ARIZONA ACADEMIC STANDARDS

GRADE 5

State of Arizona
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ARIZONA ACADEMIC STANDARDS
GRADE 5

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Additional information about the Arizona Academic Standards including glossaries of terms may be found at http://www.ade.az.gov/standards/contentstandards.asp.

The Arts Standard 2006

Grade 5

ARIZONA ACADEMIC STANDARDS IN THE ARTS
ARTICULATED FOR FIFTH GRADE




Philosophy and Rationale for the Arts

The arts are essential in education for they provide students with the means to think, feel, and understand the world around them in ways unique and distinct from other academic disciplines. These skills have been recognized as essential to lifelong success both in and out of school by a variety of education and civic leaders, including the National Association of State Boards of Education, the Education Commission of the States, the Arts Education Partnership, and *BusinessWeek*.

Arts Education in Arizona

Arizona has recognized the importance of arts education for its students in a variety of ways, including:

- Requiring music and visual arts be taught in grades K-8
- Creating high quality certifications (endorsements) for teachers in the areas of dance, music, theatre and visual arts
- Requiring a fine arts high school credit for admission to our state's universities
- Adopting Academic Standards in the Arts, with rigorous, sequential guidelines for creating quality arts education for Arizona's students.

Arts Standards Articulation for Fifth Grade

- The Arts Standards are divided into four discipline areas: dance, music, theatre and visual arts.
- The Music Standard is articulated for general music by grade level for Kindergarten – 8th grade.
- The remaining Standards (Dance, Theatre, Visual Arts) are articulated by **skill level**, reflecting the variety of ways in which the arts are taught in Arizona schools. Included in this **Fifth Grade** packet are the **Intermediate Skill Level Performance Objectives** for Dance, Theatre and Visual Arts. If your students are more or less advanced, or if you would like to see how these skill articulated standards build on one other, the Department encourages you to view the arts standards in their entirety at http://www.ade.az.gov/standards/contentstandards.asp.

Additional Resources for Arts Education

Additional resources on arts education can be accessed at http://www.ade.az.gov/asd/arts/ or by calling the Department's Arts Education Specialist at 602-364-1534.

ARIZONA ACADEMIC STANDARDS IN THE ARTS
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INTERMEDIATE DANCE

Strand 1 - Create

Concept 1: Body Intermediate Objectives	
Healthy Practices	PO 201 Identify and apply individual patterns and habits that influence a safe and healthy body in dance (e.g. **injury prevention**)**.**
Anatomy	PO 202 Identify skeletal components and major muscle groups.
Dynamic Alignment	PO 203 Demonstrate **dynamic alignment** through extended, more complex movement combinations and varying dance styles.
Fundamental Movement Patterns	PO 204 Apply **fundamental movement patterns** to warm-ups and improvisation.
Body Skills	PO 205 Apply **basic body skills** in all movement applications including warm-ups, improvisation, choreography etc.

Concept 2: Movement Skills Intermediate Objectives	
Axial/Non-locomotor	PO 201 Utilize dynamic alignment while performing sequenced combinations of basic **axial movements**.
Locomotor	PO 202 Utilize dynamic alignment while performing sequenced combinations of basic **locomotor movements**.
Axial and locomotor combinations	PO 203 Perform more complex combinations, which require increased motor memory and coordination.
Articulation of movement skills	PO 204 Apply **breath support, initiation of movement, connectivity,** and **transition** from one movement to another in performing short movement phrases.

ARIZONA ACADEMIC STANDARDS IN THE ARTS
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Strand 1 – Create (continued)

Concept 3: Elements of Dance Intermediate Objectives	
Time: Tempo *See also "Relating Dance and Music"*	PO 201 Demonstrate moving while maintaining a steady beat in a variety of tempos.
Time: Meter	PO 202 Demonstrate the ability to perform a phrase in both duple and triple time.
Time: Rhythm	PO 203 Demonstrate moving in relation to and coordination with changes in rhythm and meter in even and **syncopated** rhythms.
Space: Direction, Facing, Pathway	PO 204 Demonstrate clarity of facings in space while moving in different directions.
Space: Level	PO 205 Demonstrate the ability to move through space at low, middle and high levels.
Space: Shapes	PO 206 Demonstrate the ability to work with a partner and/or group to create a variety of shapes.
Space: Size and Range	PO 207 Use size and range to vary an existing movement phrase and analyze the effect of such changes.
Space: Focus and Intent	PO 208 Demonstrate use of various **points of focus** to convey meaning.
Energy: Movement Qualities	PO 209 Apply the **movement qualities** to develop and revise movement phrases.
Energy: Effort	PO 210 Apply the **effort principles** to develop and revise movement phrases.

