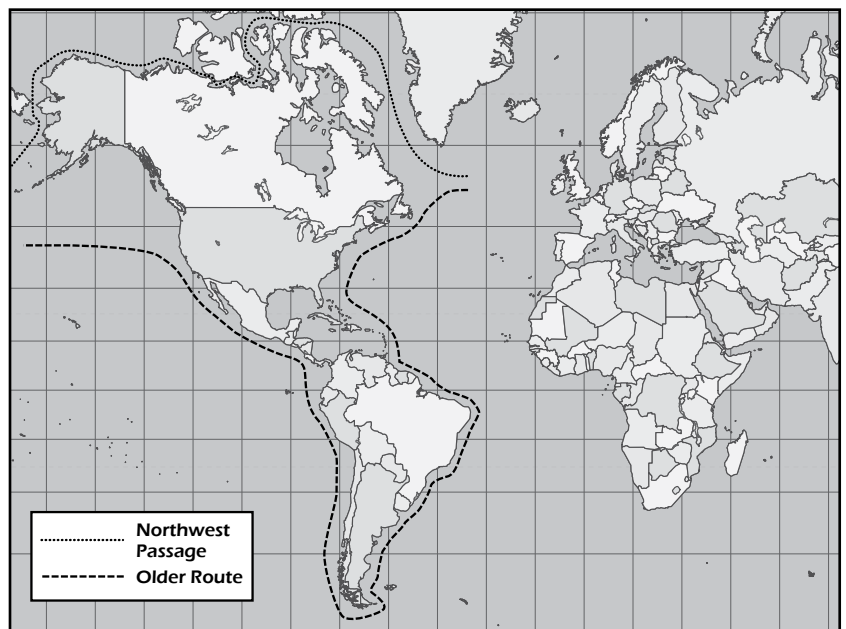
B Compare the route of the Northwest Passage with the older routes around South America. Why would sailors prefer the Northwest Passage?

The Northwest Passage

After Christopher Columbus returned to Europe from the New World, people became very excited. They believed that they would finally be able to easily reach the riches of Asia. In those days, to get from Western England to Asia, explorers had to make a dangerous trip around the Cape of Good Hope at the southern tip of Africa or around Cape Horn at the southern tip of South America.

Soon, many countries began to send explorers to search for a shorter and safer route. In England, people called the route they hoped to find the Northwest Passage. The **Northwest Passage** is a water route from Europe to Asia that passes through North America.

The brave explorers who searched for the passage faced many challenges. The search was very difficult because they were traveling through cold northern seas. The water was frozen over most of the year and impassable, meaning that ships could not get through.



This map shows the Northwest Passage and an older route around South America.

Because the route was so icy and cold, ships were frequently crushed and sailors were often stranded. Many men lost their lives due to starvation and illness. This did not keep explorers from trying again and again to find a sea route to Asia. You will read about two of these men below.

John Cabot

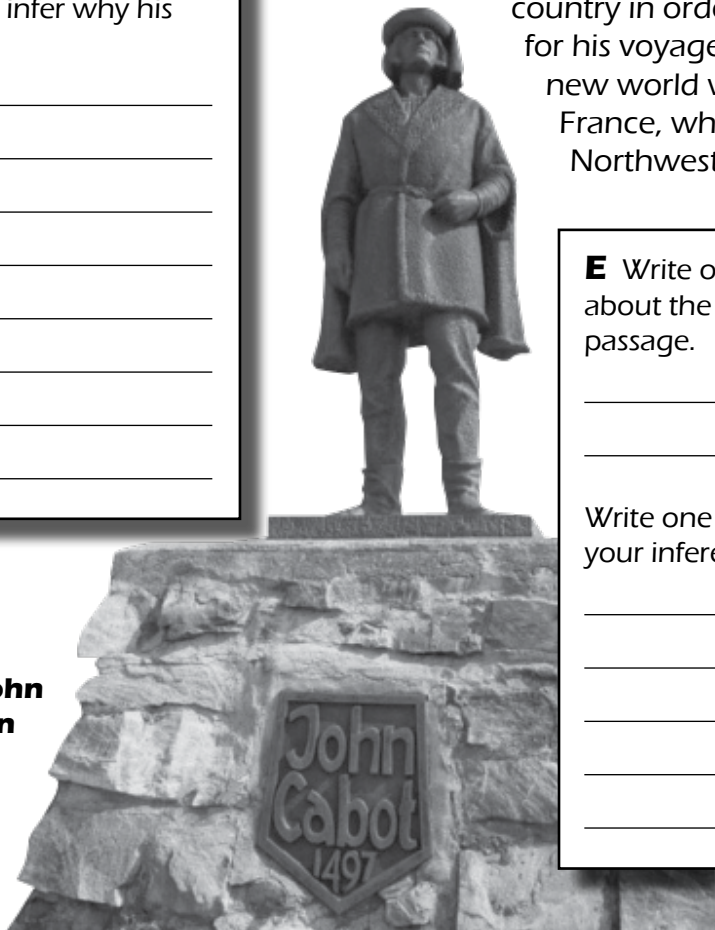
John Cabot was one of the most famous explorers who tried to find the Northwest Passage. Cabot was born in Italy, where his name was Giovanni Caboto.

Cabot wanted to search for a new route to Asia, but he could not find a country that would pay for his trip. Finally, Henry VII, the King of England, agreed to pay for Cabot's expedition.

Cabot's ship, the *Matthew*, landed in Canada in 1497.

C The text does not tell you how Giovanni Caboto became John Cabot. Using what you know, infer why his name changed.

This statue of John Cabot is found in Bonavista, Newfoundland.



No one knows for sure exactly where Cabot landed, but most scientists believe that he landed in either Newfoundland or Nova Scotia. Cabot thought he was in Asia. He believed that he had found the Northwest Passage. He returned to England a hero.

Unfortunately, Cabot's next trip was not so successful. He died at sea in 1498.

D Infer: Why was Cabot a hero in England?

Giovanni da Verrazano

Another explorer who searched for the Northwest Passage was **Giovanni da Verrazano**. Like Cabot, Verrazano was born in Italy. He, too, had to leave his country in order to find someone to pay for his voyage. Verrazano's search for the new world was paid for by the King of France, who hoped he would find the Northwest Passage.

E Write one inference that you could make about the government of Italy from this passage.

Write one piece of evidence that supports your inference.

LESSON 5

MAKING INFERENCES

VOCABULARY

- **cultures**
- **indigo**

MAIN IDEA

The exchange of goods introduced explorers to different lands and cultures.

A Write at least two ways our lives have been affected by trade.

B Infer: Why would people in Europe begin to use indigo instead of woad?

The Exchange of Goods and Cultures

Trade and Exploration

At the store today, you can find food from all parts of the world. You can find bananas, pepper, rice, tea, and much more. Without trade, we wouldn't have this variety of food. For hundreds of years, trade has been important in the exchange of goods, as well as cultures, between different peoples.

Throughout history, trade and exploration have been closely linked. The need to expand trade led explorers to travel. They wanted to look for new trade routes and countries to trade with. Explorers like Marco Polo, Vasco de Gama, and Christopher Columbus all contributed to the exchange of goods and cultures.

The Exchange of Goods

Did you know that trade that happened hundreds of years ago has changed our culture today? In the 11th century, explorers and Arab traders brought a plant called **indigo** from India to the Mediterranean area. This plant was used to make a deep blue dye. Soon people in Europe started using indigo instead of their native plant, woad. Blue dye became common. Eventually, England used blue dye to color uniforms for the police, hospital, and other workers. This blue dye even influenced our language. You may have heard of the terms *blue collar worker* or *blue jeans*. Today most blue clothes are dyed with man-made indigo.



The blue pigment found in indigo is the same one found in woad, but it is more concentrated.

Another good that came to Europe from India was ginger. It was used as a spice to flavor many dishes. Today it is still used in cooking. It is used in gingersnap cookies. Even the drink ginger ale is sometimes made with real ginger. If early explorers had not brought spices to other lands, we might not have all of the foods we do today. We also wouldn't have gingerbread houses or the story of the gingerbread boy.

The Exchange of Cultures

Trading took explorers to many unknown countries. Explorers learned about more than new plants and spices. They also learned about different cultures. **Culture** means a group's beliefs and way of life. Explorers also shared their own cultures with people in the places they explored. For example, when they reached America, European explorers learned about American Indians and their cultures. The American Indians discovered European cultures. Cultures were exchanged and the lives of both groups were forever changed.

C In your own words, explain what trade has to do with the story of the gingerbread boy.

Why did the author include this information?



Ginger became a popular import to Europe from India.

Before Europeans came to North America, American Indians hunted only what they needed for survival. They made use of the skin, fur, bones, and animal meat. When the European traders arrived, they demanded large numbers of furs and skins in exchange for goods such as iron products. This changed the American Indian's way of life. American Indians became dependent on the European's manufactured goods. They wanted bowls and guns. American Indians made fewer traditional crafts like arrowheads and baskets. Their relationships with other tribes were disrupted. They soon hunted animals to near extinction just for furs to trade.

The early European traders also adopted some of the American Indian culture. They became hunters. They learned from the American Indians how to grow and cook "the three sisters" – corn, bean, and squash. They also used some of the American Indians' ideas for government. They decided to join the states together in a nation like the tribes were joined together in the Iroquois league. Concepts such as equality among all men and impeachment were also part of the American Indian culture. Today our country uses these ideas too.

D Infer: Why would American Indians make fewer crafts?

E To impeach means to bring a public official to trial. Why would Americans want to adopt this part of American Indian culture?

