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ABSTRACT

This document contains the facilitator's guide for three of 12 professional development modules under development by the Applying Technology to Restructuring and Learning project. The modules are designed for professional developers and teachers interested in creating technology-assisted constructivist learning environments in K-12 classrooms. Multiple activity centers with rotating roles and assignments is the strategy modeled in the first module, "Active Learning Environments." With minimum guidance and sharing of resources/equipment, participants are expected to carry out various tasks. The facilitator assumes the role of "guide on the side" instead of the key deliverer of knowledge. In the second module, "Using Electronic Presentations in the Classroom," the facilitator assumes a more directive role in the early part of the session. Later the facilitator shifts roles as participants assume responsibility for their own learning and are expected to collaborate within/across teams and to use problem-solving skills for developing a final presentation. In the third module, "Applications for Learning: Contrasting Instructional," the facilitator assumes a central role by guiding participants through a series of increasingly complex problems using two different software applications. At the end of the activity, participants are asked to analyze, discuss, and compare the software applications, the problems they presented, and how they could be used in a classroom situation. (AEF)

Applying Technology to Restructuring and Learning

Professional Development Modules 1-3

Contents:

Technology Assistance Program
Southwest Educational Development Laboratory

April 15, 1999

Applying Technology to Restructuring and Learning
Professional Development Modules 1 - 3

Description:
This document contains the facilitator's guide for three of twelve professional development modules under development by the Applying Technology to Restructuring and Learning project (Goal 5). The *Introduction* to the document explains the context of the modules in greater detail.

Intended Audience:
The primary audience for this facilitator's guide is a professional development provider who is interested in conducting staff development for creating constructivist learning environments supported by technology in K-12 classrooms. The secondary audience is a teacher who wants to learn how to create constructivist learning environments supported by technology and who would attend the staff development sessions described within these modules.

Purpose:
The purpose of the entire professional development portfolio, of which these modules are a part, is to provide a series of experiences for classroom teachers that will increase teachers knowledge about:

- constructivist learning theory;
- inquiry, project-based teaching and learning;
- types and uses of commonly available software to support a constructivist learning environment;
- analyzing existing lesson plans with an eye toward constructivist learning environments; and,
- creating and managing technology-enhanced learning environments that reflect constructivist theory.

Intended Audience Outcome:
The primary outcome of this document is that a professional development provider can use this facilitator guide and these materials to replicate the three modules described here. The secondary outcome is that teachers who participate in these professional development sessions can learn about creating constructivist learning environments in the following ways:

> **Module 1** - *Active Learning Environments* - suggests one way to use a limited number of computers as part of a meaningful and active learning experience. By participating in a student-centered learning environment supported by technology as learners instead of teachers,

participants can experience and later reflect upon the elements of this collaborative, hands-on learning environment.

Module 2 - *Creating Electronic Presentations in the Classroom* - suggests a different model for using a limited number of computers in a classroom. With a combination teacher-led and independent activity, participants are given the opportunity to use materials and data from Module 1 to learn a specific technology application.

Module 3 - *Applications for Learning: Contrasting Instructional Software* - presents a problem solving activity and is the framework for comparing two different types of software. Thee two software examples contrast two learning strategies: responding to a series of short-answer questions, or discovery through the solution of sequenced problems.

Contract Reference

An ongoing activity of Goal 5 has been development and field testing of professional development activities in support of the creation of Constructivist Learning Environments supported by technology. (Goal 5, Revised Year Three Plan of Work. Activity 4). The attached modules are designed for use as an introduction to these topics for site school administrators and teachers. They also provide a basis for some of the awareness-level presentations at state and national conferences presented during year 3 and projected for presentation in year 4 (Activity 5).

Dissemination Strategy

This facilitator guide and materials, as well as future facilitator guides for other modules will be reproduced and disseminated to project co-developers at scale-up sites. These co-developers will use these materials in their role as facilitator to provide staff development for teachers at their sites.

Applying Technology to Restructuring and Learning

Professional Development Modules 1-3

Contents:

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Southwest Educational Development Laboratory

April 15, 1999

Introduction

The Technology Assistance Program's (TAP) professional development modules have been designed to carry out the goals and objectives described in the *Applying Technology to Restructuring and Learning* (ATRL) project and to accomplish the following:

- identify classroom characteristics of constructivist learning environments supported by technology by using an information mapping software application (Inspiration);
- enhance electronic and print-based communication through the use of word processing and multimedia presentations;
- support non-linear thinking and problem solving through the use of hypermedia;
- widen the circle of social interaction with computer mediated communication;
- explore instructional possibilities using the Internet (e.g., collaborative projects, original research, student publishing);
- analyze real data to solve authentic problems with spreadsheets;
- and construct a storehouse of information using databases.

The professional development modules are designed for a facilitator who wants to enhance the creation and implementation of technology-assisted constructivist learning environments and to increase teachers' knowledge about the following:

- constructivist learning theory;
- teachers' understanding and beliefs about how students learn;
- inquiry, project-based teaching and learning;
- types and uses of commonly available software to support a constructivist learning environment;
- how to analyze existing lesson plans with an eye toward constructivist learning environments; and
- how to create and manage technology-enhanced learning environments that reflect constructivist theory.

The modules were collaboratively designed, developed, pilot tested, and field tested in classrooms by the TAP professional staff and other professionals in the

field. The TAP developers understand that instructional environments will vary from situation to situation and have attempted to make allowances for flexibility in those variances.

While the staff development goals may vary across sites, the modules themselves may vary according depending on the specific application software available at the sites. By building staff development sessions around available resources and the application software most often found in classroom settings, TAP increases the likelihood of application of the staff development portfolio by other teachers.

One of the goals in developing this set of professional development modules was to create and model various instructional and classroom management strategies based on constructivist learning theory concepts. This provides the opportunity for participants to have first hand experience working within these various environments. Through reflection activities at the end of each module, participants can judge how the different instructional and classroom management strategies can be applied to their classroom setting.

Overview of modules included in this sample facilitator guide

Multiple activity centers with rotating roles and assignments is the strategy that is modeled in the first module, *Active Learning Environments*. With minimum guidance and sharing of resources and equipment, participants are expected to carry out the various tasks at hand. The facilitator assumes the role of "guide on the side" instead of the key deliverer of knowledge.

In the second module, *Using Electronic Presentations in the Classroom*, the facilitator assumes a more directive role in the early part of the session. Later in the session, the facilitator shifts roles as participants assume responsibility for their own learning and are expected to collaborate within their teams, and across teams, and to use their problem solving skills for developing a final presentation.

In the third module, *Applications for Learning*, the facilitator assumes a central role by guiding the participants through a series of increasingly complex problems using two different software applications. At the end of the activity, participants are asked to analyze, discuss, and compare the two different software applications, the problems they presented, and how they could be used in a classroom situation.

The table below summarizes the instructional strategies of the three modules:

Module 1 - Active Learning Environments	Module 2 - Using Electronic Presentations in the Classroom	Module 3 - Applications for Learning
• Minimum direct instruction	• A mix of direct instruction and guided instruction	• Facilitator led instruction
• Small group exploration on different things	• Small group exploration on the same thing	• Whole group working on same problem at same time
• Data and information gathering	• Product development	• Problem solving
• Learning stations - limited computers	• Multiple computers or computer lab setting	• Multiple computers or computer lab setting
• Small groups working together	• Small groups working together	• Pairs working together
• Community theme	• Community theme	• Software specific

How to use this facilitator guide

This facilitator guide is designed for a facilitator who comes to this module with no prior knowledge of its implementation. However, it is assumed that the facilitator has some expertise in providing professional development and in the use of technology in a classroom setting. The facilitator guide includes the following sections and items:

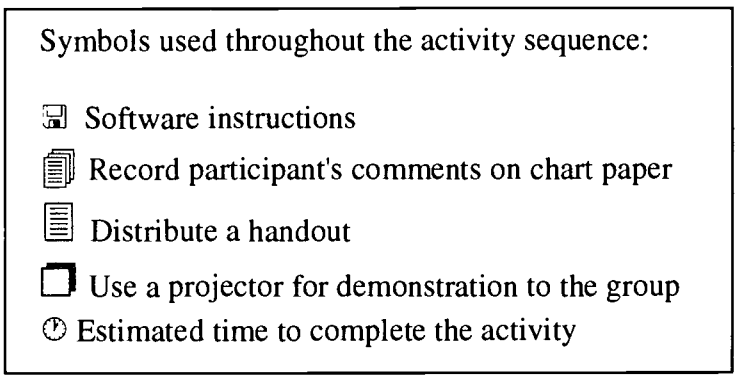
- The **Introduction** describes the overall context for the module and how it fits within the sequence of the other modules. Also included in this section is the rationale for the instructional design and the classroom management strategy being modeled, a general summary of the activity, expected outcomes, and constructivist principles modeled within the various activities of the module.

- The **Module Organizer** provides the specifics of the module such as time, material, equipment requirements, and the details for facilitator preparation.

- The **Activity Sequence** is the actual guide for implementing the module. The activity sequence includes scripted segments, which are italicized, to offer possible dialogue for the beginning facilitator. It is anticipated that every individual using these modules will adapt this dialogue for his/her own use. Color-coded handouts, instructions, and supporting software are also included. While the modules may refer to specific software, it is expected that facilitators will adapt the activity to fit with available software at the site school. The facilitator should examine the activity sequence, handouts and

software together to get a clear understanding of the module's instructional intent.

The following symbol map provides visual cues so that the facilitator knows when to use various handouts or perform various tasks throughout the module. This organizer is included in each module.



- **Materials and Handouts** for each module are included at the back of the module under a section called Materials and Handouts. The facilitator can use these pages for making handouts for the participants.

Note: For this sample facilitator guide, we have included a ZIP disk that contains all Mac software to be used with modules #1 & #3. For future distribution, these files will be delivered on CD-ROM.

Active Learning Environments

Module 1

Introduction

Module 1 is the first in a series of modules and while it is designed to be an introductory activity followed by other modules, it can be successfully presented by itself. This module suggests one way to use a limited number of computers as part of a meaningful and active learning experience.

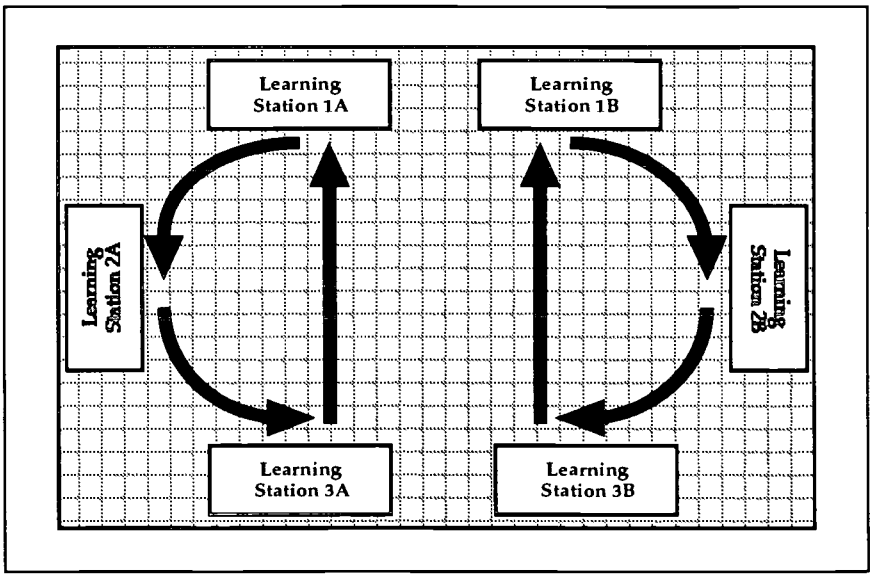
In the activity, small groups of participants spend 30 minutes in three different learning stations to plan exhibits for a community museum. Their assignment requires the use of a variety of resources that they find or create. Each of the learning stations represents a different instructional concept.

Upon completing visits to all learning stations, participants remain at the last station to reflect on the session's activities, thinking how this instructional model might be used in their classrooms.

The themes for the stations are:

Learning Station 1:What Does Our Community Look Like? Groups use a digital camera to take pictures of some aspect of their community.

Learning Station 2: How Did Our Community Come To Be? This station uses print resources and participant's prior knowledge for exploration into the history and culture of the community. Use of a computer is optional.



Suggested rotation of groups from one learning station to the next.

Learning Station 3: Who Are We? This station uses the computer to retrieve the community's census data from the Internet. Participants will use those data to construct an electronic spreadsheet chart and graph that reflects the community's population profile. (If an Internet connection is not available, hard copies of this information can be produced in advance and included in this workstation's information folder.)

Content Theme

"Discovering Our Community"

Expected Outcomes

This module serves as an introduction to a technology-assisted constructivist learning environment. By participating in a student-centered learning environment supported by technology as learners instead of teachers, participants can experience and later reflect upon the elements of this collaborative, hands-on learning environment.

In addition, this module offers a classroom management technique for non-laboratory settings. By experiencing the one- or two-computer classroom, participants can adapt this management technique to their own classroom.

Module 2, *Electronic Presentations in the Classroom* can be used as a summary activity where participants create an electronic presentation using the material they gather in this session's activities.

Constructivist Principles Modeled in this Activity

- **Learners bring unique prior knowledge, experience, and beliefs to a learning situation.**
  Throughout the activity, participants construct knowledge about an area that holds real meaning and familiarity — their community.

- **Knowledge is constructed in multiple ways, through a variety of authentic tools, resources, experiences, and contexts.**
  Participants create a schema for three very distinct museum exhibits—a visual display, a statistical exhibit, and a text-based presentation. Each is contextually based (the community museum) and is constructed with authentic tools and resources and draws upon the participants' own experiences as community members.

- **Social interaction introduces multiple perspectives through reflection, collaboration, negotiation, and shared meaning.**
  By working in collaborative groups, participants collaborate and negotiate on the development of their exhibits and share their reflections.

- **Learning is both an active and reflective process.**
  Participants *do* the activities and discuss and reflect upon the activities as both learners and teachers.

Module Organizer

Purpose:

- Model a learning environment in which the teacher is a facilitator and participants are engaged in self-directed activities.
- Demonstrate management of a hands-on, collaborative learning environment in which several activities, some supplemented with technology, are offered simultaneously.

Participants:

- Teachers, grades K–12.
- For groups of up to 25 or more participants with 2 facilitators. (This activity was successfully carried out with 50+ participants)

Prerequisite Participant Skills:

- Basic keyboarding skills: typing a URL, entering data, executing commands.
- File operations: opening and closing an application, saving to a diskette, and printing a file.

Time Needed:

- 2.5 hours; 30 minutes for activity introduction, 1 1/2 hours for body of the activity, and 30 minutes for reflections and whole group discussion.

Grouping Strategy:

- Consider the three-workstation model as one "classroom." If you have 12 participants, assign 3 groups of 4 each. If you have more participants, you can either increase the number of "classrooms," or assign more participants to each group. However, a group size of 3-4 members is ideal because it allows for more active participation from each member.

Equipment:

This is a total list for Module 1, which is spread out across 6 learning stations (two "classrooms" for approximately 24 participants). Refer to Materials and Handouts for the individual requirements for each station.

- 2 computers with Internet connections (depending on hardware availability).
- 2 computers with spreadsheet software such as Microsoft EXCEL.
- 2 digital cameras. SONY Mavica was used for this activity. It is a popular camera because it is easy to use and requires minimal technology skills to retrieve the images from the camera. You may use any digital camera that you choose. Familiarize yourself with

operating the camera and the process for retrieving images from the camera.
- Projection device such as a LCD projector or a computer-video adapter.

Materials:

- One colored folder for each workstation for keeping all of the materials and instructions for that workstation.
- Packets of local resources obtained from the local chamber of commerce - enough for two work stations.
- 6 blank 3 1/4" diskettes - one for each group - for data and digital camera images.
- Workstation instructions and group role cards for each table are included in Materials and Handouts.
- A spreadsheet template document (one for each participant).
- Optional - 3 1/2" disks containing links to local web sites (the facilitator must develop this if it will be used).

Facilitator Preparation:

- Open the spreadsheet file **population.xls** on enclosed ZIP disk. You may want to enter some dummy data to make sure the table and chart function properly.
- Practice the module exercises to become proficient with the digital cameras, the US census site on the Internet, and the spreadsheet application provided on the disk. Refer to Materials and Handouts for specific instructions for each learning center.
- Research and gather local resources from such sources as the Chamber of Commerce, local library, newspaper, museums, or history center. Examples of local resources may include brochures, booklets, flyers, and other promotional materials about the community. If possible, ask the participants to bring resources containing information about their community.
- Make copies of Learning Station handouts and individual handouts, depending upon the activity. Copy all of the handouts for a Learning Station the same color - for easy management.
- If possible, assign participants to groups before the staff development day. You may select any method that you think appropriate based on their interests, teaching specialty or computer skills. We recommend that you avoid combining technology low skilled participants with technology high skilled participants. Low skilled with medium skilled is a good combination. Also, medium skilled with high skilled is a good combination. Assign each group a color, then put a dot of the corresponding color on each person's name tag.

Room Preparation:

- Place the handouts and directions that accompany each learning station in a folder at the station. Color-coded sheets and folders are helpful to keep the materials organized.
- Station 1: - Prepare digital cameras.
- Station 2: - If you are using a computer at this station, open the file or browser page with local resources.
- Station 3: - Check on Internet connection. Open browser to census home page. (http://www.census.gov). If you are not using the Internet , make hard copies of that material for the station.
- Station 3: - Load the spreadsheet software and template for recording data.
- Prepare a resource table that contains local resources (brochures, etc.) and writing supplies (rulers, colored pencils, paper, etc.).
- Create a chart that illustrates how groups will rotate through the learning stations. This chart can be displayed in the form of a handout for each group or on the wall. This chard is very helpful for managing larger groups. (See Materials and Handouts for an example of this chart.)

Follow Up Activities:

- Module 2, *Electronic Presentations in the Classroom* can be used as a summary activity where participants create an electronic presentation using the material they gather in this session's activities.