Strand 1 – Create (continued)

Concept 4: Improvisation/Choreography Intermediate Objectives	
Improvisational Strategies	PO 201 Identify and apply more **advanced improvisational strategies** (e.g. props, responding to movement of others, literal/abstract, contact).
Using the Elements of Dance to Communicate	PO 202 Using the elements of dance, create dance phrases that communicate meaning.
Ideas and Themes	PO 203 Create dance **phrases** that use ideas and themes as motivation.
Choreographic Processes	PO 204 Identify and demonstrate the use of **choreographic devices** to create dance phrases.
Choreographic Forms	PO 205 Create dance **phrases** that incorporate a single **choreographic form**.
Choreographic Principles	PO 206 Using the **choreographic principles**, analyze and revise existing dance phrases.
Technology	PO 207 Use technology or software to record a dance or phrase.
	PO 208 Use technology or the internet to share choreography and discussion between two different schools/groups.

Concept 5: Performance Values Intermediate Objectives	
Focus and Concentration	PO 201 Maintain consistent concentration and focus while moving or holding a fixed position.
Kinesthetic and Spatial Awareness	PO 202 Demonstrate appropriate **kinesthetic awareness** while performing alone or with a group.
Performance Qualities	PO 203 Identify and perform dance with projection and overall expression.

ARIZONA ACADEMIC STANDARDS IN THE ARTS
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Strand 1 – Create (continued)

Concept 6: Production Design Intermediate Objectives	
Production terms, crew, elements	PO 201 Identify the roles of the production **crew members**.
Marketing and budget	PO 202 Identify and analyze components, sources and steps in budgeting for a dance concert.
Technology	PO 203 Observe and discuss the ways to use technology in design and production of a theatrical performance.

Strand 2 - Relate

Concept 1: Dance Forms/History Intermediate Objectives	
Production terms, crew, elements	PO 201 Demonstrate knowledge of the historical development and continued evolution of the various dance forms.
Marketing and budget	PO 202 Discuss and demonstrate how historical influences affect the theoretical and technical differences of various dance forms.
Technology	PO 203 Describe the historical evolution of the use of technology in dance.

Concept 2: Social and Cultural Influences Intermediate Objectives	
Cultural Dances	PO 201 Perform dances from a variety of cultures. Compare the styles and movements of the different dances in relation to the elements of dance.
Meaning of Cultural Dances	PO 202 Compare and contrast the meaning, purpose and roles people play in various **social/cultural** and **folk** dances.
Contemporary Cultural Dances	PO 203 Identify and analyze the influence of pop culture on social dance (e.g. various decades).

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Strand 2 – Relate (continued)

Concept 3: Dance and Literacy Intermediate Objectives	
Using text to create movement	PO 201 Create a thematic movement phrase to express images, ideas, situations, and feelings found in text.
Using text to describe and understand movement	PO 202 Apply descriptive language (similes and metaphors) and dance terminology to express images, ideas and feelings that are danced.

Concept 4: Dance and other disciplines Intermediate Objectives	
Using movement with other disciplines	PO 201 Create a thematic movement phrase to express ideas, concepts and images (e.g. numbers, patterns, sounds, textures, animals) found in other disciplines.
Integrating dance and other art forms	PO 202 Relate the elements used in dance to the elements of other art forms.
Careers	PO 203 List the skills learned through dance and how they relate to other career fields (e.g. problem solving, discipline, collaboration, anatomy).

Concept 5: Dance and Music Intermediate Objectives	
Elements of music	PO 201 Identify and explore (e.g. discussion, body percussion, locomotors, other body movements). rhythmic structure of various music examples.
Rhythmic Patterns/Variations	PO 202 Demonstrate the ability to alter the tempo, rhythm and/or meter of a movement phrase002E
Technology	PO 203 Using current technology create a sound-score for dance.