F Based on what you read in the lesson, were the changes to the Europeans' culture more positive or more negative? Explain.

Were the changes positive or negative for American Indians? Support your answer with at least two pieces of evidence.



American Indians made fewer arrowheads after they began to trade with Europeans.

CONCLUDING PROJECT

Making Inferences: Explorers

Now that you have learned about making inferences, you will use your knowledge to research an explorer. Using books, the Internet, or any other sources your teacher wants you to use, you will read about the explorer. You will analyze each of these sources, then dig deeper into the text for meaning that is there but unwritten.



Step 1: Choose an Explorer

Name: _____ Date: _____

Choose one of the following explorers for your project:

- Herman Cortes
- Hernando de Soto
- Francisco Vasquez de Coronado
- Jacques Cartier
- Samuel de Champlain
- Henry Hudson

I have chosen to research _____.

Step 2: Research

Name: _____ Date: _____

Use a variety of sources to find out facts about the explorer's discoveries. Write down the name of each source you use and take notes on any important information you find. (You may list your sources and attach your notes to this paper).

I have used the following types of resources:

- | | |
|--|---|
| <input type="checkbox"/> books | <input type="checkbox"/> magazines |
| <input type="checkbox"/> encyclopedias | <input type="checkbox"/> primary source documents |
| <input type="checkbox"/> maps | <input type="checkbox"/> Internet |

My research:

A. Source: _____

Notes: _____

B. Source: _____

Notes _____

Step 3: Complete the Inference Chart

Name: _____ Date: _____

Making Inferences

Name of Explorer: _____

RESEARCH What fact happened?	INFER What does it mean?	SUPPORT Why do you think that?
1.		
2.		
3.		
4.		
5.		

Fact & Opinion

How can you distinguish facts from opinions?

When you read, you can learn many new **facts**. You will also discover **opinions**. **Facts** can be proven true through research or experiments. **Opinions** can't be proven because they are beliefs or feelings.

Fact: Olympic figure skater Sasha Cohen is five feet two inches tall.

This is a **fact** because you can prove that she is this height by using a measuring tape.

Opinion: Sasha Cohen's size makes her look very cute.

This is an **opinion** because it expresses someone's feelings. You cannot prove that someone is cute. Even if a book says she is cute, that is only the author's **opinion**.

Fact: Fifty percent of the class thinks Sasha Cohen's size makes her look cute.

This is a **fact** because you can count the number of students that agreed that she looks cute and prove that it is fifty percent of the class.

Sometimes facts and opinions are mixed together.

Mixed: Although Sasha Cohen won a silver medal, she is the best skater in the world.

This is both a **fact** and an **opinion**. You can prove that Sasha Cohen won a silver medal, but you can not prove that she is the best skater in the world.

A **fact** should be the same in every source that you read. If the **fact** differs from one source to another, check with a trustworthy source to find out the truth.

How can you tell the difference between facts and opinions?

- Look for signal words or phrases (*I believe, we think, and in my opinion*), and judgment words (*best, greatest, cutest, brave*).
- Ask yourself if (and how) a statement could be proven.
- Identify the purpose of a lesson (a lesson written to convince or persuade is more likely to contain **opinions** than one written to explain).

BIOGRAPHY

LESSON 1

FACT & OPINION

Anne Hutchinson: A Colonial Dissenter

Anne Marbury was born in England in 1591. She loved learning and read many books from her father's library when she was a child. She became very interested in religion.

When she grew up, Anne married Will Hutchinson. Both of them were Puritans, or Christians who wanted to purify the Church of England. Because they did not agree with many of the teachings of the church, Puritans faced many hard times in England.

In 1634, the Hutchinson family left England for America, where they hoped to find religious freedom. They settled in the Puritan colony known as the Massachusetts Bay Colony. Anne continued to think a lot about religion. She liked to talk about her beliefs. She even led religious meetings in her home, which was very unusual for a woman at that time.

Many of the other members of the colony did not believe that a woman should be leading religious meetings. They were also angry because Anne was a dissenter. Although Anne was very religious, some of her beliefs were different than those of church leaders. In her meetings, she often spoke out against the leaders of the church.

A This sentence tells when Anne Marbury was born. Is it a fact, or an opinion?

How do you know?

dissenter

a person who does not agree with the views of his or her leader

B What word in this sentence signals that someone's opinion will be expressed?

What is the opinion, and whose opinion is it?



This drawing depicts Anne Hutchinson's trial.



ANNE HUTCHINSON

In 1637, Hutchinson was charged with trying to overthrow the government and was put on trial. Puritan leaders claimed that Hutchinson was teaching ideas that were not true. They wanted her to give up preaching and obey the male leaders of the church. But Hutchinson was a courageous woman, and she was not willing to give up her beliefs. As a result, she was banished from the Massachusetts Bay Colony.

After Hutchinson left her home, she and her followers built the new settlement of Portsmouth in what is now Rhode Island. She later moved to Long Island, in present-day New York. She died in September, 1643 during an American Indian attack. Today a statue of Anne Hutchinson stands in front of the state house in Boston, Massachusetts.

C What word in this paragraph signals that the charges against Hutchinson were based on opinions, not facts?

D Underline one sentence in this paragraph that contains an opinion. How do you know that it is an opinion?

E Write one fact that you learned about Anne Hutchinson from the lesson.

Use information from the lesson to write an opinion about Hutchinson.

banish
to force to leave a place

ACTIVITY!

LESSON 2

FACT & OPINION

MATERIALS

- blank notebook paper
- pen or pencil

Writing Factual Reports

Writing reports is a way to show what you've learned. You must do research before writing your report. Research means looking for facts about a topic. When you write your report, you must be careful to include facts rather than opinions.

Brian and his classmates had to write reports about events in Colonial America. Brian chose to write about a battle that occurred during the French and Indian War. Now his rough draft is ready for editing.

As you read Brian's rough draft, try to sort out the facts from the opinions.

A Write two strategies that will help you sort out facts from opinions.



B Underline at least three sentences that include opinions in Brian's report. Then choose one sentence and rewrite it so that it does not include opinions.

The Battle of Monongahela

A cool battle happened between the English and French. It was at the beginning of the French and Indian War. It is called the Battle of Monongahela.

Both countries wanted the same lands around the Ohio River. The French were smart because they decided to protect the land by building many forts to guard it.

The greedy British wanted the land too, so they also built forts. Then in July 1754, they sent Major George Washington to the French's Fort Duquesne to tell the French to leave the land in the Ohio Valley. The French wouldn't leave. Sadly, Washington and his troops had to retreat.

Then in 1755, the British sent Major General Braddock to attack. Unfortunately, he didn't listen to advice about how to fight the French and their American Indian allies. He stubbornly thought his troops should fight the same way they did in Europe. There, the troops marched out in the open, in lines called ranks. So Braddock's troops marched in lines to the fort. They crossed the Monongahela River.

The French had fewer troops than the British, but they fought terrifically anyway. Their American Indian allies joined them. Instead of marching out in lines, they hid behind trees and rocks. Amazingly, the British just stayed in their marching lines. They were not as smart as the French.

The French and American Indians easily wounded them. Almost every British soldier was hurt. Even Braddock was shot. Braddock told his troops to retreat. Because they were cowardly, they got out of their lines and ran. Now the Battle of Monongahela is called "Braddock's Defeat."

C Write four facts from Brian's report.

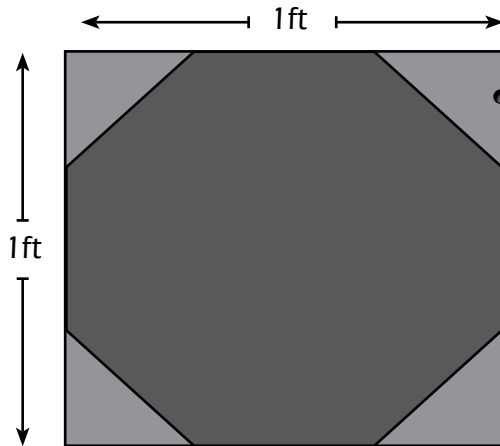
USING MATH

LESSON 3

FACT & OPINION

Measurement: Perimeter of Polygons

Mrs. Witherfronz is making a quilt to give as a gift. She wants to make a rectangular quilt that is five feet wide and six feet long. Because she wants to trim around the edge of the quilt with decorative fringe, she needs to calculate the perimeter of the quilt. She will be making quilt squares that are one foot wide by one foot long or one square foot. Read below to understand how to calculate the perimeter of a rectangle like Mrs. Witherfronz's quilt.



This is what Mrs. Witherfronz's quilt square looks like. Can you figure out how many quilt squares she will make?

Perimeter

You have probably measured perimeter without even knowing it. When you measure around the sides of a polygon, such as a rectangle, you are measuring perimeter. The **perimeter** of a polygon is the sum of the lengths of all its sides. For example, if you measured all four sides of a piece of paper and added them together you would know the perimeter.

VOCABULARY

perimeter

A This is a math lesson. Would you expect it to include many opinions? Write one reason why or why not.

B Write one fact about Mrs. Witherfronz's quilt square.

Now write one opinion about it.

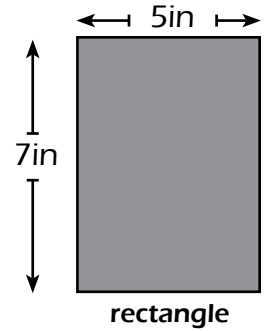
C This sentence is an opinion. How do you know? _____

D Is this a fact or an opinion? _____

How do you know?