Activity Sequence

I. Introduction — 10 minutes

Symbols used throughout this activity sequence:

- Software instructions
- Record participant's comments on chart paper
- Distribute a handout
- Use a projector for demonstration to the group
- Estimated time to complete the activity

The facilitator introduces Module 1 with a question:

> *Have you ever thought about what makes your community special? What can citizens of this community be proud of? What does your community have to offer others?*

Allow the participants time to think a few minutes and offer several opinions. If necessary the facilitator can prompt ideas by asking for examples in history, commerce, recreation, or other areas. The facilitator then develops the scenario:

> *Economic development is a high priority for any community because it is important to preserve our community as an economically viable place to live. With this objective in mind, the City Council has proposed the idea of creating a Community Museum that will showcase the attributes of our community. The museum is envisioned as a tourist draw that will be the first step in attracting new businesses to the area.*
>
> *Because of your familiarity with and contributions to the community, the City Council has chosen you to create an overview of possible exhibits for this museum. What would you say or show about your community?*
>
> *Our goal this morning is to gather ideas and make plans for exhibits for a community museum. You will be working in a small group to develop a thematic presentation about your community. You will use a variety of resources, some with technology, some not. When you finish, we will share ideas and think about how you might recreate these activities in your classrooms.*
>
> *Later, you will use this data and material to create an electronic presentation that will be viewed by the City Council.*

II. Setting Up the Activity — 20 minutes

The facilitator explains the group codes on the participants' name tags. These groups were determined previous to the beginning of the activity (see the Appendix - Group Rotation Charts).

The facilitator then explains the three learning stations and the activities related to each. Although there are six stations in the room, each set of three represents one "classroom. " This enables everyone to work in smaller groups.

- **Station 1: Walkthrough** asks the question "What does our community look like?" Participants will use a digital camera to photograph something that they think represents their community. Depending on the local situation, the participants may need to stay near the building or they may want to go to a particular site and take pictures. Emphasize the 30-minute limit on their time for this station.

- **Station 2: Culture and History** asks the question "How did this community come to be the way it is today? What was the origin of the people who live here today? Why did they come here? What influences and contributions have they made to our community? What could you say about our community in terms of its history and culture that makes it unique and important?" Participants share their knowledge of the community and can use print resources provided to describe their region's history and culture. They may also use a computer at this station to access a variety of web sites for information. Computer use is optional for this station.

- **Station 3: Community Profile** asks the question "Who are the people who live in this community ... and how many are there? What is their ethnicity? What are their ages? What other information can we find that tells more about the people who live in our community? How has this data changed over the years? Have these changes been important? How have the changes affected our community?" Participants will use a free government data resource to obtain demographic information about their community. This is from the US census bureau either on the Internet or from hard copies of information prepared in advance. Participants will be asked to record their data on an EXCEL spreadsheet.

The groups will have 30 minutes to work in each station, after which they will rotate to the next station. Group roles are suggested for working through the learning station activities.

> *At your first station, please pass around the group role cards, each member read their directions aloud and follow the directions on the card. The roles are similar to the roles your students may use if they work in cooperative groups. Some things to remember:*
> 1. *Switch roles as you rotate stations. There are slightly different roles at each station.*
> 2. *If you are using a computer, take turns with the keyboard and mouse.*
> 3. *Keep track of the time, but I will also inform you when to rotate.*

The facilitator leads a brief brainstorming activity before the learning stations work begins. Use **Handout #1 - Brainstorming Chart** - to guide this discussion.

> *Before we separate into our small groups, let's discuss what makes our community unique. What would you like to see in a museum of this community? I'm new to this community – what should I know about it? What would you like to show me?*
> *This chart has options for listing historic buildings people, geography, etc. Could you give me an example for a few of these options?*

The participants will respond with several suggestions from their town.

While the participants will probably find it easy to identify local landmarks, they may not quickly generate a project theme. The facilitator might provide such examples as "The Old and the New" or "Water in Our Lives" which are themes used by other teachers who have worked on this activity.

> *As you work with your group, try to think of what you want to focus on as a way of viewing your community. Can you think of a theme that might describe your community?*

III. Rotation to Learning Stations **90 minutes**
(30 minutes at each station)

As groups rotate among the learning stations, the facilitator should move about the groups to offer assistance as needed. Each of the learning stations are designed to be self-explanatory. Though some specific instruction and coaching may be necessary, the facilitator should let the participants work through the station tasks on their own, if possible, solving as many of the questions and problems as they are able.

IV. Summary - Reflection Activity **30 minutes**

Handout #2 - Summary - Reflection Activity
After finishing the 3 stations, participants remain at the last station to reflect on the morning's activities. Groups should record their discussion on chart paper. The small groups will discuss the questions outlined on **Handout #2** for 15 minutes. Once they have recorded their comments, have them post their chart paper on the wall. After the small group discussion, have the whole group come back together to share their perceptions of the activity and how they could use such an activity in their classroom. Have each group share their comments, using their comments from their posted chart paper.

Materials and Handouts

Handouts

Learning Station Materials

Brainstorming Chart
Handout 1

Use this chart to record features about your community. Describe a feature, some history, its importance and contribution to the community.

Architecture: Schools, historic buildings, churches, homes, landmarks	
Geography: Mountains, desserts, rivers, lakes, prairies, forests	
Businesses and/ or commercial: Privately owned, publicly owned	
Public places: Parks, libraries, museums, hospitals, points of interest	
People: Historic figures, local celebrities, influential people, members of your family.	
Cultural influences: Food, dance, music, traditions, stories	

Summary Reflection Activity

Handout 2

Read and discuss the following questions. Record your group's responses on chart paper.

1. Consider your current station in terms of the technology, the content, and the nature of the activity.

   - How would you use this activity station in your classroom with your students?
   - What would you change for your students and your classroom?
   - How would you extend this activity to other curricular areas or as a unit?

2. What particular station has the most value or appeal for you and your classroom? Why?

3. Reflect on the "whole activity" that is, using a computer workstation in a collaborative activity - with multiple activities taking place at the same time.

   - How can you use this in your classroom?
   - What were some of the strengths?
   - What were some of the weaknesses?

Group Rotation Charts

A version of this chart could be prepared on chart paper to show groups how to rotate during the Active Learning Environments. Each group of 3-4 participants needs a distinct symbol to identify themselves as a group. These can be colored dots or stickers on their name tags, a piece of paper, playing cards – whatever.

Version One

Participants Symbols	Learning Station
First 30 minutes	
Symbol 1	Culture and History I
Symbol 2	Culture and History II
Symbol 3	Community Profile/Census I
Symbol 4	Community Profile/Census II
Symbol 5	Walkthrough/Camera I
Symbol 6	Walkthrough/Camera II

Second 30 minutes	
Symbol 1	Community Profile/Census I
Symbol 2	Community Profile/Census II
Symbol 3	Walkthrough/Camera I
Symbol 4	Walkthrough/Camera II
Symbol 5	Culture and History I
Symbol 6	Culture and History II

Last 30 minutes	
Symbol 1	Walkthrough/Camera I
Symbol 2	Walkthrough/Camera II
Symbol 3	Culture and History I
Symbol 4	Culture and History II
Symbol 5	Community Profile/Census I
Symbol 6	Community Profile/Census II

Version Two

Group One

Participant Symbols	Learning Stations
First 30 minutes Symbol 1 Symbol 2 Symbol 3	Culture and History Community Profile/Census Walkthrough/Camera

Participant Symbols	Learning Stations
Second 30 minutes Symbol 1 Symbol 2 Symbol 3	Community Profile/Census Walkthrough/Camera Culture and History

Participant Symbols	Learning Stations
Last 30 minutes Symbol 1 Symbol 2 Symbol 3	Walkthrough/Camera Culture and History Community Profile/Census

Group Two

Participant Symbols	Learning Stations
First 30 minutes Symbol 1 Symbol 2 Symbol 3	Culture and History Community Profile/Census Walkthrough/Camera

Participant Symbols	Learning Stations
Second 30 minutes Symbol 1 Symbol 2 Symbol 3	Community Profile/Census Walkthrough/Camera Culture and History

Participant Symbols	Learning Stations
Last 30 minutes Symbol 1 Symbol 2 Symbol 3	Walkthrough/Camera Culture and History Community Profile/Census

Directions for Learning Station #1
What Does Our Community Look Like? - A Visual Walkthrough

Objectives:
Photograph natural and man-made features of your community. These photographs will be compiled for use in the exhibits in the community museum.

Materials:
- 2 digital cameras (one for each learning station)
- Note pad, pencil, 2 blank floppy diskettes
- 2 folders containing activity directions and group roles

Overview: What does your community look like? What is physically unique about your community? The answers are in terms of physical space — architecture, plants, streets, even people. The photos you take will form part of an exhibit in your community museum.

Directions:
- Take a walk in the area into the community or around the school.
- Using the digital camera, photograph anything you feel is distinctive, attractive, or interesting about the community, or that provides clues to its history or culture.
- Take as many photos as you wish, but be prepared to select the best **five**.
- Switch roles so that each group member gets a chance to use the digital camera.
- Your photos will be compiled as an exhibit in your museum.

Facilitator:
- Read directions aloud to the group.
- Encourage all group members to participate.
- Encourage all members to remain on task

Time Keeper:
- Note the starting and ending times.
- Keep the group informed of time.
- Alert the group 5 minutes before the end of the activity.

Note: Participants MUST return the camera within 30 minutes.

Recorder:
- Coordinate ideas for the museum exhibit.
- Record the subject, location, and time of pictures taken as well as the name of the photographer.

Materials Manager:
- Inform your group of resources on the table.
- Gather materials as needed.
- Return and organize materials on the resource table for the next group.

Directions for Learning Station #2

How Did Our Community Come to Be? Culture and History

Objectives:
Gather and share information about the culture and history of your community and develop ideas for your exhibit.

Materials:
- Local print resources and supplies
- Print outs of community WWW resources. (Optional: 2 Internet-connected computers with community WWW resources available on one web page)
- 2 folders containing activity directions and group roles

Directions:
- Share knowledge and ideas about your community with your group. Discuss the question, "How did our community come to be?"
- Browse through and read available print and/or Internet resources. Where could you go to get additional resources?
- Take notes on information that you think would be useful in planning an exhibit for the community museum. You may want to use handout #1 to organize your ideas.
- Describe a product for a museum exhibit. If time allows, you could begin creating that product. Some examples include a timeline listing important dates in the community, or a poster advertising something of significance to the community.

Facilitator:
- Read directions aloud to the group.
- Encourage all group members to participate.
- Encourage all members to remain on task.

Recorder:
- Coordinate ideas for the museum exhibit.
- Record the names of all the group members on any group products.

Time Keeper:
- Note the starting and ending times.
- Check time often and inform the group.
- Alert the group 5 minutes before the end of the activity.

Materials Manager:
- Inform your group of resources on the resource table.
- Gather materials as needed.
- Return and organize materials on the resource table for the next group.

Directions for Learning Station #3
Who Are We? A Community Profile

Objectives: In addition to paintings, photographs, and artifacts, many museums present written and statistical information in their exhibits. Use population data gathered from the U.S. census web site, to showcase the diversity of your community's residents. Use the "US Census Bureau the Official Statistics" material on the following page. Once you have found the relevant data about your community, present these data in a graph on an electronic spreadsheet.

Equipment:

- 2 Internet-connected computers with the browser open to www.census.gov. If no Internet connection, use print outs of census data found in this learning station folder.
- Spreadsheet software such as EXCEL or LOTUS.

Materials:

- Activity directions and group roles
- Diskette with spreadsheet template
- Note pad and pencil
- Paper copy of spreadsheet
- 1 set of print outs of community census data

Facilitator:

- Read directions from the "US Census Bureau - The Official Statistics" aloud to the group.
- Encourage all group members to participate.
- Encourage all group members to remain on the topic.

Computer Manager:

- Assure that each group member has equal time on the computer.
- Remind group members to save important information.

Time Keeper:

- Note time that the group begins an activity and what time they should end.
- Check time periodically.
- Give the group a five-minute warning so you all can begin wrapping up the activity.

Recorder:

- Record census information in your note pad.
- For future reference, make note of interesting or important information beyond the scope of this activity.

U.S. Census Bureau - The Official Statistics

Overview of the Census

The first census (from the Latin word "count") was undertaken in 1790 in order to count the population of the United States. Since then a census of the U.S. population has occurred every 10 years. The census has changed over time. The current U.S. Census measures population, income and housing characteristics.

There are two census forms available on-line:

- a short form (the STF1-A) which is sent to most households
- a long form (STF3-A), which is really a sample and sent to selected, sample households

STF is the acronym for "Standard Tape Files".

For this activity you will use information compiled in the long form (STF-3A).

Census Limitations

The census is our most comprehensive source of population data in the United States. Yet the Census Bureau has been criticized repeatedly over the years for the structure of the census form, for its categories and for the way it gathers data. You will probably notice lots of missing ethnic groups (especially more common groups, like Mexicans) and languages spoken in your community. Remember this data was gathered in 1989. It's almost 10 years old!

You'll also notice that Hispanics are not a race and are broken out as either **Hispanic** or **Other**. This can be very confusing, and many people find this insulting. Despite its obvious weaknesses, however, the census is a rich example of raw and real-world data and can be a wonderful resource. Please ask for help if you have any questions about using the census for this activity.

Gathering Census Data

Your station computer will be open to the census web site **(http://www.census.gov/)**

- Click **Search**.
- Click on **Place Search**.
- Enter the name of your community and its two-letter state code in the appropriately labeled boxes. Note: Do not enter the zip code; this will limit the results to a subset of larger communities, or will include surrounding areas of smaller communities.
- Click **Search**.
- Click on the **STF3A** Link.
- Once you get into the census form, click on Table **P8** (Race).
- Then click **Submit** (always at the top of the page). For your data retrieval option, choose **HTML**.

What Do I Do After I've Gathered the Data?

Once you've gathered your census data, the recorder should jot down the totals for each racial category (e.g. White, 3751) on Handout 3 (chart with racial categories).

- Quit the browser. (File—>Quit)
- On your floppy disk, you'll find a file labeled **population.xls** (If not, you may find the same file name with the extension **.cws** or **.wk1**.).
- Double click the icon to open the file and then enter the population number for each racial group that you recorded on your worksheet. (Note: You can move to the next line by pressing *Return* or the *down arrow*.) Once you have entered the population data, the spreadsheet will create a graph.

What kind of graph is most appropriate for these data? Which will help you compare the relative populations? Which will most clearly communicate your observations? Which type of chart is most understandable for visitors to your museum exhibit?

What Have We Learned?

- What do you know now about your community that you did not know before?
- How does the racial and ethnic diversity of your community compare with that of other communities that you know?
- Why and how do you think some of these groups arrived in this area? How is their influence felt in the community now? What other questions can you think of to ask?

Census Terms

Aggregate: Total

Ancestry: The census allows you to declare more than one ancestry. *Single ancestry* is obvious. Your ancestors were all Irish, Haitian, etc. For the majority of Americans who have ancestors from different parts of the globe, *first ancestry* is the ancestry that predominates. So, for example, if three grandparents were French and one Italian, your first ancestry would be French. Your *second ancestry* would be Italian.

Group Quarters: Nursing homes, boarding houses, prisons, etc. Any residence where unrelated persons live together.

Imputation: This is the Census Bureau's way of telling us that they derived this number. They couldn't get the exact number, so they arrived at it through a mathematical formula.

Linguistic Isolation: The census term for being able to speak only one language. It usually refers to languages other than English.

Median: The middle number in a series containing an odd number of items (e.g. In the series 1, 4, 7, 16, 43, the median number is 7). This gives you the simplest breakdown of the ranges of numbers.

Quartile: The census takes some data and divides the total into four groups of equal occurrences to look at the total distribution of the data.

Substituted: The census can't count everyone, so they guess at the number of people they miss and try to quantify this group. These *missing persons* are substitutions.

Tenure: Home ownership.

Universe: The specific population sampled. For example, if you were "surveying" students to see where they wanted to go for a class trip, your universe would be *students*. In the census, *persons* would be all people. *Households* would be all households.

Census Data Recording Worksheet

Record the population number for each racial category below:	
Racial Group	**Number of Persons**
White	
Black	
American Indian, Eskimo, or Aleut	
Asian or Pacific Islander	
Other race	

Subjects A to Z

A B C D E F G H
I J L M N O P Q
R S T U V W Y Z

Search

Product Catalog

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Your Source for Social, Demographic, and Economic Information

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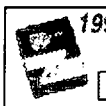
News — Releases · Minority Links · New on site · Contacts · More

Special Topics — Conversations with America · FedStats · American Community Survey



1998 Statistical Abstract

Click here!

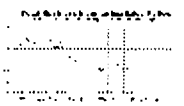
U.S. Population
272,297,072
10:34 EDT Apr 15, 1999
Updated every 5 minutes

More Population Clocks

Select a State

Get State Profile!

Latest Economic Indicators



Inventories/Sales

A hardcopy from US Census Bureau website

http://www.census.gov/

This is a sample of what you can print in case you don't have a live connection to the Internet during the activity

U.S. Census Bureau

Search the Census Bureau

This is a quick search that returns top level subject matter pages.... for a detailed search of all documents, use the **Word Search** below.

Enter words or phrases, separated by commas (Search Tips)

Search Clear

◉ **Search titles and keywords**: Select this option to search through the titles, descriptions, and lists of predetermined keywords for each top-level subject page. (recommended).

○ **Full-text search**: Select this option to search through the entire content of each top-level subject page. This option will yield many results with decreasing relevancy.

More Search Options

Word Search	Search the Census Bureau's continuously expanding library of on-line documents and files by supplying the word or words you would like to find.
Place Search	Search for information for local areas by place names, zip codes, etc. (Gazetteer)
Map Search	Search for information geographically by pointing and clicking on your areas of interest. (formerly DataMap)
Staff Search	Search for Census Bureau employee phone numbers and E-Mail addresses. (Census Staff Searcher)

U.S. Census Bureau

U.S. Gazetteer

This gazetteer is used to identify places to view with the Tiger Map Server and obtain census data from the 1990 Census Lookup server. You can search for places, counties or MCDs by entering the name and state abbreviation (optional), or 5-digit zip code.

Search for a Place in the US

Name: [ ] State (optional): [ ]
or a 5-digit zip code: [ ]

Search

*Note: This dataset is derived from the Census GICS and does not contain unincorporated place names.
For other geographic entities, try searching the *USGS Geographic Names Information System* .
The US Gazetteer Place and Zipcode files used in this service are available for downloading.
And here is an example of how to interface to the gazetteer from your own web page.

For additional information, comments and suggestions, see the Feedback page.

U.S. Census Bureau

U.S. Gazetteer

Select one of the following matches to your query to look at that place in the Tiger Map Browser or retrieve 1990 Census tables.