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Strand 3 – Evaluate

Concept 1: Understanding Dance Intermediate Objectives	
Dance Terminology	PO 201 After observing a dance, using dance terminology, discuss how the **elements of dance** haves been manipulated within the choreography.
Production Elements	PO 202 After observing a dance, analyze how the production elements have enhanced the intent of the choreographer.
Communicating Meaning	PO 203 Interpret how the **elements of dance** and **choreographic strategies** can be used to communicate meaning in dance.
Evaluation Criteria	PO 204 Using selected criteria, evaluate its effectiveness in dance choreography or performance.
Personal Interpretation	PO 205 Explain your reaction to a dance and identify how your personal experiences lead you to your response.
Technology	PO 206 Use technology over time to understand and analyze individual progress of technique, choreography and performance values.

Concept 2: Professionalism Intermediate Objectives	
Classroom, rehearsal and performance behaviors	PO 201 Contribute to and support a nurturing and safe classroom, rehearsal and performance environment. by modeling appropriate practices.
Audience Etiquette	PO 202 Demonstrate appropriate **audience behavior** in all performance situations and respond with relevant and supportive comments.
Portfolio collection and maintenance	PO 203 At regular intervals, record and discuss movement skills acquired, choreography and performances. Self-assess progress. Maintain records for future use.

ARIZONA ACADEMIC STANDARDS IN THE ARTS
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GRADE 5 MUSIC

Strand 1: Create

Concept 1: Singing, alone and with others, music from various genres and diverse cultures.
PO 1 Singing songs with **descants** on **pitch** with an appropriate tone quality, **diction** and posture.
PO 3. Singing short songs from written **notation**.
PO 4. Responding expressively to conducting **cues** (e.g., **legato**, **dynamics**)

Concept 2: Playing instruments, alone and with others, music from various genres and diverse cultures.
PO 2. Playing simple independent instrumental parts while other students sing or play contrasting parts.
PO 3. Playing short songs from written notation.
PO 4. Responding expressively to conducting cues (e.g., legato, dynamics).

Concept 3: Improvising rhythms, melodies, variations, and accompaniments
PO 1. **Improvising** a **melody** based on a given **tonality**.

Concept 4: Composing and arranging music.
PO 1. Composing short pieces using standard musical **notation** in the treble **clef** within specified guidelines.

Concept 5: Reading and notating music.
PO 2. Reading/decoding sixteenth notes and sixteenth note patterns and simple **syncopation** in 2/4, 3/4 and 4/4 time **signatures**.
*PO 3. Identifying the letter names for the lines and spaces of the treble **clef**.*
PO 4. Reading and notating music using standard musical notation.
PO 5. Defining terms and symbols used in music notation as identified in previous grade levels.

ARIZONA ACADEMIC STANDARDS IN THE ARTS
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Strand 2: Relate

Concept 1: Understanding the relationships among music, the arts, and other disciplines outside the arts.
PO 1. *Identifying the use/function of music from various cultures correlating to grade level social studies curriculum.*
PO 2. Explaining the nature of sound as vibration.
PO 3. Explaining and applying the relationship between note values and mathematics
PO 4. Exploring and analyzing the relationship of music to language arts, visual arts, literature

Concept 2: Understanding music in relation to history and culture.
PO 1. Describing the historical context and or influence of music on daily life, culture, politics, etc.
PO 2. Describing the cultural context and or influence of music on daily life, culture, politics, etc.
PO 3. Describing the origins and development of instruments
PO 4. Classifying different musical careers.

Concept 3: Understanding music in relation to self and universal themes.
PO 1 Reflecting on and discussing the roles and impact music plays in their lives and the lives of others.
PO 2. Distinguishing music preferences (I like it because…) from music judgments (It is good because) from cultural judgments (It is important because…).

Strand 3: Evaluate

Concept 1: Listening to, analyzing, and describing music.
PO 1. Classifying **scales** as major, minor.
PO 2. Categorizing instruments as Western and non-Western.
PO 4 Identifying music examples by **genre**. PO 3. identifying AB, **ABA**, **canon**, and round **forms** when presented in performed and/or recorded music.

Concept 2: Evaluating music and music performances.
PO 1. Using established criteria (e.g., **dynamics**, pronunciation) to evaluate performances and **compositions**.
PO 2. *Listening attentively while others perform and showing appropriate audience behavior for the context and style of the music performed*.