Example:

Using a ruler, you can measure all four sides of a rectangle. The shorter sides (width) measure 5 inches and the longer sides (length) of the rectangle measure 7 inches. Because this is a rectangle, you know that two parallel sides are equal. So there are two sides that are 5 inches for a total of 10 inches



$$5 + 5 = 10 \text{ inches}$$

and two sides that are 7 inches for a total of 14 inches.

$$7 + 7 = 14 \text{ inches}$$

If you add the sums from all the sides, the perimeter of the rectangle equals 24 inches.

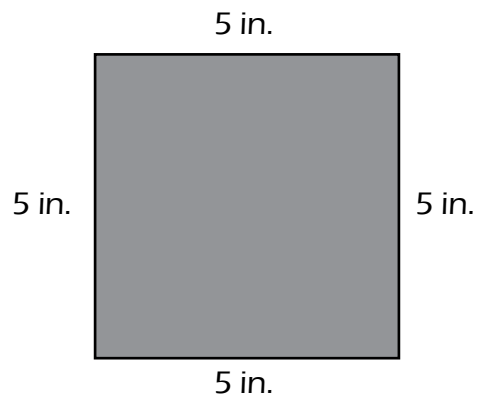
$$10 + 14 = 24$$

You can simplify this calculation by using multiplication: 2 times the width (w) plus 2 times the length (l) = the perimeter.

$$(2 \times w) + (2 \times l) = \text{perimeter}$$

You can find the perimeter of other polygons by adding the sums of the length of all of the sides. If the polygon's sides are the same length, like a square's sides, you can use multiplication to simplify your equation.

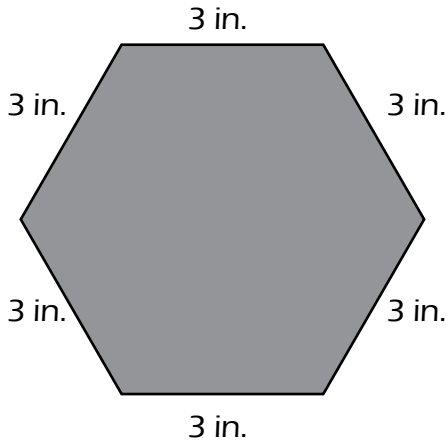
E How do you know that this statement is a fact?



$$4 \times l = \text{perimeter}$$

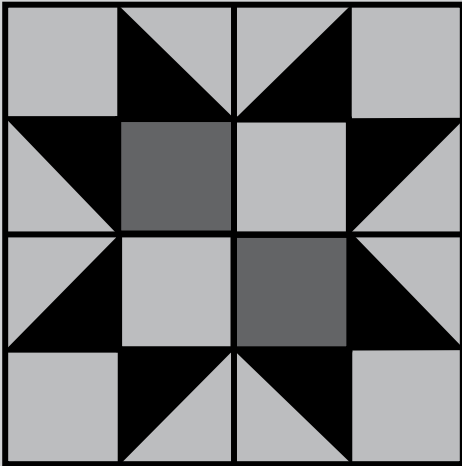
The perimeter of the square = $4 \times 5 = 20$ inches.

To figure the perimeter of this hexagon, find the sum of the length of all six sides, or multiply the length of each of the sides times 6 because there are six equal sides.



$$(3 + 3 + 3 + 3 + 3 + 3) = (6 \times 3) = 18 \text{ inches in perimeter}$$

How Common were Colonial Quilts?



Today we often picture colonial women making quilts and other crafts. But this was not nearly as common as we think. While some colonial women did make beautiful quilts, most women did not have time to work on crafts.

Life in colonial America was very difficult. Families needed to work together in order to meet their basic needs, such as food and shelter. Decorative quilts would have been a luxury. Colonial women likely made decorative quilts only for special occasions or as gifts.

F This sentence contains mostly facts. But it contains one opinion. Write it here.

G Write one common opinion about colonial quilting.

Now write one fact about it.

LESSON 4

FACT & OPINION

VOCABULARY

- Richard Shuckburgh
- Ephraim Williams
- "Yankee Doodle"

MAIN IDEA

Scholars disagree about the history of "Yankee Doodle."

A Write one opinion about "Yankee Doodle" that you read in this paragraph.

Write one fact that you read in the paragraph.

Yankee Doodle

You probably know the song "Yankee Doodle." During the Revolutionary War, American soldiers sang this song as they marched against British troops. The Americans sang "Yankee Doodle" with pride. But this patriotic song was written to make fun of American soldiers. This was because they did not have the fancy uniforms or training that the British soldiers did. During this time period, *yankee* was a term used to describe Americans who the British believed didn't know very much. The word *doodle* meant *fool*. Most scholars agree that "Yankee Doodle" was written during the French and Indian War (1754-1763). But they often disagree about who wrote it and exactly when it was written.

*"Yankee Doodle went to town,
Riding on a pony;
Stuck a feather in his hat,
And called it macaroni."*



The Tune

Although "Yankee Doodle" is known as a song about America, it likely originated in Europe even before the American colonies were started. There is some evidence that the words were developed from a song that was sung in Holland as early as the 1400s. It is also believed that the tune to which it is sung was borrowed from a popular English nursery rhyme called "Lucy Locket." How did these early versions become the popular American song?





B In your own words, explain the opinion that Richard Shuckburgh wrote “Yankee Doodle.”

Now list at least one fact that supports this opinion.

The Words

Many people believe that “Yankee Doodle” was first written by **Richard Shuckburgh**. Shuckburgh was a surgeon in the British army. There are stories that say Shuckburgh wrote the song at Fort Crailo in New York when he saw a group of American soldiers preparing for an attack on Fort Ticonderoga. This would mean that the song was written sometime in the 1750s. But there are no documents to back up this version of the song’s origin. Documents do prove, however, that Shuckburgh was at Fort Crailo in 1755. This was a time when many men from the countryside had come to train for the army. These men would have lacked training and equipment. So many scholars believe they were Shuckburgh’s inspiration for the character of Yankee Doodle.

The Inspiration

The oldest written version of “Yankee Doodle” is from 1775. It tells the story of a man named Brother Ephraim. Brother Ephraim travels to Canada to fight as a soldier. But he returns home a coward who will not fight. This version of the song includes instructions for the singer to sing “through the Nose” with a “West Country drawl & dialect.”

Scholars believe that this version of the song was based in part on **Ephraim Williams**. Williams was a colonel in the Massachusetts Militia. Unlike Brother Ephraim, however, Williams was a brave soldier. He died in the Battle of Lake George. No one knows for sure who wrote this version of the song.

C Write one opinion that the songwriter had about Ephraim Williams.

Now write two facts about him.



Father and I went down to camp,
Along with Captain Gooding,
And there we saw the men and boys
As thick as hasty pudding.

Chorus

*Yankee Doodle keep it up,
Yankee Doodle dandy,
Mind the music and the step,
And with the girls be handy.*

There was Captain Washington
Upon a slapping stallion,
A-giving orders to his men,
I guess there was a million.

Chorus

*Yankee Doodle keep it up,
Yankee Doodle dandy,
Mind the music and the step,
And with the girls be handy.*

And then the feathers on his hat,
They looked so ‘tarnal fine, sir,
I wanted pockily to get
To give to my Jemima.

Chorus

*Yankee Doodle keep it up,
Yankee Doodle dandy,
Mind the music and the step,
And with the girls be handy.*

“Yankee Doodle” Today

“Yankee Doodle” remained popular with Americans even after the Revolutionary War. During the Civil War, supporters of the Confederacy changed the words of the song to support their cause. The song has been adapted for many other purposes as well. Today when Americans hear the song, they are not likely to think about the mismatched clothing of early American soldiers. Instead, they think about how proud they are of their country.



George Washington was the commander of the American forces during the Revolutionary War.

D In your own words, explain the author’s opinion of George Washington.

E Even though the song is full of opinions, it also contains some statements that might be facts. Write one of them. _____

How could you find out whether this is a fact or an opinion? _____

LESSON 5

FACT & OPINION

VOCABULARY

- **boycott**
- **Parliament**
- **Stamp Act**

MAIN IDEA

Colonists rebelled against the Stamp Act because they had no voice in Parliament.

The Stamp Act

Rules and Rebellion in the Colonies 1764-1765

Have you ever felt that a rule was unfair? Have you ever been upset because no one asked your opinion in a decision being made about you? That is what American colonists were feeling in the 1760s.

Parliament and the Colonies

By the 1760s, hundreds of thousands of people had moved to North America from England and Europe. These people, or colonists, were ruled by England. In England, the king and a group of lawmakers called **Parliament** made the rules. All English people had to follow the rules, or laws. It did not matter if you lived in England or in the new English colonies. One law, The Sugar Act (1764) increased the taxes on non-English goods shipped to the colonies. Another, The Currency Act (1764), made it illegal for the colonists to create their own money.

As Parliament passed more laws telling the colonists what they could and couldn't do, some colonists began to rebel. It wasn't the laws themselves that angered these colonists, it was how the laws were made. These colonists didn't like that Parliament wasn't asking their opinions.

The Stamp Act

By 1765, England needed more money to protect the colonies. So, on March 22, 1765, England's Parliament passed **The Stamp Act**. It required merchants to buy stamps and put them on all printed papers like newspapers and even playing cards. Purchased stamps had to be placed on court documents and business papers too. This made these papers more expensive for the colonists.

A Write one fact about a law that was passed in 1764.

What was the colonists' opinion of this law?

B Based on what you have read, what is *your* opinion of the Stamp Act?

Why is this an opinion?