This is a searchable index. Enter search keywords:

- **Anthony Division, NM** (county subdivision)
  Population (1990): 17574
  Location: 32.08169 N, 106.57475 W
  Zip Code(s): 88001 88005 88021 88048
  Browse Tiger Map of area.
  Lookup 1990 Census STF1A, STF3A tables.
- **Anthony, NM** (cdp)
  Population (1990): 5160
  Location: 32.00541 N, 106.59563 W
  Zip Code(s): 88021
  Browse Tiger Map of area.
  Lookup 1990 Census STF1A, STF3A tables.

*Note: This dataset is derived from the Census GICS and does not contain unincorporated place names.
For other geographic entities, try searching the *USGS Geographic Names Information System* .
The US Gazetteer Place and Zipcode files used in this service is available for downloading.

For additional information, comments and suggestions, see the Feedback page.

(URL reload)

Select the tables you wish to retrieve:

Press Submit when done: Submit Reset

LIST OF TABLES (MATRICES)

Table (matrix)	Title	Total number of data cells
P1.	Persons(1) Universe: Persons	1
P2.	Families(1) Universe: Families	1
P3.	Households(1) Universe: Households	1
P4.	Urban and Rural(4) Universe: Persons	4
P5.	Sex(2) Universe: Persons	2
P6.	Race(5) Universe: Persons	5
P7.	Race(25) Universe: Persons	25
P8.	Persons of Hispanic Origin(1) Universe: Persons of Hispanic origin	1
P9.	Hispanic Origin(5) Universe: Persons	5
P10.	Hispanic Origin(2) by Race(5) Universe: Persons	10
P11.	Age(31) Universe: Persons	31
!! P12.	Race(5) by Sex(2) by Age(31) Universe: Persons	310
!! P13.	Sex(2) by Age(31) Universe: Persons of Hispanic origin	62
P14.	Sex(2) by Marital Status(5) Universe: Persons 15 years and over	10
P15.	Household Type and Relationship(13) Universe: Persons	13
P16.	Household Size and Household Type (10) Universe: Households	10
P17.	Persons in Families(1) Universe: Persons in families	1
P17A.	Persons per Family(1) Universe: Families	1
P18.	Age of Household Members(2) by Household Type(5) Universe: Households	10
P19.	Race of Householder(5) by Household Type(8) Universe: Households	40
P20.	Household Type(8) Universe: Households with householder of Hispanic origin	8
	Household Type and Relationship(9) Universe: Persons under 18 years	9

P22.	Relationship and Age(37) Universe: Persons under 18 years	37
P23.	Household Type and Relationship(12) Universe: Persons 65 years and over	12
P24.	Age of Household Members(2) by Household Size and Household Type(3) Universe: Households	6
P25.	Age of Household Members(2) by Household Size and Household Type(3) Universe: Households	6
P26.	Household Type(2) Universe: Households	2
P27.	Household Type and Household Size(13) Universe: Households	13
P28.	Group Quarters(10) Universe: Persons in group quarters	10
P29.	Persons Substituted(3) Universe: Persons	3
P30.	Imputation of Population Items(2) Universe: Persons not substituted	2
P31.	Imputation of Relationship(2) Universe: Persons not substituted	2
P32.	Imputation of Sex(2) Universe: Persons not substituted	2
P33.	Imputation of Age(2) Universe: Persons not substituted	2
P34.	Imputation of Race(2) Universe: Persons not substituted	2
P35.	Imputation of Hispanic Origin(2) Universe: Persons not substituted	2
P36.	Imputation of Marital Status(3) Universe: Persons 15 years and over	3
H1.	Housing Units(1) Universe: Housing units	1
H2.	Occupancy Status(2) Universe: Housing units	2
H3.	Tenure(2) Universe: Occupied housing units	2
H4.	Urban and Rural(4) Universe: Housing units	4
H5.	Vacancy Status(6) Universe: Vacant housing units	6
H6.	Boarded-up Status(2) Universe: Vacant housing units	2
H7.	Usual Home Elsewhere(2) Universe: Vacant housing units	2
H8.	Race of Householder(5) Universe: Occupied housing units	5
H9.	Tenure(2) by Race of Householder(5) Universe: Occupied housing units	10
H10.	Hispanic Origin of Householder(2) by Race of Householder(5) Universe: Occupied housing units	10
	Tenure(2) by Race of Householder(5) Universe: Occupied housing units with	10

householder of Hispanic origin

H12.	Tenure(2) by Age of Householder(7) Universe: Occupied housing units	14
H13.	Rooms(9) Universe: Housing units	9
H14.	Aggregate Rooms(1) Universe: Housing units	1
H15.	Aggregate Rooms(1) by Tenure(2) Universe: Occupied housing units	2
H16.	Aggregate Rooms(1) by Vacancy Status(6) Universe: Vacant housing units	6
H17.	Persons in Unit(7) Universe: Occupied housing units	7
H17A.	Persons per Occupied Housing Unit(1) Universe: Occupied housing units	1
H18.	Tenure(2) by Persons in Unit(7) Universe: Occupied housing units	14
H18A.	Persons per Occupied Housing Unit by Tenure(2) Universe: Occupied housing units	2
H19.	Aggregate Persons(1) Universe: Persons in occupied housing units	1
H20.	Aggregate Persons(1) by Tenure(2) Universe: Persons in occupied housing units	2
H21.	Persons per Room(5) Universe: Occupied housing units	5
H22.	Tenure(2) by Persons per Room(5) Universe: Occupied housing units	10
H23.	Value(20) Universe: Specified owner-occupied housing units	20
H23A.	Lower Value Quartile(1) Universe: Specified owner-occupied housing units	1
H23B.	Median Value(1) Universe: Specified owner-occupied housing units	1
H23C.	Upper Value Quartile(1) Universe: Specified owner-occupied housing units	1
H24.	Aggregate Value(1) Universe: Specified owner-occupied housing units	1
H25.	Race of Householder(5) Universe: Specified owner-occupied housing units	5
H26.	Aggregate Value(1) by Race of Householder(5) Universe: Specified owner-occupied housing units	5
H27.	Hispanic Origin of Householder(2) Universe: Specified owner-occupied housing units	2
H28.	Aggregate Value(1) by Hispanic Origin of Householder(2 Universe: Specified owner-occupied housing units	
H29.	Aggregate Value(1) by Units in Structure(6) Universe: Owner-occupied housing units	6
H30.	Vacancy Status(3) Universe: Vacant housing units	3
H31.	Aggregate Price Asked(1) Universe: Specified vacant-for-sale-only housing units	1
H32.	Contract Rent(17) Universe: Specified renter-occupied housing units	17
	Lower Contract Rent Quartile(1)	1

Universe: Specified renter-occupied housing units paying cash rent

H32B.	Median Contract Rent(1) Universe: Specified renter-occupied housing units paying cash rent	1
H32C.	Upper Contract Rent Quartile(1) Universe: Specified renter-occupied housing units paying cash rent	1
H33.	Aggregate Contract Rent(1) Universe: Specified renter-occupied housing units paying cash rent	1
H34.	Race of Householder(5) Universe: Specified renter-occupied housing units paying cash rent	5
H35.	Aggregate Contract Rent(1) by Race of Householder(5) Universe: Specified renter-occupied housing units paying cash rent	5
H36.	Hispanic Origin of Householder(2) Universe: Specified renter-occupied housing units paying cash rent	2
H37.	Aggregate Contract Rent(1) by Hispanic Origin of Householder(2) Universe: Specified renter-occupied housing units paying cash rent	2
H38.	Aggregate Rent Asked(1) Universe: Specified vacant-for-rent housing units	1
H39.	Age of Householder(2) by Meals Included in Rent(3) Universe: Specified renter-occupied housing units	6
H40.	Vacancy Status(3) by Duration of Vacancy(3) Universe: Vacant housing units	9
H41.	Units in Structure(10) Universe: Housing units	10
H42.	Units in Structure(10) Universe: Vacant housing units	10
H43.	Tenure(2) by Units in Structure(10) Universe: Occupied housing units	20
H44.	Aggregate Persons(1) by Tenure(2) by Units in Structure(10) Universe: Persons in occupied housing units	20
H45.	Housing Units Substituted(2) Universe: Housing units	2
H46.	Imputation of Housing Items(2) Universe: Housing units not substituted	2
H47.	Imputation of Vacancy Status(3) Universe: Vacant housing units	3
H48.	Imputation of Duration of Vacancy(3) Universe: Vacant housing units	3
H49.	Imputation of Units in Structure(2) Universe: Housing units not substituted	2
H50.	Imputation of Rooms(2) Universe: Housing units not substituted	2
H51.	Imputation of Tenure(3) Universe: Occupied housing units	3
H52.	Imputation of Value(3) Universe: Specified owner-occupied housing units	3
H53.	Imputation of Price Asked(3) Universe: Specified vacant-for-sale-only housing units	3
	Imputation of Contract Rent(4)	4

Universe: Specified renter-occupied housing units

H55. Imputation of Meals Included in Rent(4) 4
Universe: Specified renter-occupied housing units

(no URL reload available)

1990 US Census Data
Database: C90STF3A
Summary Level: State--County--County Subdivision

Anthony Division county: FIPS.STATE=35, FIPS.COUNTY90=013, FIPS.COUSUB90=90090

PERSONS
Universe: Persons
Total....17574
FAMILIES
Universe: Families
Total....4190
HOUSEHOLDS
Universe: Households
Total....4807
URBAN AND RURAL
Universe: Persons
Urban:
  Inside urbanized area....0
  Outside urbanized area....8122
Rural:
  Farm....237
  Nonfarm....9215
RACE
Universe: Persons
White....17011
Black....102
American Indian, Eskimo, or Aleut....50
Asian or Pacific Islander....8
Other race....403
PERSONS OF HISPANIC ORIGIN
Universe: Persons of Hispanic origin
Total....14019
HISPANIC ORIGIN
Universe: Persons
Not of Hispanic origin (000-001, 006-199)....3555
Hispanic origin (002-005, 200-999):
  Mexican (002, 210-220)....13731
  Puerto Rican (003, 261-270)....59
  Cuban (004, 271-274)....0
  Other Hispanic (005, 200-209, 221-260, 275-999):
    Dominican (Dominican Republic) (275-289)....0
    Central American (221-230):
      Guatemalan (222)....0
      Honduran (223)....0
      Nicaraguan (224)....0
      Panamanian (225)....0
      Salvadoran (226)....0
      Other Central American (221, 227-230)....0
    South American (231-249):
      Colombian (234)....0
      Ecuadorian (235)....0
      Peruvian (237)....0
      Other South American (231-233, 236, 238-249)....0
    Other Hispanic (005, 200-209, 250-260, 290-999)....229
RACE BY SEX BY AGE
Universe: White males
Under 1 year....214
1 and 2 years....364
3 and 4 years....361
5 years....208
6 years....170
7 to 9 years....674
10 and 11 years....347
12 and 13 years....371
14 years....238
15 years....200
16 years....190
17 years....165
18 years....136
19 years....138
20 years....158
21 years....116
22 to 24 years....294
25 to 29 years....739
30 to 34 years....564
35 [illegible]ears....606
40 [illegible]ears....512
45 [illegible]ears....306

50 to 54 years.....322
55 to 59 years.....346
60 and 61 years.....112
62 to 64 years.....111
65 to 69 years.....234
70 to 74 years.....124
75 to 79 years.....80
80 to 84 years.....21
85 years and over.....24

PERSONS IN HOUSEHOLD

Universe: Households

1 person.....515
2 persons.....988
3 persons.....859
4 persons.....996
5 persons.....814
6 persons.....332
7 or more persons.....303

FAMILY TYPE AND AGE OF CHILDREN

Universe: Own children under 18 years

In married-couple family:
  Under 3 years.....896
  3 and 4 years.....574
  5 years.....296
  6 to 11 years.....1749
  12 and 13 years.....564
  14 years.....299
  15 to 17 years.....746
In other family:
  Male householder, no wife present:
    Under 3 years.....62
    3 and 4 years.....45
    5 years.....14
    6 to 11 years.....56
    12 and 13 years.....47
    14 years.....0
    15 to 17 years.....48
  Female householder, no husband present:
    Under 3 years.....108
    3 and 4 years.....105
    5 years.....74
    6 to 11 years.....399
    12 and 13 years.....98
    14 years.....56
    15 to 17 years.....186

AGE BY LANGUAGE SPOKEN AT HOME AND ABILITY TO SPEAK ENGLISH

Universe: Persons 5 years and over

5 to 17 years:
  Speak only English.....1056
  Speak Spanish:
    Speak English "very well".....2808
    Speak English "well".....703
    Speak English "not well" or "not at all".....518
  Speak Asian or Pacific Island language:
    Speak English "very well".....0
    Speak English "well".....0
    Speak English "not well" or "not at all".....0
  Speak other language:
    Speak English "very well".....0
    Speak English "well".....27
    Speak English "not well" or "not at all".....0
18 to 64 years:
  Speak only English.....2446
  Speak Spanish:
    Speak English "very well".....4202
    Speak English "well".....738
    Speak English "not well" or "not at all".....2063
  Speak Asian or Pacific Island language:
    Speak English "very well".....0
    Speak English "well".....0
    Speak English "not well" or "not at all".....0
  Speak other language:
    Speak English "very well".....53
    Speak English "well".....6
    Speak English "not well" or "not at all".....0
65 years and over:
  Speak only English.....390
  Speak Spanish:
    Speak English "very well".....206
    Speak English "well".....92
    Speak English "not well" or "not at all".....265
  ian or Pacific Island language:
    English "very well".....0
    English "well".....0

Speak English "not well" or "not at all".....0
Speak other language:
Speak English "very well".....13
Speak English "well".....0
Speak English "not well" or "not at all".....0

AGE, LANGUAGE SPOKEN AT HOME, AND LINGUISTIC ISOLATION

Universe: Persons 5 years and over

Persons in households:
5 to 13 years:
Speak only English:
Linguistically isolated:
Spanish spoken in household.....30
Asian or Pacific Island language spoken in household.....0
Other language spoken in household.....0
Not linguistically isolated.....818
Speak Spanish:
Linguistically isolated.....626
Not linguistically isolated.....2103
Speak Asian or Pacific Island language:
Linguistically isolated.....0
Not linguistically isolated.....0
Speak other language:
Linguistically isolated.....0
Not linguistically isolated.....19
14 to 17 years:
Speak only English.....208
Speak Spanish:
Linguistically isolated.....195
Not linguistically isolated.....1105
Speak Asian or Pacific Island language:
Linguistically isolated.....0
Not linguistically isolated.....0
Speak other language:
Linguistically isolated.....0
Not linguistically isolated.....8
18 to 64 years:
Speak only English.....2446
Speak Spanish:
Linguistically isolated.....1356
Not linguistically isolated.....5647
Speak Asian or Pacific Island language:
Linguistically isolated.....0
Not linguistically isolated.....0
Speak other language:
Linguistically isolated.....0
Not linguistically isolated.....59
65 years and over:
Speak only English.....390
Speak Spanish:
Linguistically isolated.....218
Not linguistically isolated.....345
Speak Asian or Pacific Island language:
Linguistically isolated.....0
Not linguistically isolated.....0
Speak other language:
Linguistically isolated.....0
Not linguistically isolated.....13
Persons in group quarters.....0
Filler.....

LANGUAGE SPOKEN AT HOME

Universe: Persons 5 years and over

Speak only English.....3892
German (607, 613).....91
Yiddish (609).....0
Other West Germanic language (608, 610-612).....8
Scandinavian (614-618).....0
Greek (637).....0
Indic (662-678).....0
Italian (619).....0
French or French Creole (620-624).....0
Portuguese or Portuguese Creole (629-630).....0
Spanish or Spanish Creole (625, 627-628).....11595
Polish (645).....0
Russian (639).....0
South Slavic (647-652).....0
Other Slavic language (640-644, 646).....0
Other Indo-European language (601-606, 626, 631-636, 638, 653-661).....0
Arabic (777).....0
Tagalog (742).....0
Chinese (708-715).....0
Hungarian (682).....0
(723).....0
r (726).....0
724).....0

Native North American languages (800-955, 959-966, 977-982).....0
Vietnamese (728).....0
Other and unspecified languages (679-681, 683-707, 716-722, 725,.....0

ANCESTRY

Universe: Persons

Ancestry specified:
  Single ancestry.....14941
  Multiple ancestry.....1479
Ancestry unclassified.....54
Ancestry not reported.....1100

YEAR OF ENTRY

Universe: Foreign-born persons

1987 to 1990.....734
1985 or 1986.....294
1982 to 1984.....616
1980 or 1981.....454
1975 to 1979.....838
1970 to 1974.....920
1965 to 1969.....353
1960 to 1964.....359
1950 to 1959.....394
Before 1950.....208

AGE BY CITIZENSHIP

Universe: Persons

Under 18 years:
  Native.....6088
  Foreign born:
    Naturalized citizen.....65
    Not a citizen.....947
18 years and over:
  Native.....6316
  Foreign born:
    Naturalized citizen.....905
    Not a citizen.....3253

PLACE OF WORK---STATE AND COUNTY LEVEL

Universe: Workers 16 years and over

Worked in State of residence:
  Worked in county of residence.....3321
  Worked outside county of residence.....71
Worked outside State of residence.....2106

MEANS OF TRANSPORTATION TO WORK

Universe: Workers 16 years and over

Car, truck, or van:
  Drove alone.....4153
  Carpooled.....740
Public transportation:
  Bus or trolley bus.....30
  Streetcar or trolley car.....0
  Subway or elevated.....0
  Railroad.....0
  Ferryboat.....0
  Taxicab.....0
Motorcycle.....29
Bicycle.....0
Walked.....195
Other means.....128
Worked at home.....223

SCHOOL ENROLLMENT AND TYPE OF SCHOOL

Universe: Persons 3 years and over

Enrolled in preprimary school:
  Public school.....187
  Private school.....36
Enrolled in elementary or high school:
  Public school.....4768
  Private school.....59
Enrolled in college:
  Public school.....868
  Private school.....71
Not enrolled in school.....10387

RACE BY SCHOOL ENROLLMENT

Universe: Persons 3 years and over

White:
  Enrolled in preprimary school.....223
  Enrolled in elementary or high school.....4718
  Enrolled in college.....886
  Not enrolled in school.....10059
Black:
  Enrolled in preprimary school.....0
  Enrolled in elementary or high school.....27
  Enrolled in college.....0
  Not enrolled in school.....72
A Indian, Eskimo, or Aleut:
  ed in preprimary school.....0
  ed in elementary or high school.....9