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INTERMEDIATE THEATRE

Strand 1 - Create

Concept 1: Collaboration Intermediate Objectives
PO 201. Collaborate to create a scenario/**script** as a team.
PO 202. Collaborate to **design** and choose the **environmental** elements for a scenario/**script**.
PO 203. Collaborate and communicate in the **rehearsal** process.
PO 204. Collaborate in informal **performances**.

Concept 2: Acting Intermediate Objectives
PO 201. Work individually to create **characters** for theatre and/or other media productions (e.g., for **classical**, contemporary, realistic, and non-realistic **improvisations** and **scripted plays**).
PO 202. As a **character**, play out her/his wants by interacting with others, maintaining concentration, and contributing to the **action** of classroom **improvisations** (e.g., **scenes** based on personal experience and heritage, imagination, literature, and history).
PO 203. Demonstrate mental and physical attributes required to communicate **characters** different from themselves (e.g., concentration, sense recall, ability to remember lines and cues, breath and vocal control, body alignment, flexibility, and coordination).
PO 204. Communicate sensory images through movement, vocal, visual, or written expression.
PO 205. Implement theatre etiquette in rehearsal and production settings.

Concept 3: Theatre Technology and Design Intermediate Objectives
PO 201. Develop designs that use visual and aural elements to convey **environments** that clearly support the **text**.
PO 202. Implement technical theatre etiquette in **rehearsal** and production settings.
PO 203. Use available art materials, tools, and/or stock scenery (e.g., **rehearsal** blocks, puppets, curtains, backdrops) to create and convey **props** and/or **setting**.
PO 204. Create floor plans and **props**.
PO 205. Construct or locate appropriate **props** to enhance a **scene** or production.
PO 206. Use available lighting sources to enhance formal and informal theatre, film/video, and electronic media productions to create design elements.
PO 207. Create sound effects and select music to enhance a scene or production.
PO 208. Create costume drawings and/or make-up charts.
PO 209. Use standard procedures to efficiently and safely operate tools and equipment for technical aspects of formal and informal theatre, film/video, and electronic media productions.
PO 210. Develop technical designs based on design concepts (musical and visual art principles) that meet the requirements of the dramatic work, film/video, and electronic media production.

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Strand 1 – Create (continued)

Concept 4: Playwriting Intermediate Objectives
PO 201. Adapt a short, non-dramatic literary selection (e.g., folktale, poem, life story) into a scripted dramatic format.
PO 202. Dramatize and document scenes using a variety of characters to develop monologues and/or dialogue.
PO 203. Dramatize and document scenes based on life experiences using a variety of conflicts to create resolution to the story.
PO 204. Dramatize and document, both individually and in groups, scenarios that develop theme, plot, conflict, and dialogue.

Concept 5: Directing Intermediate Objectives
PO 201. Analyze dramatic **text** (e.g., folktale, myth, poetry, narrative, **monologue**, **scene**, **play**, etc.) to develop an informal **performance** describing **character motivations**, structure of the story, and the **role** of the **environment** in the story.
PO 202. Develop an understanding of how actors' qualities and skills are considered when casting various **characters** or **roles**.
PO 203. Make directorial decisions about group work and informal dramatic presentations (including **movement**, **voice**, etc.).
PO 206. Provide actor warm-ups that help them develop sensory recall, as needed, or as a means of accessing their characters.
PO 207. Implement theatre etiquette as a director in rehearsal and production settings.

Strand 2 – Relate

Concept 1: Collaboration Intermediate Objectives
PO 201. Identify social issues and individual attitudes that promote or impede the collaborative process.
PO 202. Discuss and implement the skills that address social issues in the collaborative process (e.g., accept leader/follower roles, how to negotiate differences of ideas) in an **informal production** and other school-related projects.
PO 203. Discuss how participation in theatre benefits other life skills and other content areas.

ARIZONA ACADEMIC STANDARDS IN THE ARTS
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Strand 2 – Related (continued)

Concept 2: Acting Intermediate Objectives
PO 201. Using self-evaluation and reflection, determine the influences of creative work on the individual and his/her community.
PO 202. Analyze the emotional and social impact (e.g., historical and contemporary) of **performances** in their lives and the lives of others.
PO 203. Analyze the historical, cultural effects on the **characters** and story of a dramatic concept, class **improvisation**, and theatre or other media production.
PO 204. Demonstrate how interrelated conditions (time, place, other **characters**, and the situation) influence the **characters** and stories in **formal productions** of theatre, film/video, and **electronic media**.
PO 205. Analyze the effects of their own cultural experiences on their dramatic work.
PO 206. Explain how one's own behavior might change in response to a performance (e.g., drug or alcohol abuse, criminal behavior, friendship, or family relationships).