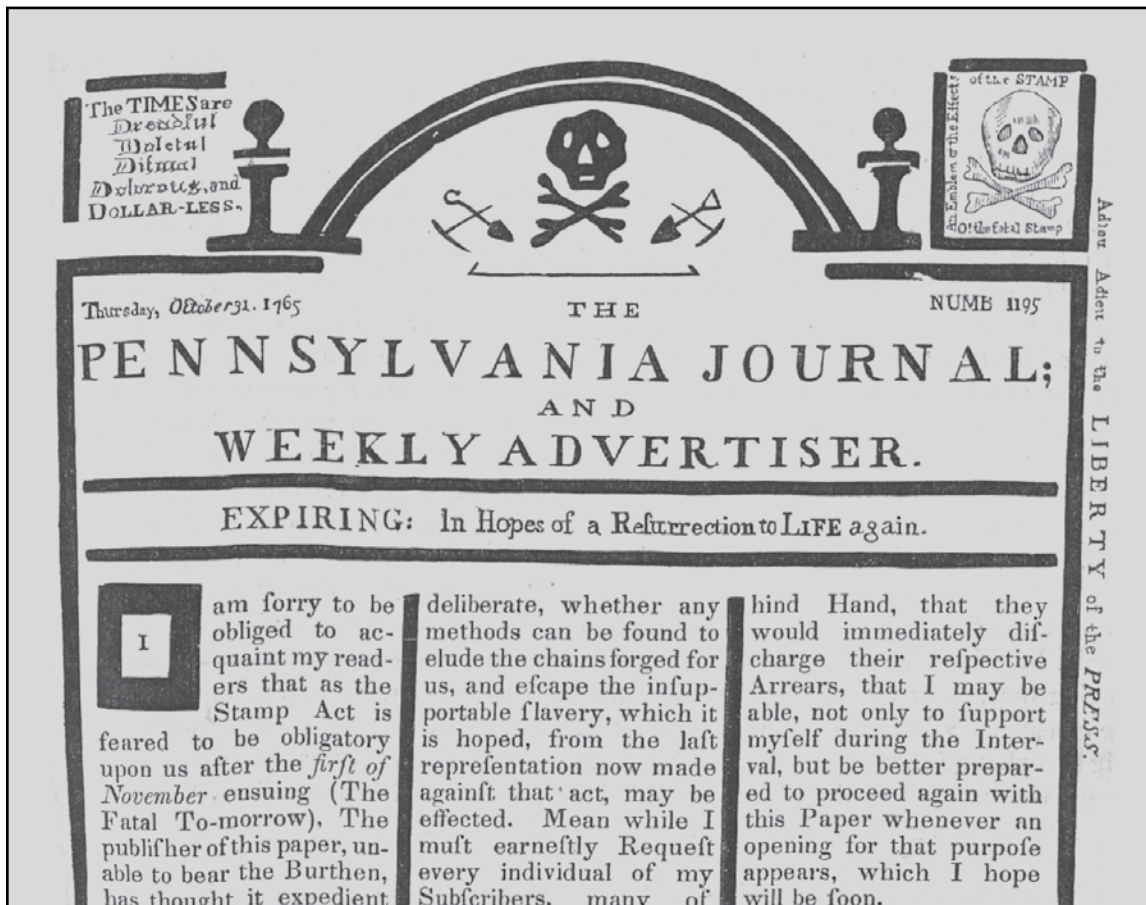
The Stamp Act made many colonists angry. They began to speak out and write about how unfairly they were being treated. Many colonists said they would boycott all English products if the Stamp Act wasn't repealed. To **boycott** means to refuse to support or buy something. When the colonists boycotted English products, they refused to buy goods sent from England.

The End of the Stamp Act

Eventually, England repealed the Stamp Act. But many more laws followed. Many colonists joined together and fought against the laws they felt were unfair. They fought because they felt they were being taxed by England without having a voice in England's Parliament. They argued that they were being forced to pay "taxation without representation," because they did not have any representatives in Parliament. The colonists' frustration over what they felt were unfair taxes would eventually lead to the American Revolution.

C Is this statement a fact or an opinion?

How do you know?



Newspapers like this one were one place colonists voiced their opinions.

Taxes and Tempers

Below are some quotations from the 1760s with their modern-day translations. Read what people were saying about the Stamp Act.

"We...do hereby promise...not to buy any goods...that shall be shipped from Great Britain after the first day of January unless the Stamp Act shall be repealed."

- Notice in the *New York Mercury*
Nov. 7, 1765

We will refuse to buy anything made in England after January 1st if the Stamp Act isn't repealed!

D Write one fact from this notice.

"It has been commonly understood...that the consent of the British Lords and Commons, i.e. of all the men within the realm, must be obtained to make a tax legal there. The consent of the lords and commons of his majesty's ancient and very respectable kingdom of Ireland, has also been deemed necessary to a taxation of subjects there."

- Lawyer James Otis pamphlet published in Boston, 1765, "Considerations on behalf of the Colonists"

We all know that in order to enforce a tax in England, all of the men in Parliament must agree. And if England wants to tax subjects in the ancient and very respectable kingdom of Ireland, England must have the agreement of the Irish members of the Parliament, too.

"Upon the whole, I will beg leave to tell the House what is really my opinion. It is, that the Stamp Act be repealed absolutely, totally, and immediately; that the reason for the repeal should be assigned, because it was founded on an erroneous principle."

- William Pitts speech about the Stamp Act, January, 1766

After all that I have said, I would like to tell all of you in the House of Burgess my opinion once and for all. The stamp act should be repealed totally and immediately. That is because it was never a good law in the first place since it never made sense.

E Write one opinion from Pitt's speech.

F Write two facts from Otis's pamphlet.

CONCLUDING PROJECT

Fact & Opinion: Colonial Life

Now that you have learned about facts and opinions, you will use your knowledge to examine a historical event. You will look for facts and discover opinions about the event. Using books, the Internet, or any other sources your teacher wants you to use, you will complete three steps to show your understanding of both the event facts and opinions.

Step 1: Before beginning your research, write what you believe happened during this event. Include persons who may have been involved, locations, and other information you know. Now read at least two informational accounts of what happened. Take notes about the event. Using the Facts Checklist, compare your notes to your initial ideas about the event. Mark if each of your ideas is a confirmed fact, an opinion/false information, or information without evidence to prove or disprove it.

Step 2: Read at least two primary source documents. Record two opinions and two facts about the event from each of these documents.

Step 3: Write a factual report that summarizes what happened during the historical event. Include at least five facts about the event.

The worksheets will help you get started.

Step 1: Complete Initial Research

Name: _____ Date: _____

Historical Event: _____

List the information you know. After research, place a check in the correct column.

Facts Checklist

INFORMATION I KNOW	CONFIRMED FACT ✓	FALSE INFORMATION OR OPINION ✓	NO EVIDENCE TO PROVE OR DISPROVE ✓
1.			
2.			
3.			
4.			
5.			
6.			

Sources used for researching event:

(Attach your notes to this page.)

Step 2: Review Primary Source Documents

Name: _____ Date: _____

Historical Event: _____

Primary Source Document Evaluation

Name of Primary Source A: _____

Author if Known: _____

Date of Source: _____

Type (letter, map, journal, newspaper): _____

Facts:

1.

2.

Additional facts:

Opinions:

1.

2.

Additional opinions:

Name of Primary Source B: _____

Author if Known: _____

Date of Source: _____

Type: _____

Facts:

1.

2.

Additional facts:

Opinions:

1.

2.

Additional opinions:

Word Knowledge

How can I improve my word knowledge?

What is word knowledge?

When you read, you encounter many words. Some of them are words that you know well. You know what they mean, and you know how to use them. Others are words that you know a little bit about. These are words that you have heard before, but don't completely understand. You may have an idea of what they mean, but you may not be able to use them. Others are words that you have never heard before.

Word knowledge means being aware of the words that you read. It also means being interested in words and their meanings and uses. When you develop **word knowledge**, you learn new ways to think about words.

How do I identify important words?

- Skim the lesson for words in **bold** type or *italics*.
- Look for vocabulary sections at the beginning of your lesson, or for definitions in boxes on the page as you read.
- Look for words that are new or unusual.

What should I do when I find new or unusual words?

Ask:

- Why did the author choose *this* word in particular?
- Is this a different form of a vocabulary word?
- Does this word have more than one meaning?
- Have I heard this word before? Where?
- Do I know what this word means, or do I have an idea about what it means?
- Can I use this word, or do I have an idea about when or how it might be used?
- Do I know other words that mean the same thing as this word? Could they be used in place of this word in this sentence?
- How can I remember what this word means?
- How could I use this word in my own life?
- What is special, or what do I like about this word?

Thinking about words in this way will help you increase your **word knowledge**. You will read and understand your textbooks better. You will also develop a love for words.

LESSON 1

WORD KNOWLEDGE

VOCABULARY

- beaver ponds
- currency
- pelts

MAIN IDEA

The popularity of beaver fur led to economic and environmental changes.

Beaver Pelts

How much do you know about beavers? You might know that they have big tails and strong teeth, or that they build dams in rivers. But did you know that beavers have had an effect on the economy of North America? In fact, because their fur was so popular, beavers changed life in the early United States and continue to affect how we live today. What kinds of changes did the popularity of beaver fur bring about?

Changes in the Economy

What do beavers and dollar bills have in common? Both have been used as currency in the United States. **Currency** is anything that is used as a means of exchange. Today when we use the word *currency*, we are usually talking about paper money. But many other things can be used as currency as well.

A Write at least two ways you know that *currency* is an important word in this lesson.



This is what a beaver pelt looks like. Why might it be difficult to use this form of currency?