Enrolled in college....0
Not enrolled in school....34
Asian or Pacific Islander:
Enrolled in preprimary school....0
Enrolled in elementary or high school....0
Enrolled in college....0
Not enrolled in school....5
Other race:
Enrolled in preprimary school....0
Enrolled in elementary or high school....73
Enrolled in college....53
Not enrolled in school....217

SCHOOL ENROLLMENT

Universe: Persons of Hispanic origin 3 years and over

Enrolled in preprimary school....179
Enrolled in elementary or high school....4180
Enrolled in college....748
Not enrolled in school....7889

EDUCATIONAL ATTAINMENT

Universe: Persons 25 years and over

Less than 9th grade....2968
9th to 12th grade, no diploma....1198
High school graduate (includes equivalency)....2433
Some college, no degree....1174
Associate degree....348
Bachelor's degree....336
Graduate or professional degree....152

SCHOOL ENROLLMENT, EDUCATIONAL ATTAINMENT, AND EMPLOYMENT STATUS

Universe: Persons of Hispanic origin 16 to 19 years

In Armed Forces:
Enrolled in school:
High school graduate....0
Not high school graduate....0
Not enrolled in school:
High school graduate....0
Not high school graduate....0
Civilian:
Enrolled in school:
Employed....165
Unemployed....75
Not in labor force....632
Not enrolled in school:
High school graduate:
Employed....31
Unemployed....16
Not in labor force....12
Not high school graduate:
Employed....74
Unemployed....60
Not in labor force....158

HOUSEHOLD INCOME IN 1989

Universe: Households

Less than $5,000....368
$5,000 to $9,999....653
$10,000 to $12,499....519
$12,500 to $14,999....421
$15,000 to $17,499....380
$17,500 to $19,999....269
$20,000 to $22,499....351
$22,500 to $24,999....286
$25,000 to $27,499....204
$27,500 to $29,999....224
$30,000 to $32,499....218
$32,500 to $34,999....111
$35,000 to $37,499....101
$37,500 to $39,999....76
$40,000 to $42,499....136
$42,500 to $44,999....63
$45,000 to $47,499....88
$47,500 to $49,999....45
$50,000 to $54,999....112
$55,000 to $59,999....71
$60,000 to $74,999....83
$75,000 to $99,999....18
$100,000 to $124,999....10
$125,000 to $149,999....0
$150,000 or more....0

Creating Electronic Presentations in the Classroom

Module 2

Introduction

The previous module, *Active Learning Environments*, modeled multiple activity centers with rotating roles and assignments. With minimum guidance, and sharing of resources and equipment, participants were expected to carry out the various tasks at hand. The facilitator assumed the role of "guide on the side" instead of the key deliverer of knowledge. In this module, *Creating Electronic Presentations in the Classroom*, the facilitator assumes a central role in the early part of the session and the classroom activity is structured quite differently. The table below highlights the differences and similarities between the two modules:

Comparison of the two modules

Module 1 - Active Learning Environments	Module 2 - Creating Electronic Presentations in the Classroom
• Minimum direct instruction	• A mix of direct instruction and guided instruction
• Small group exploration on different things	• Small group exploration on the same thing
• Data and information gathering	• Product development
• Learning stations - limited computers	• Multiple computers or computer lab setting
• Small groups working together	• Small groups working together
• Community theme	• Community theme

Various instructional and classroom management strategies will be modeled in the remaining professional development modules in this series.

This module, *Electronic Presentations*, is an extension of Module 1, *Active Learning Environments*. In the *Active Learning Environments* module, participants were introduced briefly to technology - digital cameras, electronic spreadsheets, and access to the Internet. However, this activity provides the opportunity for participants to learn a technology application in more detail. While this module could be delivered as a stand-alone module, we suggest that it be introduced in this sequence because it serves as an assessment activity/project for the *Active Learning Environments*.

By creating an electronic presentation, participants will be presented with two overall tasks:

1) Summarizing the work done in the *Active Learning Environments* module. Participants will be asked to incorporate the theme of community by using digital photos of local landmarks - graphs created in a spreadsheet application, and the data gathered from the Internet - into a presentation.

2) Working in groups of twos or threes in a collaborative activity to learn a new software application.

This activity begins with the facilitator giving a "guided walkthrough" of the electronic presentation software. This "walkthrough" is not intended to be a detailed overview of the software. This instructional strategy was chosen because of the different skill levels of the participants. This scaffolding approach provides early direct instruction so that participants can learn basic skills. After the "walkthrough," participants will be asked to collaborate within their teams, and across teams, and to use their problem solving skills for exploring the finer points of the software application.

One of the drawbacks to this activity is the expectation that the facilitator be the "expert" on all details of the presentation application software. While the facilitator needs to have a good working knowledge of the software, the facilitator needs to allow the participants the opportunity for discovery. Furthermore, facilitators with a high degree of skill with the software should resist the temptation of going into too much detail with the software during the introductory "walkthrough." Too much detail at this point can intimidate and confuse some participants or detract from the opportunity for individual discovery.

Content Theme

"Discovering Our Community"

Expected Outcomes

By working collaboratively in pairs or small groups, participants with different skill levels learn from each other how to use a new software application. As a result of their direct participation and a closing discussion, the participants can begin to consider how to use these instructional strategies and a software application of this type in their classrooms.

Constructivist Principles Modeled in this Activity

Several constructivist learning principles were carefully considered when designing this module and should be kept in mind when delivering this module.

- **Learners bring unique prior knowledge, experience, and beliefs to a learning situation.**

  By having this activity directly follow the *Active Learning Environments* module, participants are able to directly draw upon and link previous knowledge and experiences.

- **Knowledge is constructed in multiple ways, through a variety of authentic tools, resources, experiences, and contexts.**

  Participants can create their final presentation in a variety of ways using the presentation software and other resources (digital cameras, spreadsheets, and Internet information). Participants have the experience of using "real world" and meaningful information and data for their presentation.

- **Social interaction introduces multiple perspectives through reflection, collaboration, negotiation, and shared meaning.**

  By working in collaborative pairs or groups, participants share their reflections, collaborate on the development of the presentation, and negotiate their understanding of the content and various ways to use the software.

Module Organizer

Purpose:

- Introduce the basics of presentation software.
  Explore ways the software might be used in a K–12 classroom.

Participants:

- Teachers who participated in the previous module - *Active Learning Environments*. Participants should remain in the same group from the *Active Learning Environment* module.

Prerequisite Participant Skills:

- File operations: finding, opening and closing an application; saving a file to a diskette; printing a file.
- Basic data manipulation: editing and inserting text and graphics.

Time Needed:

- Approximately 3 hours. The first 30–35 minutes is for a guided "how-to" overview presented by the facilitator. Time needed to complete the project may be less or more than two hours depending upon participants' skills. The last 30 minutes should be spent sharing the projects, reflections, and discussing uses for the software in the classroom.

Grouping Strategy:

- This is a hands-on activity for a computer lab setting or a room with several computers— at least one computer for every 3-4 persons. Continue with the same groups from *Module 1 - Active Learning Environments*.

Equipment:

- Computers, one per 2–4 participants, Macintosh™ or Windows™ 95, 98 or NT environment.
- Projection device, such as an LCD projector or a computer-video adapter.
- Blank wall or projection screen if using an LCD projector.

Materials:

- Electronic presentation software on each computer (e.g., PowerPoint™).
- Blank 3 1/2 " diskettes—one per participant.
- Electronic presentation prepared by the facilitator. See Materials and Handouts section for a template for developing the presentation.
- Digital imaging software (if necessary).

- Handouts

  Handout # 1 -

  Creating Electronic Software Presentations in the Classroom
  (this is a hardcopy of your electronic presentation)

  Handout # 2

  Basic Steps for Creating a PowerPoint Presentation

  Handout # 3 - (optional)

  PowerPoint Tips
  Find the original at this website:
  http://www.sedl.org/staff/training/pptips.html

Facilitator Preparation:

Note: *While this guide is designed for MS PowerPoint™ Office 97, ™ it can be adapted for other electronic presentation applications. (See the Appendix for a presentation template).*

- Create an electronic presentation using the template provided in Appendix 1.
- Follow the instructions and practice transferring your digital camera images to the computer. The process for transferring digital camera images will vary from camera to camera.
- Determine how your electronic presentation software manages digital camera images that you want to use in a presentation. *MS PowerPoint 97*, and later versions, will convert these images automatically from JPEG to BMP. For users of *PowerPoint version 4.0* or less, the digital camera JPEG files will need to be converted to BMP files before inserting them into a presentation. This can be done with an imaging conversion software application such as *Adobe PhotoDeluxe*.
- Create your own version of Handout 1 by printing a hard copy of your presentation. A sample first page is provided that shows a format of 3 slides per page. This option is available for *PowerPoint* users from the print menu dialog box. Choose the option: pure black and white.
- Make copies of Handouts 2 and 3 for each participant. Handout 3, an outline of advanced tips for PowerPoint users, is optional for every participant, but will probably be of interest to some.
- Practice with the presentation and the projection equipment.

Room Preparation:

- Check to be sure that all computers are working and have electronic presentation software loaded on each machine.
- Load the prepared presentation and imaging software (if necessary) on each computer.
- Connect and check the projection equipment.

Activity Sequence

In this activity, participants "walk through" the key features of electronic presentation software. To guide them, the facilitator prepares, in advance, a presentation with the same software that the participants will be using, which outlines the key features of the software. A sample of this presentation is included as an appendix.

The facilitator will need to install a copy of the presentation on each of the participants' computers. When the session begins, the presentation is open on all of the computers and also on the projection device.

As the facilitator moves through the presentation, he/she explains, points out, and demonstrates the different menus, buttons, and options of the software. At the same time, the participants can try out the same menus, buttons, and options on their computers. Once the walk through is complete, participants are given basic steps for creating a presentation and then asked to work in pairs or small groups to create a short presentation.

> Note: *While this guide is designed for MS PowerPoint™ Office 97, ™ it can be adapted for other electronic presentation applications. (See the Appendix for a presentation template).*

A note of importance!
Prior to the activity, the facilitator or co-facilitator needs to learn how to insert/import graphic images from the digital camera into the presentation successfully. The process for inserting digital camera images will depend on the digital camera that was used to take the original pictures and also the compatibility of the presentation software with those images. If it is necessary to convert and resize images use the image conversion software that is included with the digital camera or obtain a copy of *Adobe PhotoDeluxe*, or a similar software application.

If you need to convert the digital images, we recommend the following strategy: When the participants begin working on their own presentations, one person from each team meets with the facilitator, or co-facilitator, to receive training on converting digital images. That team representative then returns to carry out the digital image conversion process with the team. This models the practice of creating expertise that is shared in the classroom by students teaching other students.

Activity Sequence

I. Introduction

5 minutes

Handouts 1 and 2 are distributed before the session begins.

Handout # 1 - *Creating Electronic Software Presentations in the Classroom*

Handout # 2 - *Basic Steps for Creating a PowerPoint Presentation*

Slide 1 is displayed with the projection device and on each of the participant's computers.

Symbols used throughout this activity sequence:
- Software instructions
- Record participant's comments on chart paper
- Distribute a handout
- Use a projector for demonstration to the group
- Estimated time to complete the activity

The facilitator addresses the group:

Today we will create an electronic presentation that showcases the various features of your community. This presentation will be viewed by the City Council. Depending upon what they see, they will decide whether or not to move forward with the idea of a community museum.

First we will take a hands-on tour that introduces you to the features of (brand name) software application. After we take our tour, your group can begin work on a presentation based on the work we did in the Active Learning Environments session. You will learn to incorporate the pictures, graphs, and Internet resources we found during that session. You will probably get more ideas as we browse through the software.

At the end of this afternoon's work, we will preview each other's projects in anticipation of the City Council's viewing. We will also discuss ways to use this software in the classroom. You can take a copy of your presentation home with you.

II. Warm Up

5 minutes

Slide 2 - Planning an Electronic Presentation

Let's first talk about planning an electronic presentation. The process is similar to creating note cards or cue cards, or developing any other presentation such as flip charts or overhead transparencies that accompany a speech or a lesson. Here are some general guidelines to keep in mind:

- Determine your content and know your audience.
- "Chunk" key points.
- Use key phrases or words to deliver the message.
- Use suitable graphics to enhance your message.

You will need to keep these guidelines in mind today when you are creating your presentations.

Has anyone used presentation software? What are some of the features electronic presentation software can provide?

Some answers might include:

A series of colorful slides for presenting ideas or reports;

A visual presentation of computer work;

Presenting computer-based work to a large audience;

Enhancement of textual information with special effects;

Captures an audience's attention; and/or

You can use special effects. You can use more color and animation.

What do you think are the disadvantages of using an electronic presentation?

Some answers might include:

You need a computer or a way to display it.

You first have to know how to create it.

How would you describe presentation software? Is it learner-centered or teacher-centered?

Some answers might include:

Depending on its use, presentation software can be teacher-centered (if it is used as a presentation medium in a lecture format) or learner-centered (if it is used as a tool for students to create and present their work).

❒ Slide 3 - Various Presentation Software Applications

Here are some of the better known brand names of presentation software. Are you familiar with any of them?

PowerPoint, Claris, FreeLance Graphics, Harvard Graphics, Persuasion, and Astound

Today we are going to use PowerPoint (or name of software) for creating our presentations.

❒ Slide 4 - Key Features of Microsoft PowerPoint Software

PowerPoint is a software application, developed by Microsoft™ that is frequently used by businesses but it has intriguing possibilities for educators. It links to other Microsoft applications such as Word, Paint, Excel (a spreadsheet program), and Access (a database program).

Let's get started now and see how PowerPoint works!

III. Walk Through the Application ⏲ 30 minutes

❒ Slide 5 - Working with PowerPoint - Different "views"

PowerPoint offers several different views that help you see and manipulate the slides in a variety of ways. Let's look at the different ways now. As I display each slide to demonstrate the different features, follow along with the presentation on your computer and make the different entries too.

- Presentation/Slide Show View-

The presentation that you are viewing is now in the Slide Show view. It fills the entire screen and is used for making the final presentation. You cannot make modifications to the presentation from this view. To edit your slides, you need to go to a different view. Press ESC to color; click, and highlight the text. Then select "Format" from the main menu bar where you can choose a different font size, color, and effects. Close the Slide Show.

Allow time for participants to experiment.

- Slide view-

The slide view allows creation and editing of individual slides. You can change font size and color, add special effects, and add text and graphics.

Notice that you can quickly change views by clicking on the icon buttons on lower left of the screen. You can also change views by selecting "View" from the main menu bar.

To change the font size and to add text, click inside a text area so that the text box boundaries appear. Adding and editing text here works just like your word processor.

Allow time for participants to experiment.

Now let's look at the Outline View. Can someone tell us how to do that?

Click the **Outline** icon button on the bottom left of the screen or select **View/ Outline** from the menu.

- Outline view-

The outline view can also be used for creating and editing the text of the slide. When you create a presentation in the outline view, slides are automatically formatted and created.

How would we change to the Layout/Sort view?
Click the Layout View icon button on the bottom left of the screen

- Layout/sorter view-

This view provides an overview of all the slides in a presentation.
The order of the slides can easily be rearranged or deleted in this view. Try it for yourself. Click and drag a slide to a different placement in the slide show.
You can also select a single slide to edit from this view. Double click on any slide in the layout to see what happens.

Allow time for participants to experiment.

Can anyone tell me how to change to the Speaker's Notes view?
Click on the Speaker's Notes icon button on the bottom left of the screen or choose **View/Notes Page** from the menu.

- Speaker's Notes view-

This view allows you to create notes that can accompany each slide. You can type directly into the space below the slide. If the letters are too small, increase the viewing size by clicking on the Zoom button at the top right hand of your screen.

If some participants are having difficulty finding the Zoom icon, encourage those who have found it to help others. If all participants have difficulty finding the Zoom icon, explain that it looks like a magnifying glass.

❒ Slide 6 - Using Help

As you work on your presentation you may need help. Help is available several different ways - from the Main Menu-Balloon Help - Wizards - pop up windows or ask your neighbors if your group is still stuck. I'll be walking around the room as well once you get started.

*Click on **Help** at the top right of the main menu and browse through the contents.*

Allow time for participants to experiment.

❒ Slide 7 - Inserting Clip Art

Let's now see how to add graphics and other images to the slide show. The first thing we are going to try is clip art.

The facilitator demonstrates how to insert clip art and then asks the participants to try it for themselves.

Double click on the graphic icon on the screen and select a graphic from the PowerPoint Clip Art Gallery to insert into the presentation. To delete an unwanted image, highlight the image and click edit/delete.

Allow time for participants to experiment.

❒ Slide 8 - Inserting Other Graphics

NOTE: The facilitator should practice inserting digital images into the slide show prior to the demonstration.

The facilitator demonstrates how to insert a picture from a digital camera. Remind participants to work on their computer as the presentation continues.

Let's now add one of the photos that you took with the digital camera. You will be able to add your own pictures as soon as you start working on your own presentation. Once you begin working on your presentation, one member of your group will learn how to prepare images and will become your group leader for that activity.

To insert a digital picture, from the main menu bar, click on "Insert" then "Picture" and then "From File." Identify where the image is stored (directory, subdirectory, file name on a: or c:) When that image appears in the Preview box, click "Insert." To delete an unwanted image, highlight the image and click ***Edit/Delete.***

Allow time for participants to experiment.

❒ Slide 9 - Inserting Tables & Charts & Graphs

You can also insert other elements, in your presentation, such as text, tables, spreadsheets, movies, or sound, to name a few.

To create a slide with a table or graph, click once on your slide. And choose ***Insert/Chart*** *from the menu. Now find the graph you created in the morning's census activity and insert it in your slide.*

Allow time for participants to experiment.

❒ Slide 10 - Editing and Changing the Look of Your Presentation

You can also change the appearance of your presentation in a variety of ways. To do this, select ***Format*** *from the main menu to change the appearance. Select* ***Slide Show*** *and you will see several options for creating special effects for your slide show.*

Allow time for participants to try out these menu options.

❒ Slide 11 - Print Options

The facilitator discusses printing options but does not actually send a command to the printer.

In PowerPoint, four of the five views can be printed, so you can produce paper copies of your text outline, the slides with speaker notes, each individual slide, or the slide layout of your presentation. The only view that can not be printed is the presentation/slide show view. To print, select "File," and then "Print". You can see the various options that appear. We won't print this presentation now, but you may later if you wish.