Concept 3: Theatre Technology and Design Intermediate Objectives
PO 201. Research historical and cultural influences from a variety of resources (e.g., **text**, library, artifact, internet) to implement with credible **design** choices.
PO 202. Compare and contrast how nature, social life, and visual art practices and products influence and affect **design** choices for theatre, film/television, and **electronic media** productions in the past and the present.
PO 203. Analyze a variety of dramatic works for artistic (e.g., color, **style**, line, texture) and technical requirements influenced by history and culture.

Concept 4: Playwriting Intermediate Objectives
PO 201. Demonstrate and identify a **character**'s wants and needs, and physical, emotional, and social qualities based on historical and cultural influences.
PO 203. Research and identify contemporary social issues that can be explored through classroom **improvisation**.
PO 204. Discuss a class **improvisation** or **performance**'s storylines, **characters**, **dialogue**, and **actions**, and how they relate to real life situations.
PO 205. Compare how similar themes are treated in dramas of different genres and styles from various cultural and historical periods.
PO 206. Analyze the historical and cultural effects on the characters and story of a dramatic concept, class improvisation, and theatre or other media production.

ARIZONA ACADEMIC STANDARDS IN THE ARTS
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Strand 2 – Related (continued)

Concept 5: Directing Intermediate Objectives
PO 201. Research and use cultural, historical, and **symbolic** clues to develop an interpretation for visual and aural production choices.
PO 202. Present selected information from research to the **ensemble** to support the production process.
PO 203. Analyze the effects of personal and cultural experiences on the dramatic work.
PO 204. Analyze the historical and cultural effects on the **characters** and story of a dramatic concept, class **improvisation**, and theatre or other media production.

Strand 3: Evaluate

Concept 1: Collaboration Intermediate Objectives
PO 201. Model and use appropriate ways to give, take, and use praise and constructive **criticism**.

Concept 2: Acting Intermediate Objectives
PO 201. Describe physical and vocal attributes appropriate to the **characters** in the **play** in class and professional **performances**.
PO 202. Describe physical concentration and **character** interaction that advance the **plot** in class and professional **performances**.
PO 203. Evaluate a role by responding and deconstructing deeper meanings of the text and character.
PO 204. Develop and articulate criteria to analyze, interpret, and evaluate classroom, informal and formal theatre, or media productions.
PO 205. Use developed criteria to interpret dramatic text and performances in an organized oral or written presentation.

Concept 3: Theatre Technology and Design Intermediate Objectives
PO 201. Evaluate how the historical and cultural influences of technical elements affect a variety of performed dramatic works.
PO 202. Develop criteria to evaluate technical elements for formal and informal theatre, film/video, and **electronic media** productions.
PO 204. Evaluate and interpret technical elements in a variety of performed dramatic works including theatre, film/video, and **electronic media** productions.
PO 205. Evaluate their own and their peers' execution of duties and responsibilities on a technical crew.

Strand 3: Evaluate (continued)

Concept 4: Playwriting Intermediate Objectives
PO 201. Develop criteria to analyze, interpret, and evaluate a **play script** (e.g., structure, language, **characters**).
PO 202. Describe how the **setting**, storyline, and **characters** are interrelated in scenarios and **scripts**.
PO 203. Use developed criteria to analyze a variety of dramatic works (e.g., formal and informal theatre, film/video, and **electronic media** productions) according to **style**, **genre**, dramatic elements, and **characters**.
PO 204. Develop and articulate criteria to analyze, interpret, and evaluate classroom, informal and formal theatre, or media productions.
PO 205. Use developed criteria to interpret dramatic text and performances in an organized oral or written presentation.
PO 206. Justify the perception of a performance and critique its production elements.
PO 207. Evaluate and justify, with examples, the meanings constructed from a dramatic text or performance relating to daily life.