Before the United States became a country, people needed a form of currency. Because hats made from beaver fur were popular in Europe, there was a high demand for beaver skins, or **pelts**. This high demand made the pelts very valuable. People decided to use them as a form of currency.

Beaver pelts could be traded for almost anything. Because people agreed about how much a beaver pelt was worth in other pelts and goods, they were able to trade easily. Almost anything that people might want had a set price in beaver pelts. This made it easy to compare the values of other objects. Before pelts were used as currency, people had difficulty paying for goods because they did not agree about how much each different good was worth. Unless they could find someone to trade with, who had exactly what they needed and was willing to trade it for what they had, people were unable to get what they needed. Finding the right person to trade with could take a lot of time.

Because they made trade easier, beaver pelts were a popular form of currency. They remained in use as currency until the middle of the 1800s, when declining demand for the pelts in Europe and the introduction of reliable paper money made them less useful.

Changes in the Environment

The popularity of beaver pelts led to environmental as well as economic changes. When settlers first arrived in the New World, they were surprised by the number of beavers living here. Beavers had been hunted to

How Much Was a Beaver Pelt Worth?



1 beaver pelt =

- 5 pounds of feathers
- 2 fox pelts
- 2 woodchuck pelts
- 4 raccoon pelts
- 1 bear pelt
- 5 pecks of Indian corn
- 10 pounds of pork
- 2 small axes
- 6 knives
- 2 yards of cotton
- 20 skeins of cotton thread

B *Pelt* is an unusual word. Write one thing that you like about this word, or one thing that will help you remember its meaning.

What is a synonym for *pelt*?

C It is important to pay attention to words used in graphics too. Use context clues or a dictionary to write a definition of *peck* as it is used here.

What is another meaning of *peck* that you know?

extinction or near extinction in most parts of Europe. It is estimated that there were several hundred million beavers living in North America when Europeans began to arrive.

Because beaver pelts were so valuable, people wanted to get as many of them as possible. Many people began to trap beavers for their pelts. Trappers killed many of the beavers in North America. By the early 1900s, there were only about 100,000 beavers remaining.

A declining beaver population was not the only environmental change that was caused by the demand for beaver pelts. Beavers play an important role in the ecosystems in which they live. Beaver dams create areas of deeper water known as **beaver ponds**. Beaver ponds are home to other kinds of wildlife including turtles and ducks. Without beavers and beaver ponds, these animals have fewer places to live.

Beavers also help protect soil from erosion. This is because the trees they use in building their dams compete with small plants for sunlight and nutrients. When beavers tear down these trees, the plants can grow bigger and their roots help hold the soil in place.

Although the demand for beaver pelts is not nearly as great as it once was, people continue to trap beavers for their pelts today. In most places, beaver populations are growing, but in others beavers are still endangered. In some parts of the United States and Canada, people are working to protect beavers from extinction.



In Indiana, beavers were hunted to near extinction. Two beavers were brought to Indiana in 1935 to help the population grow.

E This lesson includes many new and unusual words. Choose one of them and write it below.

Write one thing that you know about this word and how it is used.

D This paragraph does not give a definition of *erosion*. Use what you learned from the paragraph to write a definition in the space below.

How did you figure out your answer?

USING MATH

LESSON 2

WORD KNOWLEDGE

Making a Budget

Maria is a member of the chess club at her school. As the club's treasurer, it is her job to keep track of how much money the club earns and how it spends that money.

At the beginning of the year, the club had \$125.50 in its account. At its fundraiser, the club earned an additional \$274.50. Then, the club received a donation of \$100.00.

With this money, the club needs to pay for travel, snacks, and supplies for the year. They know that traveling to matches will cost \$250.00. They estimate that snacks for the year will cost approximately \$100.00, and that other supplies for the year will cost approximately \$100.00.

Maria needs to figure out if the club has enough money to pay for all of these expenses. She also needs to create a **budget**. A budget is a plan for spending money. The budget will show how much money the club has and how it will spend the money.



VOCABULARY

budget
circle graph

A *Treasurer* may be a new word for you. Notice that it contains the word *treasure*. What do you think *treasurer* means? Write your definition below. _____

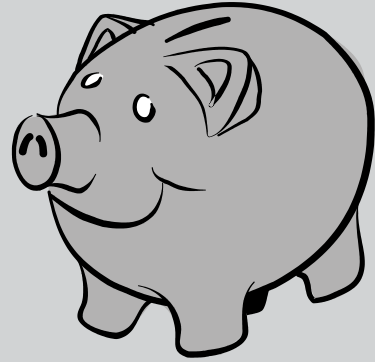
How does noticing the word *treasure* help you understand what a treasurer is? _____

B How can you tell that *budget* is an important word in this lesson? Write at least two ways. _____

Write one thing that you know about the word *budget* or how it is used. _____

Math in Your World

Governments, businesses, and organizations all have budgets. But it is important for individual people to make and use budgets too. Even kids should make budgets. Making a personal budget is important because it helps you spend your money wisely. It will help you figure out what you can afford to buy, and what you cannot. It can even help you make a plan to save money. Learning to make and stick to a personal budget now will help you make wise spending and saving decisions when you grow up.



C Choose one new or unusual word from this lesson and write it below.

Write one thing that you like about this word, or one way you could use this word in your daily life.

First, Maria needs to figure out how much money the club has.

beginning balance	\$ 125.50
fundraiser	\$ 274.50
donation	+\$ 100.00
	<hr/>
	\$ 500.00

The club has \$ 500.00 that it can spend. Now Maria makes a list of the club's expected expenses.

travel	\$ 250.00
snacks	\$ 100.00
supplies	+\$ 100.00
	<hr/>
	\$ 450.00

The club expects to have \$ 450.00 in expenses. This means that they have \$ 50.00 left for miscellaneous expenses.

Now that Maria knows that the club has enough money, she wants a way to share the information with other members of the club. She decides to use a **circle graph**, or pie chart, because it will show the relationship of each item in the budget to the total amount of money that will be spent. A circle graph will help members of the club see and understand the information quickly.

To make a circle graph, Maria needs to convert each expense to a fraction of the total amount of money in the club's budget.

travel: $\frac{\$250}{\$500} = \frac{5}{10}$ or 50%

snacks: $\frac{\$100}{\$500} = \frac{2}{10}$ or 20%

supplies: $\frac{\$100}{\$500} = \frac{2}{10}$ or 20%

miscellaneous: $\frac{\$50}{\$500} = \frac{1}{10}$ or 10%

Using these fractions, Maria creates the following circle graph to help the club understand their budget.

D Write one synonym for *pie chart*. _____

Which term is easier for you to remember? _____

Why? _____

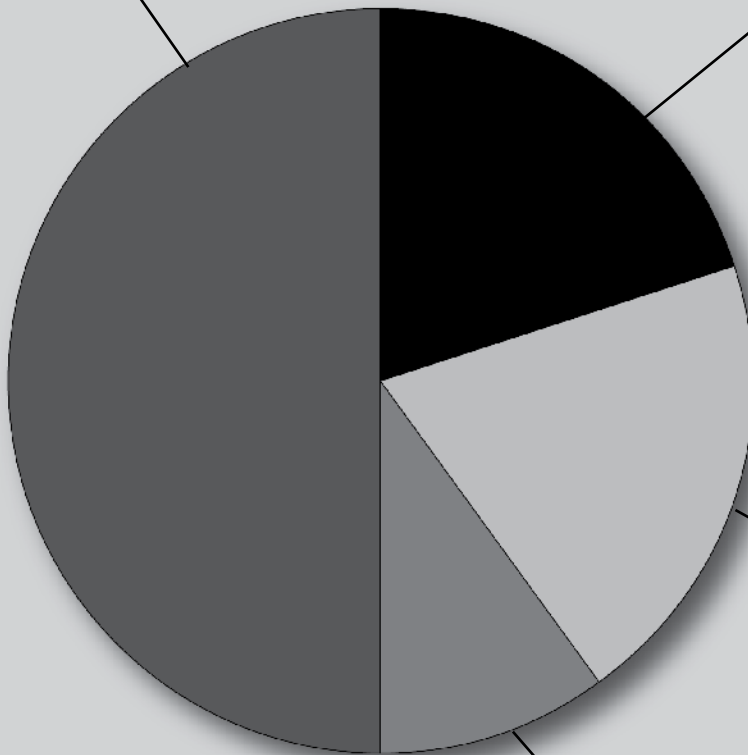
Chess Club Budget

travel 50%

snacks 20%

supplies 20%

miscellaneous 10%



ACTIVITY!

LESSON 3

WORD KNOWLEDGE

A The word *consumer* isn't defined as a vocabulary word. What are two ways you can find out the meaning of a word you don't know?

B *Entrepreneur* is a vocabulary word in this lesson. What is one way you can remember this word?

DID YOU KNOW?

Market economies are sometimes called free markets, free economies, or free enterprise systems.



How Does a Market Economy Work?

As a consumer, you make decisions about how you will spend your money. You may make your choices based on price, on what you know about a product, or on what is popular. You may even base your decision on all of these factors. You have these choices as a consumer because of the kind of economy that we have in the United States.

The economy of the United States is what is known as a **market economy**. In a market economy, sometimes called a "free market," businesses are owned by citizens instead of the government. Prices are determined by competition. How does a market economy work?

Private Ownership

In some countries, the government owns all of the businesses. It decides how they should be run. It controls the prices of goods and services. In a market economy, like the one we have in the United States, citizens own businesses. These business owners are known as **entrepreneurs**. The government makes sure that entrepreneurs follow certain rules and protects consumers from unsafe products, but it does not control the businesses.