Note: Always select "Pure Black and White" if you want to print just the text of your slide. Otherwise, the printer will try to print the colored backgrounds.

❒ Slides 12 & 13 & 14 - Tips for Final Presentations

In closing, let's examine some tips for creating quality electronic presentations.

- Do a spell check.
- Use only 7-10 words per line.
- Use only 7 lines per slide.
- Impact of font size and color - can the audience easily see and read it?
- Impact of transitions - do they enhance or detract?
- Can it be easily seen from where the audience will see it?
- Too many graphics will make it too large to save and transport.
- Try out your presentation in a place similar to the final presentation.

Saving the presentation to diskette.

As you create your presentation, you'll want to save your work. Keep in mind that the diskette can only hold so much information. Photos take up a great deal of space, so you may need to limit the number of photos and make greater use of graphic design, clip art, or text, which take less digital space.

If you are taking your presentation on disk to another location, you must be sure that the computer you will be using has PowerPoint or the PowerPoint Viewer to show your slides.

IV. Presentation Development

1 hour, 40 minutes

❒ Slide 15 - Create Your Own Presentation

The facilitator discusses the agenda for the rest of this session during which the participants will create their own presentations.

Ask the teams to meet for about 10-15 minutes to discuss how and what they want to include in their presentations. They can use any of the material from the *Active Learning Environment* activity, such as Excel™ spreadsheets, graphs, digital pictures, and text-based information. The participants will probably change their plans as the development of the presentation progresses.

Referring to **Handout 2,** the facilitator guides the whole group through the "getting started" steps.

Here are the basic steps for starting a new presentation:

- Close the existing presentation: **File / Close**. Click No to not save changes.
- Create new presentation: **File / New / Blank Presentation**.
- From **Auto Layout** on the **New Slide** box, select **Title Page**.
- Type the title of the your presentation into the text box.
- Select **Format / Apply Design** to select a background for the presentation.
- At this point, it is a good idea to save your work.
- **Insert / New Slide** and pick the slide layout that you need for the next slide.

At this point, the facilitator will stop whole group instruction and the participants will independently develop their presentations. The facilitator becomes a "guide on the side" and takes this opportunity to circulate among the groups giving individual assistance as necessary.

If questions arise about certain techniques, the facilitator should guide the participants toward finding their own answers. Or, the facilitator could ask if someone else in the whole group has found a solution to the same or similar problem.

V. Graphic Image Conversion

15 minutes

If necessary, the facilitator asks for a volunteer from each group to learn how to convert the images taken with the digital cameras. This person will attend a 10-minute training session and then return to the group to show them how to convert the digital camera images.

The volunteers then return to their groups to help their members use the image conversion software.

VI. Gallery Tour

15 minutes

❒ Once the presentations are finished, have each team name and save their presentations. Have them add the feature to their slide show that will make the slide show run automatically. Once this is done, ask everyone participate in a "Gallery Tour."

Everyone walks around the room and looks at each other's slide show presentation. One person from each group can remain at their slide show and offer explanations of how they created it.

VII. Summary - Reflection Activity

15 minutes

The facilitator leads the closing whole group discussion with the following questions.

(Write participant responses on chart paper or chalkboard)

1. *What instructional strategy did we use today to learn this electronic presentation software application?*
2. *How were these strategies similar to the Module 1, Active Learning Environment activities? How were they different?*
3. *What kinds of activities might be appropriate to each of these approaches?*

Participants might note that this session used direct instruction, small group exploration, and product development. Module 1 activities included very little direct instruction. Also, the activities in Module 1 were organized into learning stations, while this module was presented in the computer lab setting. Similarities noted may include groups working together and the theme of the community exhibit.

Comparison of the two modules

Module 1 - Active Learning Environments	Module 2 - Electronic Presentations
• Minimum direct instruction	• A mix of direct instruction guided instruction
• Small group exploration on different things	• Small group exploration on the same thing
• Data and information gathering	• Product development
• Learning stations	• Computer lab setting
• Small groups working together	• Groups working together
• Community theme	• Community theme

4. *What are some ways a presentation software activity might be used in your classroom?*

Answers will vary. Some participants will want to use the software to present information to their students, to their principals, for professional conferences. Others will want their students to use it as a development tool that displays their class work. Participants may discuss the ways in which the community theme can be adapted to fit their particular subject area (e.g., biomes, well-known area authors, etc.)

5. *As a learner/student, what parts of the session / specific activities helped you learn the most in this session? Now, think about your own students. How could this activity help students learn better? What particular skills will it develop?*

6. *Today we had access to several computers, but many of you may have access to only a few computers - maybe just one. What strategies can you use to incorporate this technology activity into your classroom?*

Some possible suggestions:

Where teachers have limited numbers of computers, have students plan their presentations on paper first.

Have students create only one slide per person or per group.

When the discussion is complete, post the ideas that were recorded on the flipchart paper onto the wall.

You can ask that participants make notes of these ideas in a journal. Or, you can later type their comments (or ask one of the participants to do this). You could then e-mail a copy to each person or hand a copy out at the next session.

Handouts and Materials

Handouts

Materials

Handout 1 (sample page)

To create this handout, print a paper copy of the electronic presentation. Choose the PowerPoint *print* option, *handouts - 3 per page, pure black & white.*

Creating Electronic Presentations in the Classroom

By

Your Name

Planning an Electronic Presentation

- Determine content and audience
- "Chunk" key points
- Use key phrases or words to deliver the message
- Use suitable graphics to enhance your message.

Various Presentation Software Applications

- Microsoft PowerPoint
- ClarisWorks (slideshow)
- Astound
- Adobe Persuasion
- Lotus Freelance Graphics

Basic Steps for Creating a PowerPoint™ Presentation

Handout 2

1. Begin the new presentation. Select **File / New / Blank Presentation.**
2. From "Auto Layout" on the "New Slide" box, select a slide format to use for the title page.
3. Type the title of the your presentation into the text box.
4. Select **Format / Apply Design** to select a background for the presentation.
5. At this point, it is a good idea to save your work. Select **File/ Save As.** Give the presentation a name in the save box and click **Save.**
6. Select **Insert / New Slide.** Pick the slide layout that you want for the next slide. You will see that the background chosen in step 4 continues on the new slide.
7. Continue adding other slides in the same manner.
8. Use the different views offered in the lower left corner: **Slide View, Outline View, Slide Sorter View, Notes Page View,** and **Slide Show View.**
9. Include photos and graphics.
10. Save your work frequently throughout the process of creating your presentation by selecting **File / Save** (or using the shortcut offered on the menu).
11. When the presentation is finished, save it to a diskette. Put the diskette in the computer's A drive slot. Choose **File / Save As.**
12. The diskette will appear as one of the pictures on the desktop options (Macintosh computers). Click on that picture.
13. The A: drive will appear as a destination option (PC computers). Click on that option.
14. Then choose the **Save** command to transfer the presentation to the diskette.

PowerPoint Tips

Choose a topic for more information:

1. Animate text with pictures, clip art or even video.

The most exciting benefit of PowerPoint 97 (or 8.0), compared with version 4.0, is its ability to animate numerous items on a single slide. For example, you can create builds that bring up text, still images, graphics or video clips to highlight key points. You can make the item disappear before the next text item appears. Dissolve or Fly from Bottom-Left are good transitions for this effect.

To animate your slides, select the text or object on the screen that you want to animate, then pull down the Tools menu and click on Animation Settings. Or use the right-mouse button to pull up a shortcut menu and click on Animation Settings.

2. Add Audio: Make Talking Heads

Place a portrait on your slide and then record their message using the normal Macintosh software or the Windows 95 Sound Recorder or other software. Click on the picture and select Animation Settings, Build Options, Build, Effects. Then select the sound file. During the presentation, when you click on the picture, the audio starts.

3. Add sound effects to your animations.

You can add preprogrammed sound effects to correspond with your animation effects. This allows, for example, text to fly onto the screen with a "screech" sound. Although sound effects of this type are not appropriate for all audiences, they can add a lighthearted touch to a serious presentation. Sounds can be added under the Custom Animation settings.

4. Create more interesting text builds.

Instead of making a text build in a textbox, you can put each line of text in a separate box (each with a different color scheme, if you like). You can then animate each box to enter separately and from a different direction. This makes text more lively and interesting. Simply pull down the Insert menu and insert a text box for each text item. Type in your text, then click on the right-hand mouse button and select Animation Settings. Just be careful not to include too many animations on each page, which can confuse the audience.

5. Make your charts move.

Version 7 and PowerPoint 97 allow you to do wonderful things to bring a chart to life. It requires knowledge of a feature most people are unaware of -- ungrouping a chart. Create a chart in the normal way. Close it. Click on the chart, but do not open it. Click on Ungroup. You have now converted your chart into lines and squares, each of which can be manipulated individually. (This is not a good thing to do if you need to update your chart frequently, because Ungrouping it turns it into an object.) Animate the different parts of the object by going into Animation Settings. This trick is especially effective for a line chart or bar chart-it allows you to make a line "grow" in the chart or the bars to build separately. You can also color the separate bars with shaded fills that are not always available with regular charts.

6. Automatically check for style consistency.

Pull down the Tools, then click on Style Checker to make sure your presentation headlines, subpoints, grammar and spelling are consistent.

7. Put your presentation on the web.

Pull down the File menu and select Save as HTML. Follow the wizard's step-by-step instructions. Be careful

when choosing window size to keep the size relative to the size of the monitor you think most of your audience might have. If in doubt, choose the half-size option.

Presentation Tips

1. Preview in black-and-white.

Check to see how your black-and-white handouts will look. Pull down the View menu, then click Black and White. Or, in the Print window, choose Black and White and print out a version. Tip: If you use a dark photo as a background, it's often better to strip the photo so your handouts can be read easily.

2. Write on your slide while in the Slide Show mode.

Click View, then click Slide Show. Or, click the Slide Show icon in the bottom left-hand corner. When in the Slide Show mode, click the right mouse button, select Pen, and now you can circle objects and write on the screen. To get rid of the pen, click the right mouse button and select Arrow. The pen mark will go away when you go to the next slide- if you return to the slide you wrote on, you'll see that the marks have disappeared.

3. Use Meeting Minder as a note-taking tool.

You can take notes, such as action items, as you go through your meeting presentation. To start, pull down the Slide Show menu and click on Meeting Minder. The last slide of your talk will then list all the action items you have written during your presentation.

4. Rehearse the timing of your talk.

Rehearse Timings is a powerful feature that times how long you talk about each slide and helps you practice your presentation timing. Pull down Slide Show and click on Rehearse New Timings. You can also record yourself practicing by using the Record Narration function. By saving this file, you can even send a copy of your presentation-complete with your vocal comments-to people who were unable to attend.

Websites You Can Use

Tips from Microsoft and Others
- http://www.microsoft.com/PowerPointDev/p-tips.htm
- http://www.computertips.com/Microsoftoffice/MsPowerPoint/aheader.htm

Backgrounds and Templates
- http://colorize.com/learn/csolutions.html

How To's
- http://plato.acadiau.ca/sandbox/ppt/ppt.htm
- http://desktoppub.miningco.com/msubtemp.htm
- http://www.cobb.com/o97/library/pwrpt/index.htm
- http://www.computerimages.com/tip_ppt.html
- http://dialspace.dial.pipex.com/town/avenue/xjs41/busi.htm
- http://www.dpayne.com/powerpointtips.htm

Free Stuff from InFocus
http://www.infocus.com/services/softlist.html

Southwest Educational Development Laboratory
211 East 7th Street, Austin, TX 78701-3281 * (800) 476-6861 * FAX: (512) 476-2286
E-mail: webmaster@sedl.org * Internet: **www.sedl.org/staff/training/pptips.html**

Slide Show Template

Use this template as a content guide to design your slide show

Slide 1

Creating Electronic Presentations
In the Classroom

By
(Add your name here)

Slide 2

Planning an electronic presentation

- Determine content and audience.
- "Chunk" key points.
- Use key phrases or words to deliver the
- message.
- Use suitable graphics to enhance your
- message.

Slide 3

Various Presentation Software Applications

- Microsoft PowerPoint
- Claris Slide Show
- Astound
- AdobePersuasion
- Lotus FreeLance Graphics

Slide 4

(Include here key features of the software that you will be using)

Key features of Microsoft PowerPoint

- Originally designed to be used for business applications
- Used by educators and students for colorful and
- versatile presentations
- Links to other MS applications such as Excel, Paint,
- Word, & Access
- Uses standard/common techniques for working with text and graphics

Slide 5

Working with PowerPoint
Different "views"

- Presentation (Slide Show) view
- Slide view
- Outline view
- Layout sorter view
- Notes view

Slide 6

Using Help

Main Menu-Help
Balloon Help - Wizards - Pop up Windows

Slide 7

Working with PowerPoint

Inserting Clip Art

Slide 8

Working with PowerPoint

Inserting Other Graphics

Slide 9

Working with PowerPoint

Inserting Tables & Charts/Graphs

Slide 10

Working with PowerPoint

Editing and changing the look of your presentation

Slide 11

Working with PowerPoint
Print Options

- Presentation (Slide Show) view
- Slide view
- Outline view
- Layout view
- Speaker's Notes view

Slide 12

Tips for the Final Presentation

- Do a spell check
- Use only 7-10 words per line
- Use only 7 lines per slide
- Impact of font size and color - can the audience easily see and read it?

Slide 13

Tips for the Final Presentation

- Impact of transitions - do they enhance or detract?
- Can it be easily seen from where the audience will see it?

Slide 14

Other tips

- Too many graphics will make it too large to save and transport
- Try out your presentation in a place similar to the final presentation
- If you present your presentation on
- another computer, verify that PowerPoint
- or the PowerPoint Viewer is on that machine.

Slide 15

Create your own presentation !
Follow instructions on the handout

Applications for Learning
Contrasting Instructional Software

Module 3

Introduction

This module presents a problem—the development of a navigation system for the earth—as a frame for comparing two different types of software. The two software examples contrast two learning strategies:

- responding to a series of short-answer questions, or
- discovery through the solution of sequenced problems.

The first instructional segment is called **Geography Tutorial**. Working in pairs, participants respond to questions about geography and maps posed by a software program. Because the software is designed as a self-paced, stand-alone lesson, the facilitator observes, giving little assistance. Following the lesson there is a brief discussion of the software's instructional design.

In the second instructional segment, called **Navigation Exploration**, participants try a software program with an open-ended structure. The facilitator guides their exploration with a series of increasingly complex problems centered on the concept of latitude and longitude.

A comparison of the two software approaches leads to a discussion about the kinds of instruction and learning that might accompany each.

Classroom extensions for the exploration are offered, one using historical accounts of the navigation system's development and another building on satellite pictures gleaned from the Internet.

Expected Outcomes

This module offers a complex sequence of exploratory activities. There are opportunities for participant discussion and suggestions for classroom applications. The **Navigation Exploration** segment provides a model for learner-centered exploration in a computer lab setting.

By experiencing the two contrasting instructional sequences and reflecting on that experience, participants will think about the ways different instructional strategies support learning. Additionally, the participants will think about the influence of software on a lesson design.

Constructivist Principles Modeled in this Module

- **Learners bring unique prior knowledge, experience, and beliefs to a learning situation.** The participants' experience and understanding of the lessons' content areas (geography, latitude, longitude, and maps) influence their learning from the two lessons. **Navigation Exploration** begins with a discussion that attempts to establish the participants' knowledge base concerning longitude and latitude.

  Initial lesson problems are posed around facts that are familiar to most participants (location of the equator, location of London and New Orleans, an understanding of the cardinal points on a map).
  Through the discussion segments throughout the module, the facilitator taps into participants' experience with computer-assisted instruction, which will influence their analysis of the lessons.

- **Knowledge is constructed in multiple ways, through a variety of authentic tools, resources, experiences, and contexts.** Using an electronically generated map allows the participants an innovative way to move from one location to another and plot different map points.

  Presenting two different modes of instruction through software lessons provides the participants experiences that are later plumbed for understanding.

- **Learning is both an active and reflective process.**
  The module blends several active experiences (using the tutorial software, then using the exploratory software) and then provides the opportunity for reflecting on those experiences.

- **Social interaction introduces multiple perspectives through reflection, collaboration, negotiation, and shared meaning.**
  The participants work in pairs or groups to explore the software lessons. Large group discussion at the conclusion of the module offers the opportunity to share opinions, experiences, and insight.

Module Organizer

Purpose:

- Compare two kinds of instructional software: one, a tutorial format, and the other, an exploratory format.
- Explore the modes of instruction determined by each type of software.
- Present an interdisciplinary, constructivist lesson that integrates technology.

Participants:

- Teachers, grades K–12.
- This activity is designed for groups of up to 30 participants with one facilitator.

Prerequisite Participant Skills:

- Desktop navigational skills: windows, buttons, scrollbars.
- File operations: locating and launching applications.
- Copying and pasting objects from one application to another (for the optional Scrapbook activity).

Time Needed:

- 1.5 hours for the core activity. The optional extensions will take an additional 30 to 45 minutes.

Grouping Strategy:

- Two persons with similar computer skill level at one computer.

Equipment:

- Computers, one per pair of participants.
- Macintosh™ or Windows™ environment.
- HyperCard Player™ if using the *Geography Stack*.
- Projection device, such as an LCD projector or a computer-video adapter.
- Easel, chart paper & marker.
- One of the extension activities requires an Internet connection.

Materials:

- Software for Macintosh™:
  - **Geography Stack**
  - **Earthplot**
- Software for Windows™:
  - **USA Puzzle**
  - **On Top of the World**

- **Note:** Be sure participants using *On Top of the World* use only its menu options. They should not use the point-and-click features.

- Computer files for Extension Activity (either platform):
- Sample satellite images from a geostationary satellite
- downloaded from the Internet

  Satellite 1, IR:
  http://goeshp.wwb.noaa.gov/FULLDISK/GEIR.GIF
  Satellite 1, VIS:
  http://goeshp.wwb.noaa.gov/FULLDISK/GEIR.GIF
  Satellite 2, IR:
  http://goeshp.wwb.noaa.gov/FULLDISK/GWIR.GIF
  Satellite 2, VIS:
  http://goeshp.wwb.noaa.gov/FULLDISK/GWVS.GIF

- Handouts
  - Where in the World? Equatorial Africa
  - New Orleans view
  - World Map: A cylindrical projection of the earth
  - The Computer as a Tool
  - Satellite Pictures
  - Engines of Ingenuity Articles

Room Preparation:

- Computers arranged in a laboratory setting with enough space to allow the facilitator to work with each pair of participants.