Concept 5: Directing Intermediate Objectives
PO 201. Explain and justify personal criteria for evaluating the basic elements of **text**, **acting**, and production values in their work and the work of others.
PO 202. Develop and articulate criteria to analyze, interpret, and evaluate classroom, informal and formal theatre, or media productions.
PO 203. Use criteria to interpret dramatic **text** and **performances** in an organized oral or written presentation.
PO 204. Evaluate and justify, with examples, the meanings constructed from a dramatic **text** or **performance** relating to daily life.
PO 205. Justify the director's concept of a performance and critique its production elements.

ARIZONA ACADEMIC STANDARDS IN THE ARTS
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INTERMEDIATE VISUAL ARTS

Strand 1: Create

Concept 1: Creative Process - The student will develop, revise, and reflect on ideas for expression in his or her own artwork
Intermediate Objectives
PO 201. *Contribute to a discussion about ideas for his or her own artwork .*
PO 202. *Make and explain revisions in his or her own artwork .*
PO 203. Develop plans for his or her own artwork , (e.g., sketches, models, and notes).

Concept 2: Materials, Tools, and Techniques • The student will use materials, tools, and techniques in his or her own artwork .
Intermediate Objectives
PO 201*. Identify and experiment with materials, tools, and techniques* appropriately and expressively *in his or her own artwork .*
PO 202. Demonstrate purposeful use of materials, tools, and techniques in his or her own artwork .

Concept 3: Elements and Principles - The student will judge the effectiveness of the artist's use of elements of art and principles of design in communicating meanings and/or purposes, in artworks.
Intermediate Objectives
PO 201. *Identify,* select*, and use* ***elements*** *and* ***principles*** to organize the **composition** *in his or her own artwork .*

Concept 4: Meanings or Purposes - The student will judge an artist's success in communicating meaning or purpose in their artwork.
Intermediate Objectives
PO 201. Explain purposeful use of subject matter, **symbols,** and/or **themes** in his or her own artwork .
PO 202. Create an artwork that serves a function.

Concept 5: Quality - The student will apply criteria for judging the quality of specific artwork.
Intermediate Objectives
PO 201. *Identify successful aspects of his or her own artwork and possible revisions.*
PO 202. Identify and apply **technical, functional, formal,** and/or **expressive** criteria in the evaluation of his or her own artwork (e.g., self-evaluations, group critiques, artist's statements).

ARIZONA ACADEMIC STANDARDS IN THE ARTS
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Strand 2 - Relate

Concept 1: Artworlds - The student will describe the role that art plays in culture and how it reflects, records, and interacts with history in various times, places, and traditions. Intermediate Objectives
PO 201. *Contribute to a discussion about who artists are, what they do, and why they create art*.
PO 202. *Discuss how artworks are used to communicate stories, ideas, and emotions.*
PO 203. *Discuss what an **artworl**d is and its place in a culture.*
PO 204. Discuss the roles of various **artworld** experts (e.g., critics, art historians, curators, archeologists, conservators and others).
PO 205. Make connections between art and other curricular areas (e.g., clay production relates to science, contextual information relates to social studies).
PO 206. Discuss how artworks reflect, ideas, images and symbols from the culture within which they were made.

Concept 2: Materials, Tools, and Techniques • The student will use materials, tools, and techniques in his or her own artwork . Intermediate Objectives
PO 201. *Identify the relationship between tools, materials, and/or techniques.*
PO 202. Describe what tools, materials, and techniques were used to create artwork from diverse cultures and times.
PO 203. Describe how scientific and technological advances influence the materials, tools, and techniques used by artists.

Concept 3: Elements and Principles - The student will judge the effectiveness of the artist's use of elements of art and principles of design in communicating meanings and/or purposes, in artworks. Intermediate Objectives
PO 201. *Identify visual/tactile characteristics of artworks from diverse cultures, different places, or times.*

ARIZONA ACADEMIC STANDARDS IN THE ARTS
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Strand 2 – Relate (continued)

Concept 4: Meanings or Purposes - The student will judge an artist's success in communicating meaning or purpose in their artwork.
Intermediate Objectives
PO 201. *Interpret meanings and/or purposes of an artwork using subject matter,* ***symbols,*** *and/or* **themes**.
PO 202. ***Discuss*** *themes* ***in artworks that illustrate common human experiences that transcend culture, time, and place.***
PO 203. Use **contextual** information to investigate and interpret meanings and purposes in artworks from the viewpoint of the culture in which it was made.