Competition

One of the most important features of a market economy is that it is controlled by supply and demand. Supply and demand are related to competition in the market. **Supply** means what producers are willing and able to sell at various prices. **Demand** means what consumers are willing and able to buy at various prices. Together, supply and demand determine the prices of goods and services offered for sale in a market economy.

When supplies are low, consumers must compete with each other to get the good or service that is in short supply. This is what causes prices to increase. The consumer who

is willing to pay the highest price will get the item or service. When the demand for a good or service is high, prices will increase. The good or service may become very expensive.

- When there is less demand for a good or service, and there is a large supply of it, prices will fall. The good or service may become very cheap, and those who are selling it may not make enough money to remain in business. When demand is low, entrepreneurs and businesses must compete with each other in order to attract consumers. This is what causes prices to decrease. The entrepreneur or business that is willing to sell its good or service at the lowest price is most likely to attract consumers.

C What is another definition of *demand* that you know?

How is your definition related to the economics term *demand*?

Use the word *demand* to describe a product that is popular at your school.

Create a Business Plan

Imagine that your school allowed students to work as entrepreneurs and sell products or services in booths around the school. What product would you sell? Would you make cards, bookmarks, or something else? What service could you offer? Would you offer to carry backpacks to the bus, clean out desks, or a different service?

Before you start a business, you need to have a business plan. This plan will lay out the product information, goals, and expenses of your business. First, you need to decide on the product or service you want to sell. Second, you will need to research the current market's supply and demand for your product or service. Third, you will need to calculate your expenses and how much you expect to earn.

Business Plan

Business Information

Owner's name : _____

Product to be sold/service offered: _____

Product will be made by/service supplied by: _____

D What vocabulary word above could be substituted for "owner's name"?

Market Research

Who are your customers? _____

Is your product in low or high demand? How do you know? _____

How does your product compare to the current market supply in quality and price? _____

Where else can your customers get your product? _____

How will you advertise your product? _____

E Is a customer the same as a consumer?

How are they the same or different?

What supplies will you need? How much will they cost? _____

F The word *supplies* is similar to the verb *supply*. In your own words, write definitions of both of these words.

supply:

supplies:

BIOGRAPHY

LESSON 4

WORD KNOWLEDGE

A This lesson does not have a section that lists vocabulary words on the first page. What should you do to identify important words?

economics

the study of the production and use of goods and services

philosophy

the study of thought and belief

B *Economics* is an important word in this lesson. Write one thing you know about this word.

Write one thing you know about how *economics* is used.

C *Philosophy* is an important word in this lesson. How do you know?

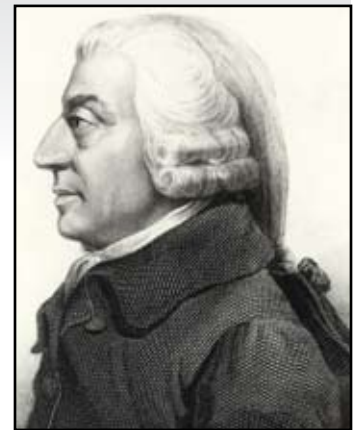
Adam Smith: Father of Economics

A lthough Adam Smith never lived in the United States, he had a great effect on our country and our way of thinking about economics.

Adam Smith was born in Scotland in 1723. He was interested in learning from an early age. He began to study philosophy at Oxford University when he was only seventeen years old. When he was in his twenties, Smith began to develop a theory of economics. In the next 30 years, he traveled and studied. He also continued to speak about economics.

In 1776, Smith published a book entitled *An Inquiry into the Nature and Causes of the Wealth of Nations*. He had spent more than ten years working on this book. It took a lot of hard work, but it made him famous all over the world. It was very influential in the American colonies.

Smith's book drew attention to the study of economics. For this reason, he is often known as "The Father of Economics." One of the most famous parts of the book



Adam Smith

D Write one thing that you know about the word *influential* (What does it mean? How is it used? What other words is it related to?).

Use *influential* to describe something in your life.

ADAM SMITH

laissez-faire

French term which is used to describe a kind of economics in which the government interferes as little as possible

E *Economy* is another form of the word *economics*. Using what you know about economics and context from the paragraph, write a definition of *economy*.

Where have you heard the word *economy* before?

F *Laissez-faire* is in italic print because it is a French word. What is one thing you like about this word?

.....
is its emphasis on a free market. Smith also argued that in most cases the government should not interfere with the economy. This idea, known as *laissez-faire* (lès'ā fār'), was very influential in both Great Britain and its American colonies.

Smith's book was published in the same year that the Declaration of Independence was written. In the five years after its publication, 2,500 copies were sold in the American colonies, even though they were at war with Britain. Americans liked Smith's book because it encouraged freedom of trade and manufacturing. Such freedoms were very important to the American people. When the founders of the United States planned for our government, they included many of Smith's ideas.

Smith died in 1790, but his ideas live on today. People continue to read and discuss his book. Many Americans today still believe in the ideas about economics that Smith proposed more than 200 years ago.

"The propensity [tendency] to truck, barter, and exchange one thing for another is common to all men" - Adam Smith

G You probably know one meaning of the word *truck*, but that meaning does not make sense here. Use a dictionary to find a meaning that makes sense in this quotation and write it below.

VOCABULARY

- conduction
- capital

MAIN IDEA

Copper mining is a profitable industry because copper has many uses.

Copper: The Great Conductor

A Natural Element

Copper is an element found in the Earth. It is one of the Earth's metals, like silver and gold. The demand for copper is high because it is used to make many goods. It also has many useful qualities. It can be shaped or stretched, it lasts a long time, and it can be recycled. Importantly, it also helps move energy.



Pennies are copper-plated.

A What does the word *conductor* mean to you?

See if you have the same idea about *conductor* when you finish reading.

A Conductor of Energy

Like other metals, copper is a good conductor of energy such as heat. A conductor is able to move heat through matter. Heat can easily move from one piece of copper to another. You may have felt heat **conduction** when you ate something hot with a metal spoon. When you put a metal spoon into hot soup, the handle becomes warm. It becomes warm because the metal of the spoon conducts the heat. The spoon moves the heat from the soup to the handle. If you use a wooden spoon, the handle does not become warm. This is because wood is not a good conductor of heat.



You feel heat when you slide down a metal slide on a hot day because it conducts heat from the sun.

B This paragraph gives the definition of *conduction*. What two other forms of the word *conduction* did you read?

Copper is used to conduct energy in a number of products. Pots and pans, car radiators, and water heaters are made with copper to help move heat energy. Copper is also a good conductor of another kind of energy—electrical energy. Copper wire is used in many things in your house. It moves electrical energy in phones, toys, televisions, and computers.

Copper Production

Because copper is such a good conductor, people dig or mine the Earth in search of it. The United States is the world's second largest producer of copper. This is good because the United States is the world's largest user of copper. Though copper is found in many places in the United States, copper is mostly mined in places with the highest amounts of copper. This is because mining and producing copper requires a lot of **capital** and labor resources.



Wires, like the ones shown above, are one common use of copper.

Capital resources (equipment and tools) and a large labor force (miners and smelters) are needed for getting the copper out of the Earth, transporting it, and preparing it for use in other goods. Because of the need for a large supply of copper, miners, and equipment, it is most profitable for companies to dig a large mine or many small mines that are close together. If all of the equipment and miners are in one place, the job of mining is easier and more profitable. Companies that make goods used in mining, such as mechanical shovels, often open their businesses near the mines.

C *Mine* can have more than one meaning. It can be a noun or a verb. It can also show possession. Write at least three meanings for *mine*.

D Do you know what a *smelter* is? How does the text help you learn the meaning?

Find out the meaning of *smelter* and write it below.

States that have profitable copper mines include Arizona, Utah, New Mexico, Montana, and Nevada. If you want to talk to a copper miner or smelter to learn more about the job of mining and producing copper, you should visit one of these states. Copper mining has also taken place in Michigan, Alaska, and Connecticut. You may be able to see the remains of mining towns or mining pits in these states too.

E *Profitable* is made up of a root word and a suffix. What is the root word?

What does this root word mean?

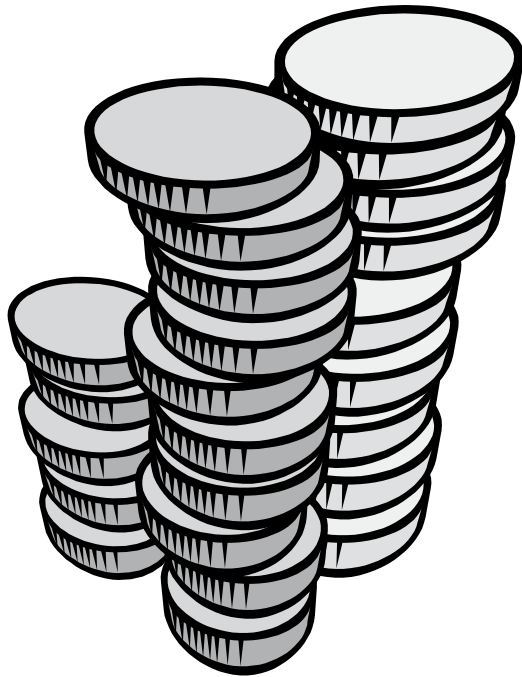


This copper mine is located in New Mexico, a state that is home to many such mines.

CONCLUDING PROJECT

Word Knowledge: Economics

Now that you have learned about some economics terms and how they relate to business and business people, you will practice working for a business yourself. Pretend that you have been assigned to do some *market research* and pricing for a school store. You will interview students and conduct research on your *competition's* pricing. Finally, you will summarize how you developed your *business strategy*.