Facilitator Preparation:

- Go through the **Read Me** file and *Geography1 (Stack)* and *Earthplot* on Zip disk.
- Practice the module exercises to become proficient with *Earthplot* (or *Top of the World).* Set either of these programs to open at 0 latitude and 0 longitude. The facilitator should also be familiar with *Geography Stack* (or *USA Puzzle)* . See Materials for detailed information about these software programs.
- Make copies of handouts for each participant.
- Load the software on each computer. Check to be sure the software is operating correctly.
- Create computer disks for each participant that include the software from the activity, relevant Internet resources, and digital copies of each handout. (optional)
- If using the extension part of this activity, download the satellite pictures from the Internet for each computer. Make desktop icons for each. (optional)

Activity Sequence

Symbols used throughout this activity sequence:

- Software instructions
- Record participant's comments on chart paper
- Distribute a handout
- Use a projector for demonstration to the group
- Estimated time to complete the activity

I. Introduction — 5 minutes

Addressing the entire group of participants, the facilitator begins the session:

> *Today we will be looking at two kinds of software programs and discussing how they might help students learn. We have selected some fairly simple programs to help us focus on their instructional implications rather than the programs themselves. Let's first take a look at* Geography *(or* USA Puzzle*).*

The participants launch from their desktop the *Geography* stack (Macintosh) or *USA Puzzle* (Windows).

II. Geography Tutorial — 20 minutes

In this activity participants work in pairs for about 10 minutes following the software instructions to examine directional concepts (*Geography*) or state shapes and capital names (*USA Puzzle*). The facilitator observes and assists their activity, but offers little direction beyond initial start-up information.

This activity presents specific facts. The computer is the teacher; the facilitator plays a custodial role, helping participants only when they have a problem. In the classroom, a teacher could use the time to provide individual assistance to students who are struggling with the content.

After about 10 minutes, the facilitator calls the attention of the whole group and begins a discussion (to last about 10 minutes) with these questions:

What general comments do you have about this software?

(Possible comments are in quotation marks.)

- "I like it."
- "It's fun, my students would like it."
- "It's too slow. "

What features of the software would help students learn?

- "It's hands-on."
- "It provides immediate feedback."

What features of the software might impede learning?

- "The cute feedback might distract the user from the content."
- "It is a drill-and-practice tool, not a learning tool."
- "Once you know the content, it's boring."

What was taught?

- "Map skills."
- "Geography, directions."

How could learning be assessed?

- "The teacher could ask direct questions."
- "The teacher could observe students at the computers."
- "Multiple-choice test."

Record the participants' responses on chart paper.

III. Navigation Exploration **50 minutes**

This activity focuses on concepts that may challenge some of the participants. Query their prior knowledge by asking for their definition of longitude and latitude and their knowledge of moving along lines of longitude and latitude. It is also helpful to establish that maps mark the globe with 360 degrees longitude: 180 degrees west and 180 degrees east.

Use the chart paper to list participants' responses. This list will continue to build as the activity progresses and participants mention new ideas and

definitions. Be alert for concepts from mathematics, science, and history as well as geography.

After this review, the facilitator introduces the following "tiny wooden ship" scenario to dramatize and emphasize the significance of having a navigational system.

Before we launch the next program, I'd like to ask: How did you find your way here this morning?

Participants will probably respond with such ideas as:
I knew the way; I followed street signs; I used my memory.

Now, imagine yourself in the year 1600. You are in a tiny creaking wooden ship, sailing away from land. All your familiar landmarks slowly disappear from sight. All you see in any direction is water and sky. How will you know where you are? How will you find your way to a small island thousands of miles away on the other side of this vast ocean?

Participants will probably suggest using the stars, using the sun, some may mention the use of a sextant.

The system of describing location on our planet according to latitude and longitude is centuries old, but it is still used today for ocean navigation, as well as air travel and even pinpointing the locations of the most high-tech satellites. Let's take a look now at the software program called EarthPlot (or *On Top of the World) which gives us a satellite view.*

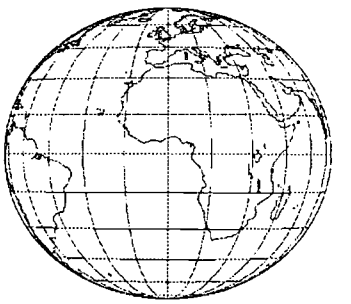
🖫 The participants open *EarthPlot* (Macs) or *On Top of the World* (Windows).

The software you have opened views the world from the vantage point of a satellite hovering over the globe. Let's pretend we are on that satellite and we are able to navigate over any location.

First Stop: Greenwich Observatory (Introduction of the Software)

The facilitator distributes **Handout #1**, an image of the globe positioned over the Gulf of Guinea, off the coast of equatorial Africa. This is the same view of earth that is appearing on the participants' monitors.

Where in the World?
An exploratory activity



Handout # 1

The starting point for the software exploration is noted as 0 longitude and 0 latitude. What we call the line that runs around the earth's middle at 0 latitude?

It is the equator.

Let me show you how to manipulate your satellite so you can position it over other points on the globe.

❒Displayed on the projector, the facilitator demonstrates the software by positioning the satellite over Greenwich. Do **not** tell participants where the satellite is going.

(Earthplot):*Let's move our satellite further north by setting the slidebar to 51 N latitude, leaving the longitude at 0. Select* ***Draw Earth.*** *You can also place grid lines on the globe. On the* ***Earthplot*** *menu, select* ***Options****, then click on* ***Draw latitude and longitude lines.*** *Redraw the map. The grid lines measure 15 .*

(Top of the World): *Let's move our satellite further north by pulling down the* ***View*** *menu, selecting* ***Move****, and typing "51 N" into the latitude box. The longitude box remains 0 . Click* ***OK.*** *You can also place grid lines on the globe. Pull down the* ***View*** *menu, go to* ***Grid Incr*** *and select* ***10*** *. That will set the grid lines to 10 .*

What famous city is situated in the center of the globe?

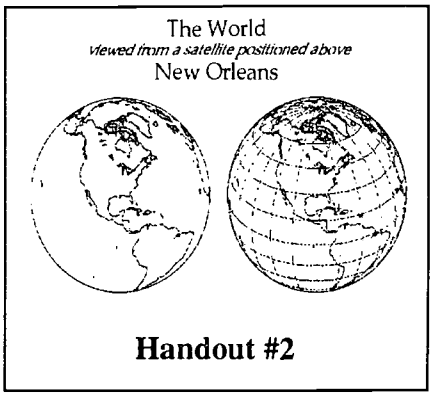
Answers may vary, but someone will probably say London, which is close to correct. The exact location is the Greenwich Observatory.

Do you know why London falls on this line?

The exact location is the Greenwich Observatory (near London) where the concept of longitude was invented in the 17th century. This location is marked as 0 longitude.

Second Stop: New Orleans (Exploring Longitude & Latitude)

Distribute **Handout #2**, which shows the globe with the satellite positioned over New Orleans. This will help those who aren't sure where the city is, or who can not visualize the way the globe should look in the correct position.



Handout #2

The facilitator challenges the group to move the satellite to another location.

> *You now have enough information to move your satellite to a new spot. Try placing it over the city of New Orleans.*

This is an open-ended problem, sometimes referred to as an ill-structured problem, because learners must figure out the process of solving the problem as well as determining the solution. To some of the participants, it will seem insurmountable. Assure them that they aren't expected to know or find the answer without some trial and error; wrong answers are considered to be steps to solving the problem.

Allow the participants plenty of time to experiment and place their satellite in the correct spot. New Orleans is selected for the second location because it is familiar to most people in the U.S. The general area is easy to see on the globe—on the "foot" of the Louisiana land mass, near the Gulf Coast. It is located at exactly 30 N and 90 W. If the participants set the longitude to East instead of West, they will find themselves on the other side of the globe. Some participants will see this immediately; others may need help. Encourage conversation within the group so participants can share their navigation strategies.

Each learner responds to an ill-structured problem in an individual way, based on his or her experience and reasoning processes. In this activity, the facilitator gauges the participants' success by observing their ability to navigate the satellites and listening for comments that indicate understanding.

Continue to use the chart paper to list new ideas and words as they emerge from comments and discussion. Be sure to note math concepts such as sphere, degrees, time, and coordinate numbers.

Third Stop: Alaska (Clarifying the Concept of Longitude and Latitude)

Before proceeding, it will be helpful to review what the participants have done so far. Record the participants' responses to these questions on the chart paper. Allow sufficient wait time following each of these questions.

Now think about the starting location. Where were we and what were the location's coordinates?

Over equatorial Africa at 0 latitude, 0 longitude

Then we went north to Greenwich, England. What were its coordinates?

51 N latitude, 0 longitude

What did you do to get to New Orleans? What were its coordinates? Did the numbers increase or decrease? As you move west from the meridian do the longitude numbers increase or decrease? As you move north of the equator do the latitude numbers increase or decrease?

To get to New Orleans, the satellite moved **south** and **west** of Greenwich. However, New Orleans is **north** and **west** of the original African location, which is the starting point for determining the coordinate numbers. New Orleans is 30 N latitude and 90 W longitude of that starting point.

Moving west from the meridian, longitude numbers increase. Moving north of the equator, latitude numbers increase.

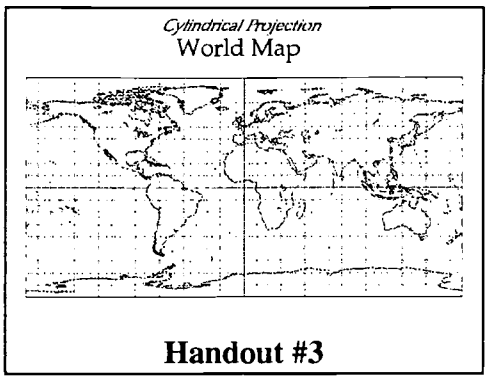
Now use this knowledge to position your satellite anywhere over the state of Alaska.

The participants should recall that Alaska is north and west of the African starting point, meaning that the latitude and longitude values should be larger and in the same direction as previous locations. Solving this problem should require less time than the previous one, because the same process is used.

Because Alaska represents a large area, a wide range of coordinate values will be acceptable. Numbers around 60 N latitude and 150 W longitude will place the satellite directly over the state. Ask participants who easily found Alaska to help those who are struggling.

Marking a Paper Map

Distribute **Handout #3**, which provides a world map that has gridlines but no coordinate numbers.



Handout #3

> *Here is a map with gridlines marked but not numbered. Use this map to number the latitude and longitude lines that you have discovered from your navigation, then place* ***Greenwich***, ***New Orleans***, *and the chosen* ***Alaska*** *location on it.*

The map's gridlines are marked in 10 increments, which may cause some confusion to the *Earthplot* users. Help the participants talk through the differences in their navigational tool and the map's increments. Standard maps may provide 10 markings or 15 markings. This is a good time to have the participants recall that the globe circumference is marked with a total of 360 degrees. Most maps begin with 0 at the prime meridian and number up to 180 west and 180 east, meeting over the Pacific Ocean.

Fourth Stop: Australia (Practicing the Concept)

Up to now, participants have been inventing the concept of latitude and longitude by locating places in the northern and western hemispheres—points that are north and west of the starting location. Now they will practice these concepts by traveling to a location in the southern hemisphere and the eastern hemisphere, and it may take several attempts to send the satellite in the right direction.

> *Ok, now for a race! You can use the paper map to help you if you wish.*
> *Let's see which group can be the first to position the satellite anywhere over the continent of Australia.*

Remind the participants that their marked paper maps may be helpful. The coordinates for Australia will be near the numbers 30 **south** latitude and 130 **east** longitude.

Fifth Stop: The North Pole (Extending the Concept)

As participants find the last location for the satellite, they will discover new related concepts such as poles, axis, rotation and time.

> *Let's navigate the satellite to one more location, but we're not racing this time.*
> *Please put your satellite directly above the North Pole.*
> *What is the latitude and longitude of the North Pole?*
>
> The latitude for the North Pole is 90 N; any longitude setting is correct.

Do you find anything unique about the North Pole?

Any longitude value is acceptable, since all the grid lines meet at the northernmost point. Longitude value is related to the rotation of the Earth on its axis—thus the significance of the poles.

Challenge: Rotate the Earth

The facilitator directs the participants:

Now let's use the satellite positions to rotate the globe on your screen forward one hour.

Some participants will feel helpless, not realizing that they already know everything needed to solve this problem. Reassure them as you help them apply their prior knowledge to a new problem. Give the participants some time to think about this problem and talk about possible solutions. Handout #3—the cylindrical map marked with grid lines—may be helpful.

If they do not come to their own understanding, remind them that they have established that the earth rotates 360 —a full circle—in 24 hours. With this information they can determine:

360 /24 hr = 15 /1 hr

To rotate the map of the earth one hour, the longitude must be changed by 15 .

Now, what direction is the rotation?

The earth rotates in a counterclockwise direction (who sees the sun first, New Yorkers or San Franciscans?), so adding 15 to a longitude west (or a longitude east) reading would move the globe forward one hour.

This completes the exploration of the software. Now the participants can think about and discuss their experience with it. The discussion examines several aspect of the **Navigation Exploration** activity and its accompanying software:

- interdisciplinary possibilities
- thinking about it as a constructivist lesson
- understanding the enrichment offered by technology

During the discussion the facilitator lists salient points on chart paper. The same questions as were posed for the first software should begin this conversation.

What general comments do you have about this software?

"It's fun, awesome, easy."

"It's flexible."

What attributes of the software would help students learn?

"It draws on prior knowledge."

"It promotes problem solving through trial and error."

What attributes of the software might impede learning?

"It could be confusing."

"Much of the lesson depends on the skill of the teacher."

What was taught?

"Geography, mapping skills."

"Directions. Longitude and latitude."

What subject areas contributed to this lesson?

"Mathematics."

"History of science, Astronomy."

How could learning be assessed?

"The teacher could observe the students at the computers."
"The students could be required to plot their own journey using latitude and longitude."

IV. Summary Activity

20 minutes

This discussion focuses on comparison of the **Geography Tutorial** and **Navigation Exploration**.

Distribute **Handout #4**, which outlines characteristics of software as defined by authors Maddux, Johnson, and Willis in their book *Educational Computing: Learning with Tomorrow's Technologies*. The authors define two software categories: **Type I** which might also be called drill-and-practice, tutorial, author-driven, or full structure; and **Type II** which is also described as exploratory, learner-driven, or empty structure. Let the participants name the categories, rather than using the Type I & II designations. Give the participants several minutes to read the page then pose these questions:

Handout #4
Type I & II

Type I	Type II
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

*What are some examples of software that fit the **Type I** description?*

Some examples might include Math Blaster™, IMPAC™ lab, Josten's Learning Center.

*What are some examples of software that fit the **Type II** description?*

Some examples might include Geometer's Sketchpad™, word processing applications, Inspiration™, Solar System Rescue™. There may be some difference of opinion concerning such technology tools as the Internet (is looking for an assigned topic exploratory or author-driven?) or presentation programs (a teacher may develop an exciting slide presentation, but if the student is a passive observer, who was the explorer in the activity?).

How would you describe the first software we used?

How would you describe the second software we used?

These are leading questions that should be fairly evident to the participants—the first example was designed as an example of **Type I**, while the second exemplifies **Type II**.

Instead of using the terms Type I and Type II, how would you label the two kinds of software we have been discussing?

For **Type I** the terms might be tutorial, drill-and-practice, author-driven, or full structure. **Type II** might be described as exploratory, learner-driven, or empty structure. The participants may, of course, come up with their own nomenclature. Let them choose one they want to use and begin to refer to the software with their chosen name.

What are your thoughts about the value of these different kinds of software and the lessons that accompanied them?

Most participants find value in **bo**th examples.

Compare the role of the teacher in each of these activities.

The second activity required a much stronger role for the teacher. While serving as a facilitator, the teacher's guidance is essential to the success of the lesson. Additionally, that activity required extensive teacher design, including development of accompanying support materials, to be effective. This could lead to a discussion about the important role of a teacher in a constructivist learning environment.

What was the role of the learner?

There may be fairly extensive discussion of this point. Some participants may feel that the **Navigation Exploration** activity

would not be successful without establishing a solid learner knowledge base before its presentation. Others may feel that the exploration of the exercise provided enough content and allowed the learner to discover it and use it personally.

V. Extension Activities: Taking It Further

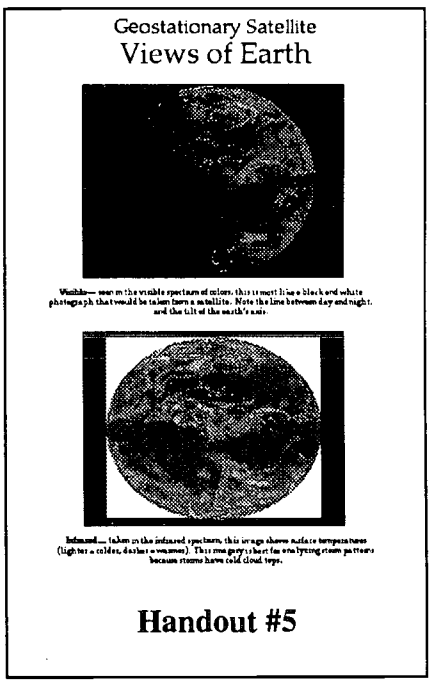
30-45 minutes

While the central content of these activities has been geography, the possibilities for multidisciplinary extensions are very rich. Here are two suggestions for taking the satellite exploration and it to other content, the first in science, the second in history.

Find the Geostationary Satellite

There are satellites stationed directly above Earth's equator, moving at exactly the same rate as Earth's rotation, continually transmitting images, day and night, every day of the year. Many of those images can be found on the World Wide Web. Figure out the location of one or two of these satellites by trying to match the image in Earthplot *(or* On Top of the World*) to the image received from the satellite.*

Handout #5 provides pictures from a satellite looking down on South America. If the visible (VIS in the web sites listed below) image is used, the line dividing day and night will be clearly seen. These images can lead to questions about the tilt of the earth's axis and resulting seasons. Teachers may want their students to view these images on the Web at different times of the year to illustrate changes in the planet's tilt. Because the infrared (IR in the web sites listed below) satellites are looking at surface temperatures (better for locating storms), the line between day and night is not seen.