Concept 5: Quality - The student will apply criteria for judging the quality of specific artwork.
Intermediate Objectives
PO 201. *Contribute to a discussion about why artworks have been valued within the context of the culture in which they were made*
PO 202. *Demonstrate respect while responding to others' artwork.*
PO 203. Compare the characteristics of artworks valued by diverse cultures.

ARIZONA ACADEMIC STANDARDS IN THE ARTS
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Strand 3 – Evaluate

Concept 1: Art Issues and Values - The student will justify general conclusions about the nature and value of art. Intermediate Objectives
PO 201. *Form and support opinions about art (e.g., what art is and why it is important)*
PO 202. Debate whether art is different from **visual culture** in general.
PO 203. *Discuss reasons why people value art (e.g., sentimental, financial, religious, political, and historical).*
PO 204. Discuss people's criteria for determining how, or whether, art should be cared for and/or protected.

Concept 2: Materials, Tools, and Techniques • The student will use materials, tools, and techniques in his or her own artwork . Intermediate Objectives
PO 201. Explain how an artist's use of tools, materials, and techniques affect an artwork's meaning, purpose, and value.
PO 202. Develop and use criteria to evaluate **craftsmanship** in an artwork.

Concept 3: Elements and Principles - The student will judge the effectiveness of the artist's use of elements of art and principles of design in communicating meanings and/or purposes, in artworks. Intermediate Objectives
PO 201. Describe an artist's use of elements and **principles** *in an artwork support its meaning and/or purpose.*

Concept 4: Meanings or Purposes - The student will judge an artist's success in communicating meaning or purpose in their artwork. Intermediate Objectives
PO 201. *Discuss how an artist* uses subject matter, symbols, and/or themes to *communicate meaning and/or purpose in an artwork.*

Concept 5: Quality - The student will apply criteria for judging the quality of specific artwork. Intermediate Objectives
PO 201. Understand how the difference in quality between an original and a reproduction affects the viewer's interpretation of an artwork *(e.g. ,make a museum/artist's studio visit to compare details, size, luminosity, three dimensionality, surface texture).*
PO 202. Distinguish art preferences "I like it because..." from art judgments "It is good because…" from cultural judgments "It is important because. ..".
PO 203. Use established criteria to make and support a judgment about the quality of an artwork.

Comprehensive Health Education/ Physical Activity Standards 1997

Essentials (Grades 4-8)

Comprehensive Health Rationale

Parents and Guardians

It is understood that parents and guardians are the primary educators in their children's health; therefore, it is important to include the applicable statutes and state Board of Education rule in the comprehensive health education standards. Parents and guardians must be provided opportunities to preview school district policies, curriculum and take-home materials.

The ultimate goal of comprehensive health education is to help young people in Arizona achieve their fullest potential by attaining their highest level of health and wellness as students and adults. Basic to health education is the knowledge about the importance of the interrelationships of physical, behavioral, and social well-being and the prevention of diseases and other health problems. Students should learn to accept responsibility for personal health decisions and practices, work with others to maintain a healthy environment, as well as become informed consumers.

Rationale for Standard 1*:* Students comprehend concepts related to health promotion and disease prevention.

Comprehension of health promotion strategies and disease prevention concepts enables students to become health literate, self-directed learners, which establishes a foundation for leading healthy and productive lives.

Rationale for Standard 2: Students demonstrate the ability to access accurate health information.

Accessing valid health information and health promoting products and services is important in the prevention, early detection and treatment of most health problems. Applying skills of information analysis, organization, comparison, synthesis and evaluation to health issues provides a foundation for individuals to move toward becoming health literate and responsible, productive citizens.

Rationale for Standard 3: Students demonstrate the ability to practice health-enhancing behaviors and reduce health risks.

Research confirms that many diseases and injuries can be prevented by reducing harmful and risk-taking behaviors. Accepting responsibility and practicing health-enhancing behaviors can contribute to a positive quality of life.

Rationale for Standard 4: Students analyze the influence of culture, media, technology and other factors on health.

Health is influenced by a variety of factors that coexist within society. The ability to analyze, evaluate and interpret the influence of culture, media and technology on health

is important in a rapidly changing world. The health literate, responsible and productive citizen draws upon the contributions of these factors to strengthen individual, family and community health.

Rationale for Standard 5: Students demonstrate the ability to use interpersonal skills to enhance health.