Step 1: Market Research

Name: _____ Date: _____

Conduct *market research* by interviewing potential *customers* (students in your school) to find out the top three school *products* they would like to see sold in the school store.

- In the top column, write five school supply items you think your school store should sell. Leave the last column blank.
- Interview students by asking which of the five items they think they would most likely want to buy at a school store.
- Place a tally mark in the column of the item the student chose. If the student says he or she would not likely buy any of them, ask what item he or she would buy and write it in under the other column.
- Tally each column as well as each item mentioned under the "Other" column.
- Determine the top three items and circle their names.

Item _____	Item _____	Item _____	Item _____	Item _____	Other _____
TOTAL _____	TOTAL _____	TOTAL _____	TOTAL _____	TOTAL _____	TOTAL _____

Step 2: Survey the Competition

Student Name: _____ Date: _____

- A.** Using catalogs or Internet resources compare three competitors wholesale prices for each of the top three chosen products.
- B.** List the name of the company (distributor) selling the item and the price of the item in the chart below. If items must be purchased in bulk, include this information (example: \$2.44 for each 100 items).
- C.** Choose a distributor for each item you will purchase. Circle the price and distributor on the chart.
- D.** Determine the school store's retail price for the product and the amount of profit that will be earned on each item.

ITEM	DISTRIBUTOR	PRICE
ITEM 1		
ITEM 2		
ITEM 3		

SCHOOL STORE PRICE: _____ **PROFIT** _____

Item 1: Profit per item:

Item 2: Profit per item:

Item 3: Profit per item:

(profit = retail price – distributor price)

Main Idea:
The Constitution
and the Bill of Rights
protect the rights of
all Americans.

Vocabulary:

Bill of Rights
constitution

The Rights of All Americans

The Constitution

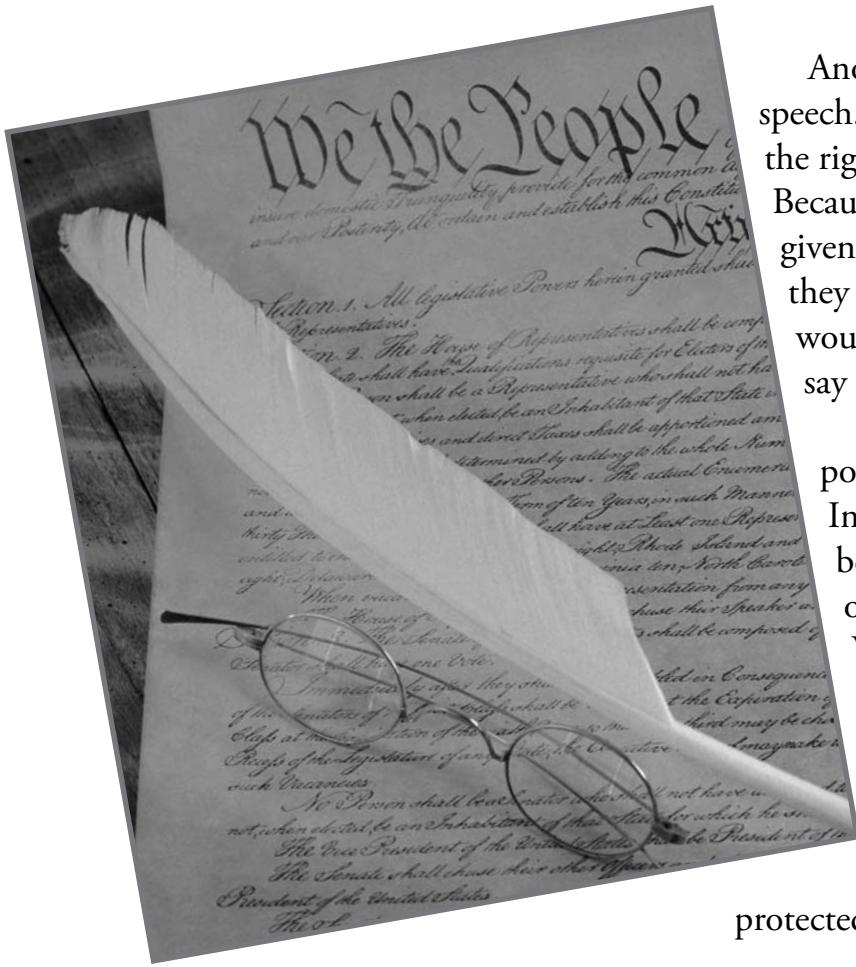
The United States Constitution is more than 200 years old. This document, or important paper, was written by hand in 1787. Today the ink is old and faded. But even though it may look old, the Constitution is the most powerful document in the United States. A **constitution** contains the basic laws, or rules, that people must follow. All the laws in the United States are based on the Constitution. The Constitution protects the rights and freedoms of Americans.

Freedom has always been very important to Americans. American colonists had been ruled by the King of England. The King did not give the people many rights. Rights are freedoms that everyone has. When Americans wrote the Constitution, after winning independence, they wanted to make sure that they would have the rights that were important to them.

The Bill of Rights

Even though the Constitution is powerful, when it became a law in 1788, many Americans didn't think it was powerful enough. Because the Constitution did not list the freedoms that are important to Americans, people were afraid that these freedoms could be taken away. They decided to make amendments, or changes, to the Constitution. These amendments would protect the rights of all Americans. The first ten amendments to the Constitution are known as the **Bill of Rights**.

The Bill of Rights became part of the Constitution on December 15, 1791. The Bill of Rights describes the rights that all Americans have. One of these rights is the right of Americans to practice any religion that they choose. This was important because many Americans had come to our country to find religious freedom.



This is the first page of the U.S. Constitution.

Another right is the right of free speech. In America, everyone is promised the right to speak his or her opinion. Because the King of England had not given American colonists this right, they wanted to make sure that America would be a place where everyone can say what he or she believes.

The Constitution has remained powerful for more than 200 years. In that time, 27 amendments have been made to protect the freedoms of Americans. If you travel to Washington D.C., the capital of the United States, you can see the Constitution and the Bill of Rights. Because these documents are so important to Americans, they are kept in a museum, and protected by glass.

The Bill of Rights

Amendment	Right(s) Protected
Amendment I	Basic Freedoms
Amendment II	Weapons and the Militia
Amendment III	Housing and Soldiers
Amendment IV	Search and Seizure
Amendment V	Rights of the Accused
Amendment VI	Right to a Fair Trial
Amendment VII	Jury Trial in Civil Cases
Amendment VIII	Bail and Punishment
Amendment IX	Powers Reserved to the People
Amendment X	Powers Reserved to the State

Questions

- What is the main idea of the fifth paragraph?
 - All Americans have the right to free speech.
 - All Americans have the right to practice their religion.
 - The King of England ruled America before the Constitution.
 - The King of England did not let people say what they believed.
- The first ten amendments were added to the constitution in the _____.
 - 1570s
 - 1590s
 - 1780s
 - 1790s
- What does Amendment VI protect?
 - freedom of religion
 - the right to a fair trial
 - the rights of the accused
 - freedom from rule by kings
- Which of the following can you infer from the first paragraph?
 - The Constitution is so old that it is no longer useful.
 - America is the only country to have a constitution.
 - American colonist were strong supporters of the King of England.
 - The way the Constitution looks is less important than what it says.
- Which of the following is a fact?
 - The King of England was a bad ruler.
 - The Constitution was written by hand.
 - The Bill of Rights is more important than the Constitution.
 - Everyone should visit Washington, D.C. to see the Constitution.
- The Bill of Rights is _____.
 - another name for the Constitution.
 - the first ten amendments to the Constitution.
 - a set of laws made by the King of England.
 - an essay about religious freedom.
- Which of the following details is *most* important to the main idea of the lesson?
 - The Constitution is a document.
 - The Constitution is kept in a museum.
 - Freedom has always been important to Americans.
 - There have been 27 amendments to the Constitution
- Which of the following happened one year after the Constitution was written?
 - America made the Constitution law.
 - Americans won their independence.
 - America declared its independence.
 - Americans wrote the Bill of Rights.
- The Constitution begins with the words _____.
 - "We the people..."
 - "When our freedoms..."
 - "Whereas, we seek freedom..."
 - "Because we value our rights..."
- Which of the following can you infer from this lesson?
 - Rights were very important to Americans because they had not had very many under the King of England.
 - After the Bill of Rights was written, there was no longer a need to amend the Constitution.
 - Little has been done to protect the Constitution from damage.
 - The Constitution was written to protect freedom of religion.
- Which of the following is an opinion?
 - Americans have rights.
 - The Constitution is faded.
 - The Constitution was written in 1787.
 - Americans today need to amend the Constitution.
- Which of the following best describes a *document*?
 - old
 - faded
 - important
 - hand-written

Main Idea:

Scientists have different theories about how humans first reached the Americas.

Vocabulary:

Beringia

land bridge theory

ocean theory



Who Were the First Americans?

Today the United States is made up of people from all over the world. But have you ever wondered how the very first Americans reached North America? Even scientists do not completely agree about the answer to this question. You can read about two popular theories below. 1

Beringia: A Land Bridge from Asia

One of the most popular theories about how people first reached the Americas is known as the **land bridge theory**. This theory was first proposed in the 1500s. Scientists who support the land bridge theory believe the first Americans reached North America by crossing a land bridge from Asia. Although there is no land bridge between these two continents today, scientists believe that there was one during the last ice age, 12,000-15,000 years ago. 2



Many scientists believe the earliest Americans followed the animals they hunted across a land bridge from Asia.