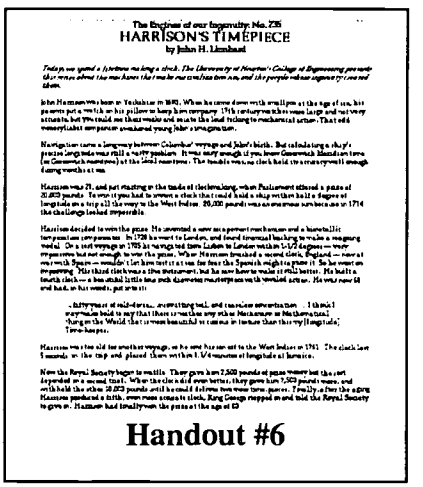


Satellite 1, IR:
http://goeshp.wwb.noaa.gov/FULLDISK/GEIR.GIF
Satellite 1, VIS:
http://goeshp.wwb.noaa.gov/FULLDISK/GEIR.GIF
Satellite 2, IR:
http://goeshp.wwb.noaa.gov/FULLDISK/GWIR.GIF
Satellite 2, VIS:
http://goeshp.wwb.noaa.gov/FULLDISK/GWVS.GIF

Explore History Connection

Handout #6 presents two articles, "The Duchess & Greenwich" and "Harrison's Timepiece" that comment on the social context surrounding the development of longitude in the seventeenth century. These articles were written by Dr. John Lienhard of the University of Houston and broadcast on the National Public Radio program *The Engines of Our Ingenuity*. These and more than 1000 others can be found on the program's website, an Internet resource dedicated to the benefits derived from human creativity in science and technology.

- The Engines of Our Ingenuity- http://www.uh.edu/engines/
  The Duchess & Greenwich - www.uh.edu/engines/epi627.htm
  Harrison's Timepiece - www.uh.edu/engines/epi235.htm



The Engines of our Ingenuity: No. 235

HARRISON'S TIMEPIECE

by John H. Lienhard

Handout #6

Build a Scrapbook

One powerful part of these software programs is their ability to transfer the screen images to graphic formats. For example, during this activity participants can create a scrapbook of earth images that illustrate the different locations of the earth as it rotates throughout a day. When the participants reach the North Pole location, have them take a "snapshot" of the earth and paste it into a text document.

- *In* Earthplot, *under the Edit menu, choose* **Copy**. *Open a document in a text file and* **Paste** *the picture into it. Name this document "Earth Views."*

After you've rotated your globe one hour, take a picture of the image and paste that new picture next to the first picture you placed in your "Earth Views" document. You may want to record several more rotations in the document.

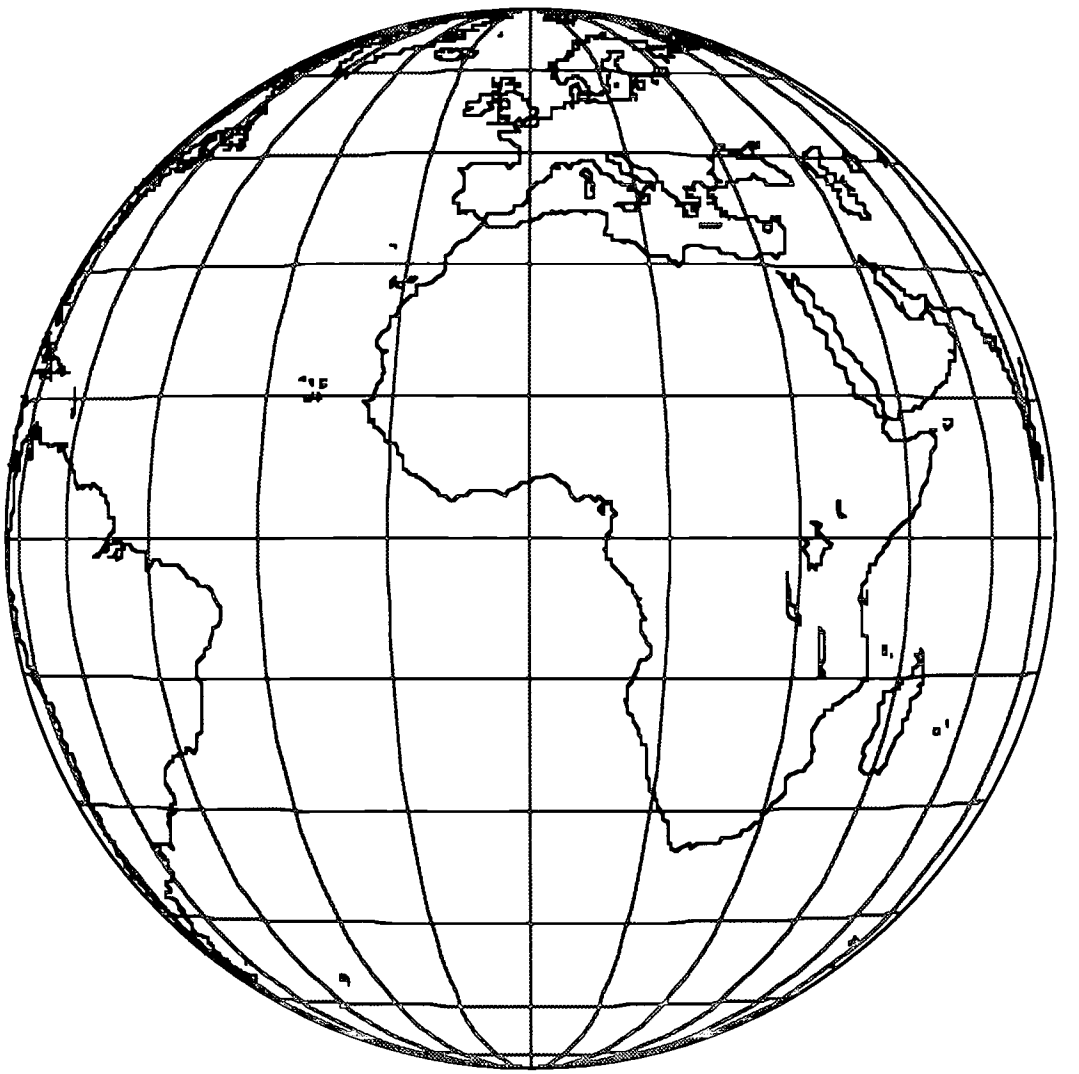
- *In* On Top of the World, *save the image as a graphic file and paste it into a document. Name this document "Earth Views."*

Handouts & Materials

Handouts

Materials

Where in the World?
An exploratory activity



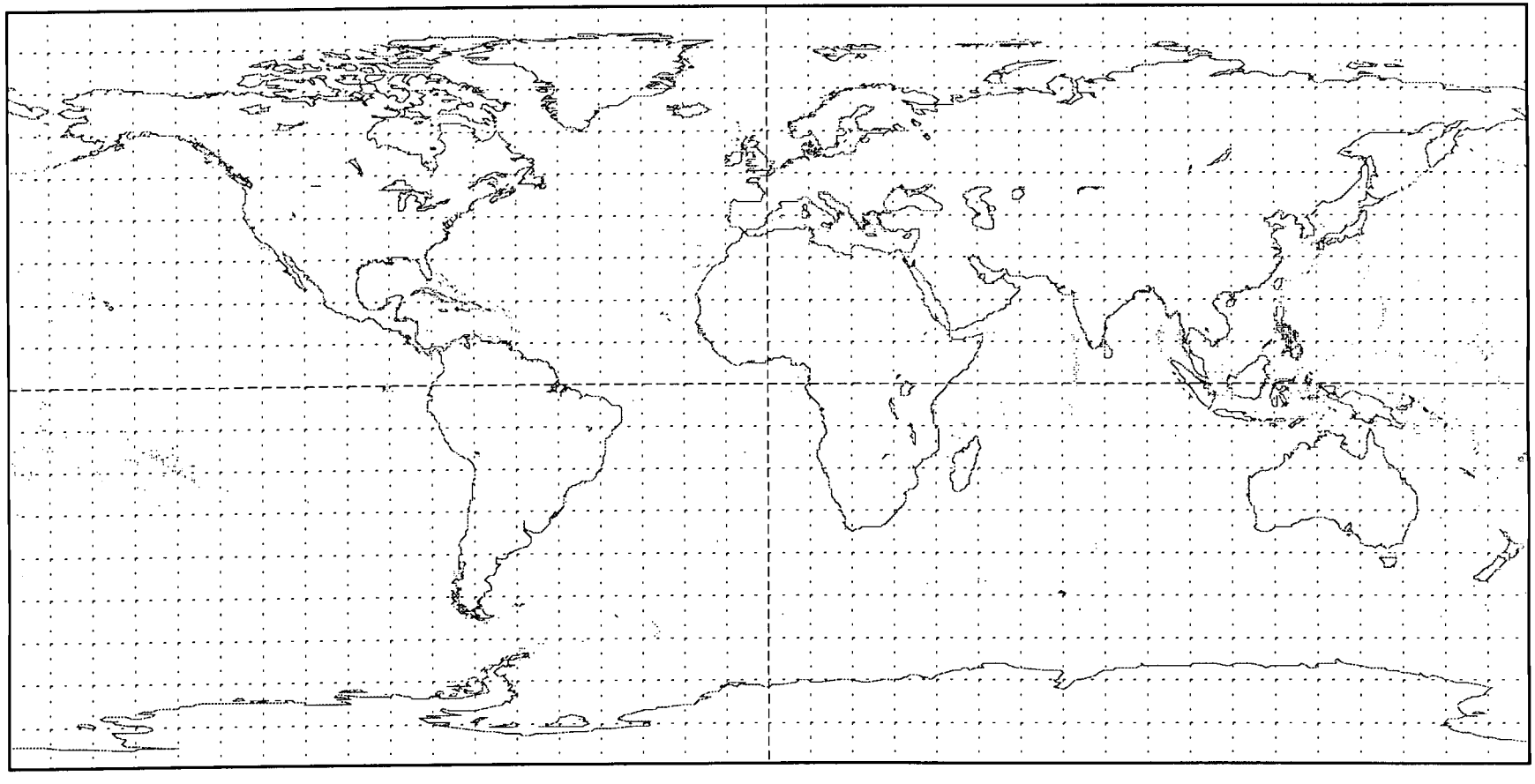
The World

viewed from a satellite positioned above

New Orleans

Cylindrical Projection

World Map



The Computer as a Tool
for Exploration, Investigation, and Discovery

Type I Applications

1. Type I applications generally stimulate relatively passive intellectual involvement on the part of the user.
2. The software developer predetermines almost everything that happens on the screen.
3. The type of interaction between user and machine is predetermined by the developers of the software; the user's contribution must conform to a very limited range of acceptable responses.
4. Type I applications are usually aimed at acquisition of facts by rote memory.
5. Everything the software is capable of doing can usually be observed in a very short period of time, frequently in ten minutes or less.

Type II Applications

1. Type II applications generally stimulate relatively active intellectual involvement on the part of the user.
2. The user, rather than the software developer, is in charge of almost everything that happens.
3. The user has a great deal of control of the interaction between the user and machine, and there is an extensive repertoire of acceptable user input.
4. Type II applications are usually aimed at accomplishing more creative tasks.
5. It generally takes many hours of use before the user has seen everything that a specific program is capable of doing.

Examples

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Examples

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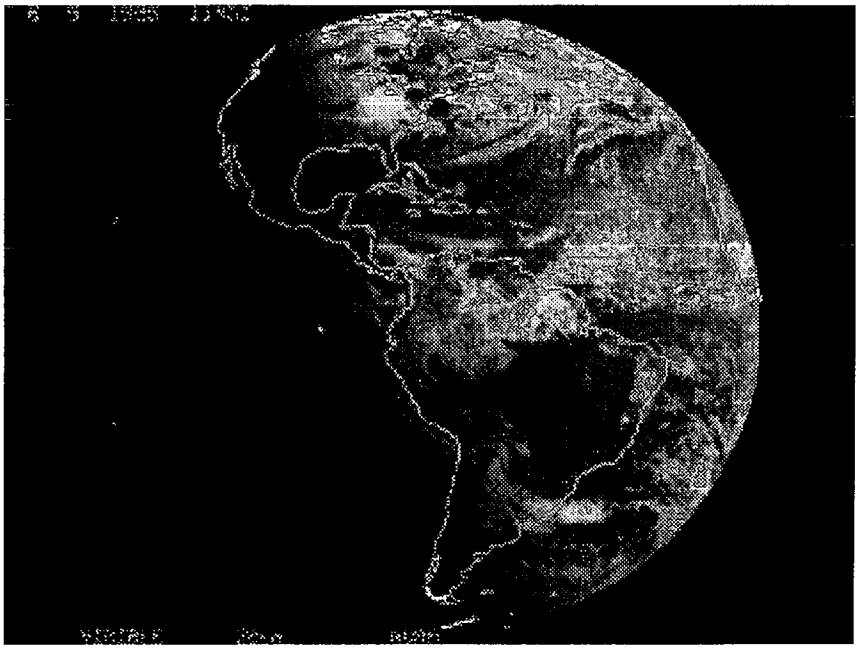
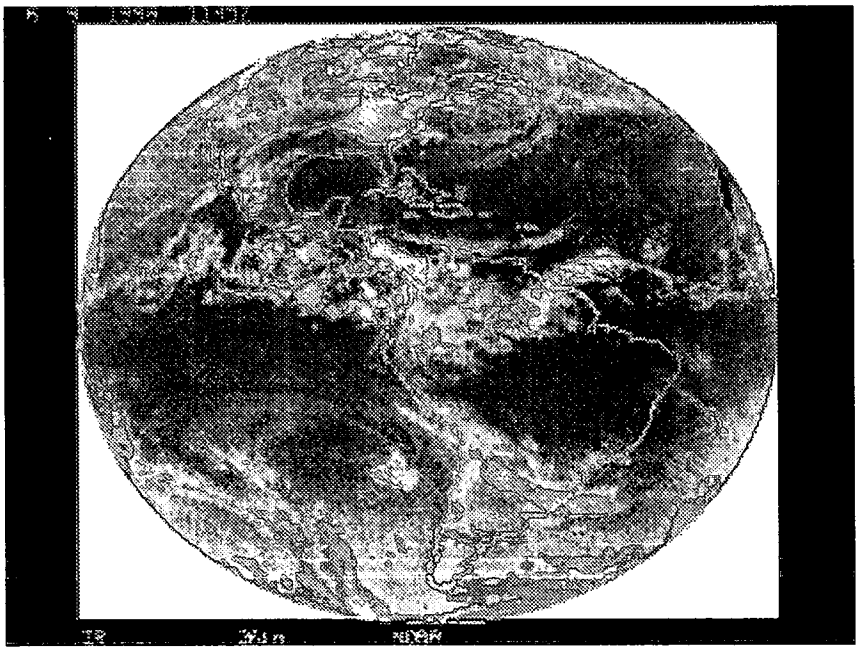
1. C. Maddux, D. Johnson, J. Willis (1997.) *Educational Computing: Learning with Tomorrow's*
2. *Technologies*, 2nd ed. Allen & Bacon: Boston.

Geostationary Satellite
Views of Earth



Visible — seen in the visible spectrum of colors, this is most like a black and white photograph that would be taken from a satellite. Note the line between day and night, and the tilt of the earth's axis.



Infrared — taken in the infrared spectrum, this image shows surface temperatures (lighter = colder, darker = warmer). This imagery is best for analyzing storm patterns because storms have cold cloud tops.

The Engines of our Ingenuity: No. 627

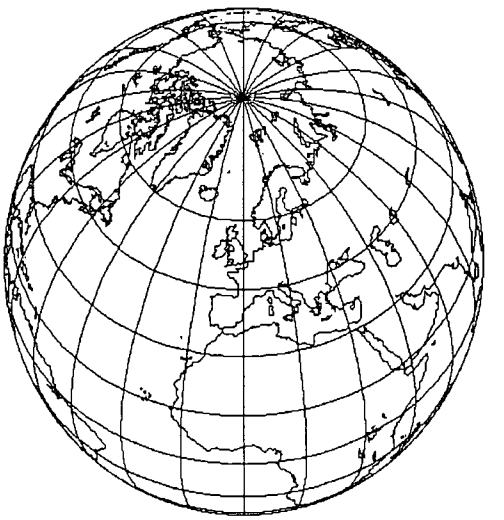
THE DUCHESS & GREENWICH

by John H. Lienhard

Today, we meet the King, his mistress, and a smart young astronomer. The University of Houston's College of Engineering presents this series about the machines that make our civilization run, and the people whose ingenuity created them.

King Charles II took yet another mistress in 1670. She was a dark haired beauty from Brittany in France. She bore him a son two years later, and he made her the Duchess of Portsmouth. The Duchess was the King's clear favorite. Some wondered if she might not be a French spy in the English court.

By now a scientific question was gathering importance. This was the age of navigation. European ships were ranging the oceans. It was easy enough for navigators to fix their latitude. But no one knew how to find their ship's longitude. That was the uncertainty that almost killed Columbus, 180 years earlier.



The Prime Meridian was established by the location of the Greenwich Observatory.

The King had recently created the Royal Society to advance science. Now the Society urged him to build an observatory. We needed better astronomical data to solve the longitude problem.

The proposal was foundering in red tape. Then the Duchess produced a friend from Brittany. He was an amateur astronomer named St. Pierre. Once in the English Court, he claimed he could calculate longitudes. In December, 1674, the King set up a Royal Commission to study St. Pierre's method. It included Christopher Wren and Robert Hooke. Those were heavy hitters. But, for astronomical advice, they turned to a young man named John Flamsteed.

Flamsteed saw that St. Pierre's method was inherently inaccurate. Worse yet, he'd taken it from two other astronomers, long dead. And when Flamsteed questioned St. Pierre, he found the fellow didn't even understand the method he was proposing. Flamsteed reported to the King that we'd have to get longitudes by another method entirely. Then we'd only do it when we had far better data on locations of stars and planets.

Flamsteed's answer to St. Pierre made it crystal clear that England urgently needed the observatory. King Charles reacted. That very day he signed the warrant to build the Greenwich Observatory. He set up the world benchmarks for longitude and time.

So the Duchess' friend, St. Pierre went back to France. We don't hear from him again. Yet he and the King's mistress had precipitated one of the important scientific projects of all time. Ten years later, the King elevated another mistress to the aristocracy. He made her — and not the Duchess — Countess of Greenwich.

So the King and his court swirled about and played their roles. But in the midst of it all was quiet John Flamsteed. And it was he who really redirected history.