3 During the ice ages, much of the water on Earth's surface was frozen in huge sheets of ice. The ice covered the land. Because of this, water levels in the ocean fell. Scientists believe the water level fell in the Bering Strait. This body of water separates Siberia, in Eastern Asia, and Alaska. When the water level was low, it did not cover the land between Siberia and Alaska. Early people could have walked across this land bridge, also known as the Bering Land Bridge, or **Beringia**.

4 Scientists believe these early people were trapped in the Americas when the ice age ended and water levels began to rise, covering Beringia. Since they couldn't cross back to Asia, they spread out over North and South America. They looked for animals to hunt and gathered fruits and nuts. Eventually, they settled down into communities and began to farm.

Crossing the Ocean

5 Not all scientists agree with the land bridge theory. They do not believe water levels in the Bering Strait would have ever fallen low enough for humans to cross it. If early Americans did not come across the Bering Strait, how did they reach North America?

6 Some scientists believe that the first Americans arrived, not by land, but by water. This is known as the **ocean theory**. Scientists who believe that the first Americans arrived by ocean base their theory on several important pieces of evidence. They believe different peoples around the world had built boats as early as 30,000 years ago. They believe some of these boats were strong enough to make the journey to the Americas from as far away as Australia or Asia. They argue that the strong currents of the ocean would have helped to make this trip possible.

7 One reason that some scientists believe the earliest Americans arrived by boat is because of artifacts that they have found. Some of the tools and cave paintings that have been found in North America are believed to have been created before the ice age that would have uncovered Beringia. Another reason is that some of the oldest skeletons found in the Americas have skulls shaped like those of the early peoples of Australia, rather than the early peoples of Asia who were believed to have crossed the land bridge.

8 No one knows for sure whether the first Americans arrived by a land bridge or by ocean. What is likely is that even thousands of years ago, America was already inhabited by people of many different backgrounds.



Questions

- What is the main idea of the fourth paragraph?
 - The trapped people waited for the water to drop to cross Beringia.
 - The trapped people started new lives in North and South America.
 - The trapped people built boats and sailed to North and South America.
 - The trapped people settled down in Beringian communities and hunted.
- Which happened last according to the land theory?
 - People crossed Beringia.
 - The Bering Strait froze.
 - Ice covered the Earth.
 - The water level fell.
- The land bridge theory proposes that the earliest Americans came to North America by following _____.
 - ice
 - stars
 - currents
 - animals
- What can you infer from the sixth paragraph?
 - The ocean theory is the theory best supported by scientific evidence.
 - Americans today look more like people from Australia than Siberia.
 - Early people in different parts of the globe were likely shipbuilders.
 - Today's scientists do not believe in the land bridge theory.
- Which of the following is a fact?
 - Boats were first built 12,000-15,000 years ago.
 - The Bering Strait is between Siberia and Alaska.
 - The ocean theory is based on more scientific evidence than the land theory.
 - The first Americans were better at gathering fruits than the people of Siberia.
- The word *Beringia* means _____.
 - the capital of Siberia
 - the Bering land bridge
 - the people from the Bering Strait
 - the scientific name for land bridges
- Which of the following details best supports the main idea of the lesson?
 - Some North American cave paintings are believed to have been painted before the Ice Age that would have uncovered Beringia.
 - The land bridge theory is one of the most popular theories about how people first reached the Americas.
 - Eventually people built lasting communities in the Americas.
 - The last Ice Age occurred 12,000-15,000 years ago.
- Which paragraph is arranged in sequential order?
 - paragraph 1
 - paragraph 2
 - paragraph 4
 - paragraph 7
- The Bering Strait is located between what two bodies of water?
 - the Atlantic and Pacific Oceans
 - the Arctic Ocean and Bering Sea
 - the Bering Sea and Siberian Bay
 - the Gulf of Alaska and the Arctic Ocean
- Which of the following can you infer from this lesson?
 - There is little evidence to support the ocean theory.
 - The Bering Strait is not as deep as the Arctic Ocean.
 - The early peoples of Australia and Asia had similar skulls.
 - Ocean currents were stronger during the Ice Ages than today.
- Which of the following is an opinion?
 - Scientists do not agree about how people first reached the Americas.
 - Scientists first proposed the land bridge theory in the 1500s.
 - Scientists should not continue to support the water theory.
 - Scientists believe people built boats 30,000 years ago.
- In the sentence "Scientists who believe the first Americans arrived by ocean *base* their theory on several pieces of important evidence," the word *base* means _____.
 - mark
 - support
 - believe
 - bottom

Lesson Glossary

abolitionist

a person who worked to end slavery

acute angle

an angle that is greater than 0° but less than 90°

American Southwest Region

the region of North America made up of the land that is now Arizona, Mexico, and Western Texas that was once home to many American Indian tribes

Arctic Region

the region of North America made up of the land on the western coast of Alaska and the northern coast of Canada that was once home to many American Indian tribes

artillery

large firearms that are mounted on stands

banish

to force to leave a place

beaver ponds

areas of deeper water created by beaver dams

Beringia (Bering Land Bridge)

a land bridge believed by some scientists to have connected Eastern Asia and Alaska during one of the Ice Ages

boycott

to refuse to support or buy

budget

a plan for spending money

John Cabot (Giovanni Caboto)

an explorer famous for searching for the Northwest Passage and for landing in North America in 1497

Cahokia

American Indian settlement from the Mississippian period located near present-day Collinsville, Illinois

capital

resources that have monetary value such as tools and equipment

cash crop

a crop grown for the purpose of selling to make money

Celsius Scale

a kind of temperature scale that is used in many countries; water freezes at 0 degrees Celsius and boils at 100 degrees Celsius

circle graph (pie chart)

a graphic that shows the relationship of parts to a whole

conduction

the movement of heat from one object to another

cotton gin

a machine invented by Eli Whitney to separate cotton seeds from the cotton fiber used to make cloth

Council of Three Tribes

a group of three American Indian tribes (the Ottawa, the Chippewa, and the Potawatomi) belonging to the Algonquin language family

culture

a group's beliefs and ways of life

currency

anything that is used as a means of exchange

degree

a unit of measurement for temperature or longitude and latitude

Lesson Glossary

dissenter

a person who does not agree with the views of his or her leader

Early Mississippian period

division of the Mississippian period lasting from approximately 800-1200 A.D.

Eastern Woodlands Region

the region of North America made up of the land east of the Mississippi River that was once home to many American Indian tribes

environment

one's surroundings including climate, landforms, habitat, and other living things

exports

goods or materials shipped from a country

Fahrenheit Scale

the temperature scale that is used in the United States; water freezes at 32 degrees Fahrenheit and boils at 212 degrees Fahrenheit

Robert Fulton

American artist and inventor, known for inventing a new kind of steamboat

Great Plains Region

the region of North America made up of the land between the Rocky Mountains and the Mississippi River that was once home to many American Indian tribes

Human geography

the study of people and their environment

imports

goods or materials received by a country

indigo

a plant native to India that is used to make a blue dye

land bridge theory

a popular scientific theory that suggests that the first humans reached North America by walking over a land bridge from Asia during one of the Ice Ages

Late Mississippian period

division of the Mississippian period lasting from approximately 1400 until the arrival of Europeans in North America

lead line

an early navigational tool used to measure water depth and location

log

an early navigational tool used to determine the speed of travel

magnetic compass

a navigational tool that indicates geographic direction

Middle Mississippian period

division of the Mississippian period lasting from approximately 1200-1400 A.D.

Morse code

a system invented by Samuel Morse in which dots and dashes are used to represent letters

navigate

to plan and control a course of travel

Northwest Passage

a water route from Europe to Asia that passes through North America

observation

gaining information through the use of one or more senses, such as sight, smell, etc.

obtuse angle

an angle that is greater than 90° but less than 180°

Lesson Glossary

ocean theory

a scientific theory that suggests that the first humans to reach North America came by sea

patent

a right given to an inventor by the government to use, make, and sell an invention

Parliament

a group of English law-makers

Charles Willson Peale

American who received permission to build polygraphs in America from the English inventor John Isaac Hawkins

pelt

the skin of an animal with the fur still attached

perimeter

the sum of lengths of all sides of a polygon

plantation

a large farm that also has other trades or craftspeople working on it

polygraph

an invention that uses two pens to make a copy of a document as it is written

retaliate

to fight back

right angle

an angle that measures exactly 90°

scale

a ratio that compares the real measurements of an object with the measurements of a model

scale model

a model that is bigger or smaller than a real object

Richard Shuckburg

a surgeon in the British army who many people believe was the original author of the song "Yankee Doodle"

sponsor

someone who financially supports another person

Stamp Act

British law requiring merchants to buy stamps and put them on all printed papers like newspaper and playing cards

steamboat

a boat powered by a steam engine

surface currents

large streams of flowing water on the surface of the ocean

telegraph

a system that uses a signal to carry encoded messages from one place to another

temperate climate

a mild climate without extreme heat or cold

treaty

an agreement to make peace

triangular trade

the movement of goods among the Americas, Africa, and England

Giovanni da Verrazano

an explorer famous for searching for the Northwest Passage and for exploring much of the Atlantic coast of North America

vertex

the point where rays intersect

Lesson Glossary

Eli Whitney

an American inventor best known for inventing the cotton gin

Ephraim Williams

a colonel in the Massachusetts militia who died in the Battle of Lake George and may have been the inspiration for the song “Yankee Doodle”

“Yankee Doodle”

a song that was sung by American soldiers during the Revolutionary War as they marched against British troops