Howse, D., Greenwich Time: and the Discovery of Longitude, New York: Oxford University Press, 1980, Chapter 2.

The Engines of our Ingenuity: No. 235

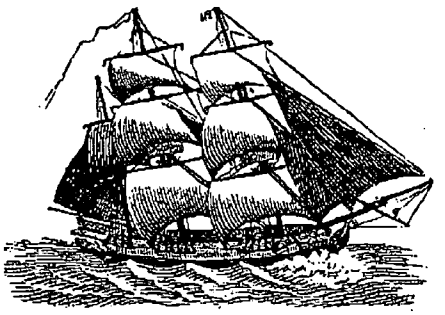
HARRISON'S TIMEPIECE

by John H. Lienhard

Today, we spend a lifetime making a clock. The University of Houston's College of Engineering presents this series about the machines that make our civilization run, and the people whose ingenuity created them.

John Harrison was born in Yorkshire in 1693. When he came down with smallpox at the age of six, his parents put a watch on his pillow to keep him company. 17th century watches were large and not very accurate, but you could see their works and relate the loud ticking to mechanical action. That odd monosyllabic companion awakened young John's imagination.

Navigation came a long way between Columbus' voyage and John's birth. But calculating a ship's precise longitude was still a nasty problem. It was easy enough if you knew Greenwich Meridian time (or Greenwich noontime) at the local noontime. The trouble was, no clock held its accuracy well enough during months at sea.



Ships at sea needed accurate tools for navigation.

Harrison was 21, and just starting in the trade of clockmaking, when Parliament offered a prize of 20,000 pounds. To win it you had to invent a clock that could hold a ship within half a degree of longitude on a trip all the way to the West Indies. 20,000 pounds was an enormous sum because in 1714 the challenge looked impossible.

Harrison decided to win the prize. He invented a new escapement mechanism and a bimetallic temperature compensator. In 1728 he went to London, and found financial backing to make a seagoing model. On a test voyage in 1735 he navigated from Lisbon to London within 1½ degrees — very impressive but not enough to win the prize. When Harrison finished a second clock, England — now at war with Spain — wouldn't let him test it at sea for fear the Spanish might capture it. So he went on improving. His third clock was a fine instrument, but he saw how to make it still better. He built a fourth clock — a beautiful little four inch diameter masterpiece with jeweled action. He was now 68 and had, in his words, put into it:

> ... fifty years of self-denial, unremitting toil, and ceaseless concentration. ... I think I may make bold to say that there is neither any other Mechanism or Mathematical thing in the World that is more beautiful or curious in texture than this my [longitude] Time-keeper.

Harrison was too old for another voyage, so he sent his son off to the West Indies in 1761. The clock lost 5 seconds on the trip and placed them within 1¼ minutes of longitude at Jamaica.

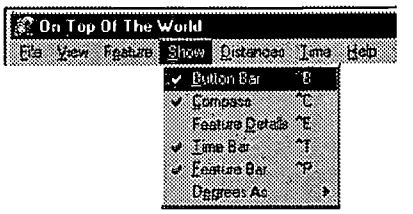
Now the Royal Society began to waffle. They gave him 2,500 pounds of prize money but the rest depended on a second trial. When the clock did even better, they gave him 7,500 pounds more, and withheld the other 10,000 pounds until he could deliver two more time-pieces. Finally, after the aging Harrison produced a fifth, even more accurate clock, King George stepped in and told the Royal Society to give in. Harrison had finally won the prize at the age of 80. Harrison had devoted his entire life to adding one really beautiful and lasting thing to this world. It was a hard bargain, but in the end it was a bargain we all might envy.

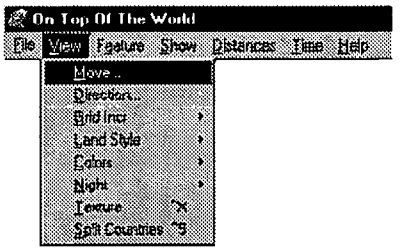
Wilford, J.N., The Mapmakers, New York: Vintage Books, Random House, 1982, Chapter 9.

Set Up

Before the participants enter the computer lab, launch On Top of the World™.

Pull down the **Show** menu; by default, the **Button Bar, Compass, Time Bar,** and **Feature Bar** are "on." To simplify the use of the program for this activity, and to remove shortcuts, click on each of these to turn them "off." (Someone will likely realize that double-clicking on the globe re-centers the globe to that point. If this is discovered, discourage divulging that information to others.)





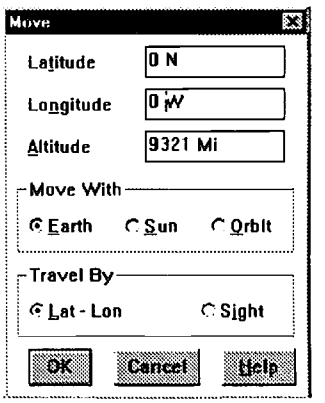
Next, pull down the **View** menu, and select the **Move** option.

In the **Move** window that appears, enter "0 N" for latitude and "0 W" for longitude.

Set the Altitude to 9321 miles (the maximum setting).

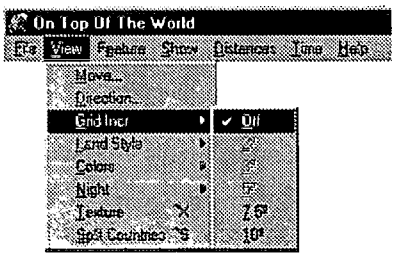
Also be sure that "Earth" is selected in the "Move With" box, and "Lat - Lon" is selected in the "Travel By" box.

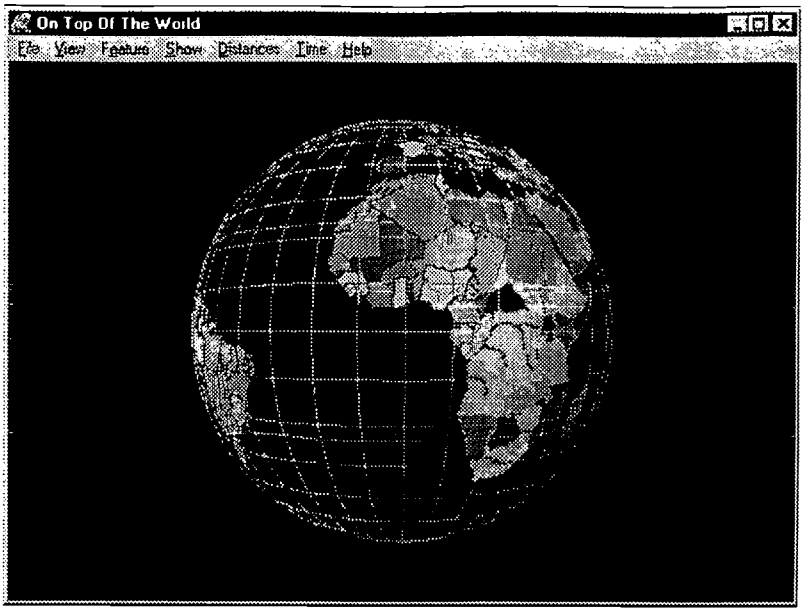
Click the **[OK]** button.



For the beginning of the activity, participants should work without the benefit of latitude and longitude lines; turn them "off" by checking **Off** in the **Grid Incr** under the **View** menu.

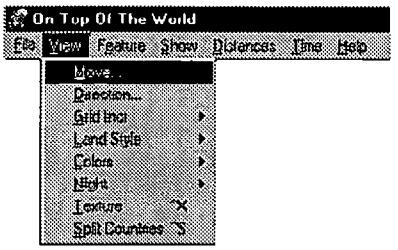
Participants may turn this option "on" soon after beginning the activity.





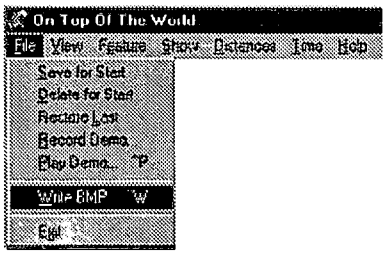
The resulting window should be an uncluttered view of Earth with 0 latitude and 0 longitude in the center of the circle.

Navigating

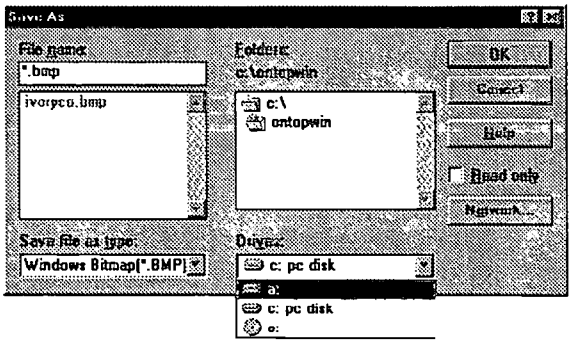


To relocate the satellite position, pull down the **View** menu, and select the **Move** option. Enter new values for latitude and longitude, but leave other settings as they are for now.

Saving an Image



To save a map image, pull down the **File** menu and select **Write BMP**; identify a target disk and directory. Click **[OK]**.



In the Save As window, select the target drive (A: = floppy disk, C: = hard disk).

Replace "*.bmp" with your desired file name. Remember that the Microsoft™ platform requires no more than 8 letters in the name, and the ".bmp" suffix.

Background information for the instructor

Earthplot

ftp://mirror.apple.com//mirrors/mac.archive.umich.edu/misc/astronomy/earthplot3.01.sit.hqx

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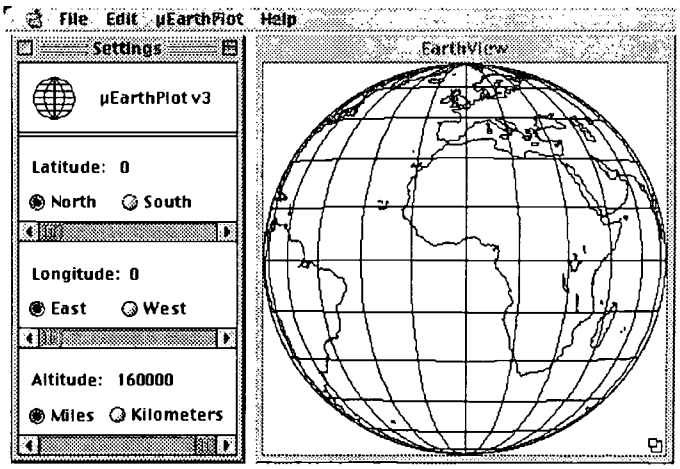
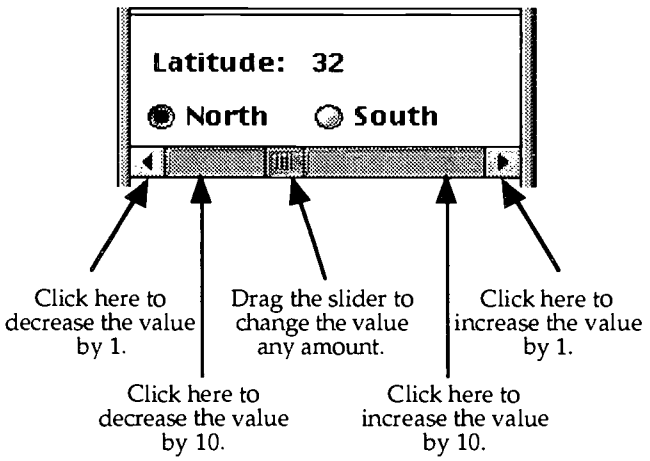
Navigating



The Earthplot program is extremely simple in design and to use. There are two windows: the **Settings** window allows changing the latitude and longitude values. (Recommend that the **Altitude** setting not be changed.)

The **Earthview** window is where the map will be drawn. It may be resized by dragging the square in the lower right corner.

The latitude and longitude values are changed by use of the scrollbars, as illustrated:

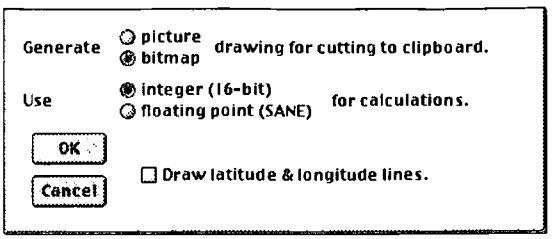


To see the changes, pull down the **Earthplot** menu, and select **Draw Earth**. Any apparent delays in drawing the map are due to the program drawing the part of the earth that is hidden from view.

Options

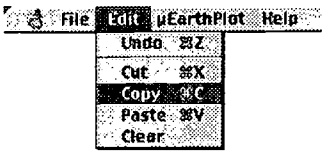
One option should be mentioned. Under the **Earthplot** menu, selecting **Options...** will display the window shown below.

For the purpose of this activity, ignore everything in this window except "Draw latitude and longitude lines." (The "integer" and "floating point" buttons have no effect on newer Macs. The "picture" option will create a better image if copied and pasted into another application, such as a word processor.)

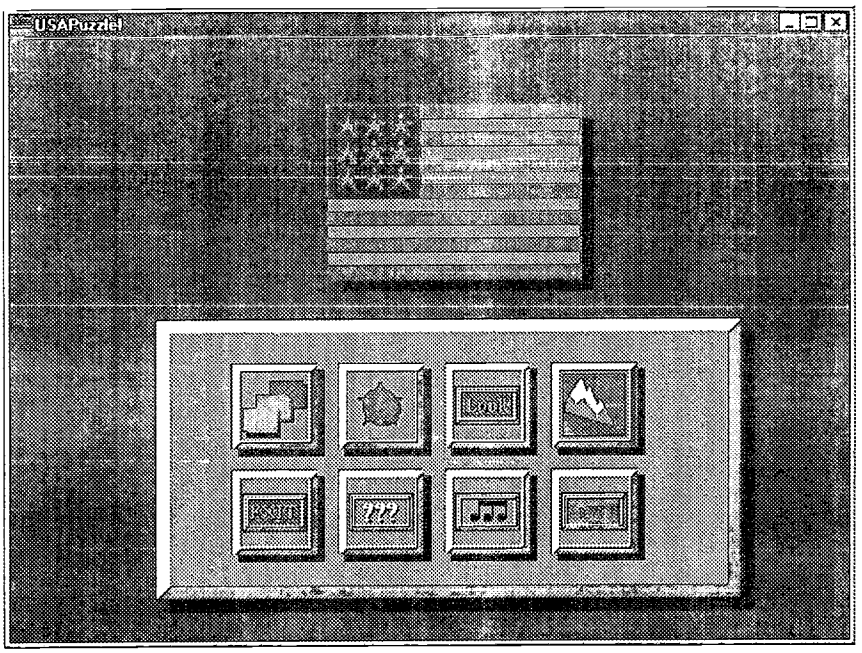


Saving an Image

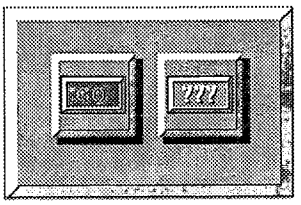
To save a map image, pull down the **Edit** menu and select **Copy**; the copied map image may be pasted into the Scrapbook or into any other program (such as a word processor or graphics editor).



Tips and Techniques for Using USA Puzzle



States Game



When this game is started, a second option box appears. You may select:

 to proceed to play the puzzle, or

 to read directions and some operating tips.

The puzzle begins with an outline map of the United States displayed in the center of the window. An outline of one of the states appears in the upper left corner of the same window. The object of the puzzle is to rotate the state to the correct orientation, and place it in the correct location on the map as quickly as possible. A timer at the top of the window displays elapsed time.

Rotate the state by pressing the  or  keys on the keyboard.
Move the state by dragging it with the mouse. If the state is not in the correct location and position when the mousebutton is released the state will disappear from the screen and another state will appear. (The "lost" state will reappear later to give the player another chance.) The game continues until all states are correctly positioned.

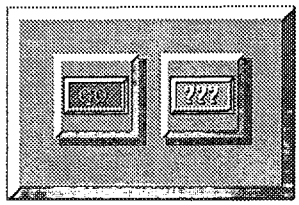
Two important tips:

1. Outlines of all the states can be shown in the "Look" option of the

opening menu.

2. *For first-time players the expected accuracy of placement of the states should be set to "20" in the "Level" option of the opening menu.*

Capitals Game



As in the States game, when this game is started, a second option box appears. You may select:

 to proceed to play the puzzle, or

 to read directions and some operating tips.

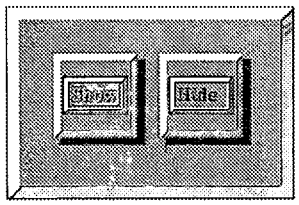
The puzzle begins with an outline map of the United States displayed in the center of the window. A star appears in the upper left corner of the window, along with the name of a state capital. The object of the puzzle is to place it in the correct location on the map as quickly as possible. A timer at the top of the window displays elapsed time.

Move the star by dragging it with the mouse. If the star is not in the correct location when the mousebutton is released, it will disappear from the screen and another star will appear. (The "lost" capital will reappear later to give the player another chance.) The game continues until all states are correctly positioned.

Two important tips:

1. *Locations of all the capitals can be shown before play begins by selecting the "Look" option of the opening menu.*
2. *For first-time players the expected accuracy of placement of the states should be set to "20" in the "Level" option of the opening menu.*

"Look" Option



When the "Look" option is selected, the player may choose to **Show** or **Hide** clues, as described in the game summaries above.

Information about Torpedo Software.

Click here to learn more about the source of the program.

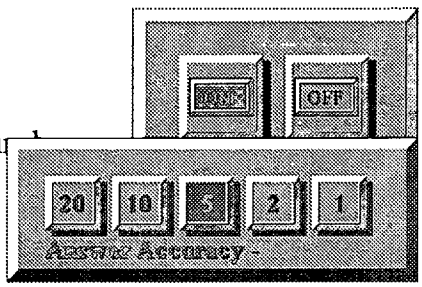
Exit the program

Click here to quit playing the game.

Instructions and Tips for using the program

This option gives a quick overview of using the program. Look for this same icon when starting play of each game to see the instructions and tips for that game.

Sound Effects



The player may select whether to turn simple sou
effects **On** or **Off**.

Level

Especially important for those playing the game the first time, this option selects the required accuracy for placement of states or capitals.

1 = exact location
20 = broad range of error.

(This is important for placement of interior states when the outlines are not shown and no neighboring states are yet in place!)

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National Library of Education (NLE)
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