Personal, family and community health are enhanced through effective communication. The ability to organize and to convey information, beliefs, opinions, and feelings (both verbal and nonverbal) are skills that strengthen interactions and can reduce or avoid conflict. When communicating, individuals who are health literate demonstrate care, consideration, and respect for self and others.

Rationale for Standard 6: Students demonstrate the ability to use goal setting and decision-making skills to enhance health.

Decision-making and goal setting are essential lifelong skills needed to implement and sustain health-enhancing behaviors. These skills make it possible for individuals to transfer health knowledge into healthy lifestyles, thus improving the quality of life.

Rationale for Standard 7: Students demonstrate the ability to advocate for personal, family and community health.

Quality of life is dependent on an environment that protects and promotes the health of individuals, families and communities. Responsible citizens who are health literate communicate and advocate for positive health in their communities.

§ 15-102. Parental involvement in the school; definition

A. The governing board, in consultation with parents, teachers and administrators, shall develop and adopt a policy to promote the involvement of parents and guardians of children enrolled in the schools within the school district, including:
   1. A plan for parent participation in the schools which is designed to improve parent and teacher cooperation in such areas as homework, attendance and discipline.
   2. Procedures by which parents may learn about the course of study for their children and review learning materials.
   3. Procedures by which parents who object to any learning material or activity on the basis that it is harmful may withdraw their children from the activity or from the class or program in which the material is used. Objection to a learning material or activity on the basis that it is harmful includes objection to a material or activity because it questions beliefs or practices in sex, morality or religion.

B. The policy adopted by the governing board pursuant to this section may also include the following components:
   1. A plan by which parents will be made aware of the district's parental involvement policy and the provisions of this section, including:
      (a) Rights under the family educational rights and privacy act of 1974 relating to access to children's official records.
      (b) The parent's right to inspect the school district policies and curriculum.

2. Efforts to encourage the development of parenting skills.
3. The communication to parents of techniques designed to assist the child's learning experience in the home.
4. Efforts to encourage access to community and support services for children and families.
5. The promotion of communication between the school and parents concerning school programs and the academic progress of the parents' children.
6. Identifying opportunities for parents to participate in and support classroom instruction at the school.
7. Efforts to, with appropriate training, support parents as shared decision makers and to encourage membership on school councils.
8. The recognition of the diversity of parents and the development of guidelines that promote widespread parental participation and involvement in the school at various levels.
9. The development of preparation programs and specialized courses for certificated employees and administrators that promote parental involvement.
10. The development of strategies and programmatic structures at schools to encourage and enable parents to participate actively in their children's education.

C. For the purposes of this section, "parent" means the parent or person who has custody of the child.

R7-2-303. Sex Education

A. Instruction in sex education in the public schools of Arizona shall be offered only in conformity with the following requirements.

1. Common schools: Nature of instruction; approval; format.
   a. Supplemental/elective nature of instruction. The common schools of Arizona may provide a specific elective lesson or lessons concerning sex education as a supplement to the health course study.
      i. This supplement may only be taken by the student at the written request of the student's parent or guardian.
      ii. Alternative elective lessons from the state-adopted optional subjects shall be provided for students who do not enroll in elective sex education.
      iii. Elective sex education lessons shall not exceed the equivalent of one class period per day for one-eighth of the school year for grades K-4.
      iv. Elective sex education lessons shall not exceed the equivalent of one class period per day for one-quarter of the school year for grades 5-8.
   b. Local governing board approval. All elective sex education lessons to be offered shall first be approved by the local governing board.
      i. Each local governing board contemplating the offering of elective sex education shall establish an advisory committee with membership representative of district size and the racial and ethnic composition of the community to assist in the development of lessons and advise the local governing board on an ongoing basis.
      ii. The local governing board shall review the total instruction materials for lessons presented for approval.

iii. The local governing board shall publicize and hold at least two public hearings for the purpose of receiving public input at least one week prior to the local governing board meeting at which the elective sex education lessons will be considered for approval.
iv. The local governing board shall maintain for viewing by the public the total instructional materials to be used in approved elective sex education lessons within the district.

c. Format of instruction.
i. Lessons shall be taught to boys and girls separately.
ii. Lessons shall be ungraded, require no homework, and any evaluation administered for the purpose of self-analysis shall not be retained or recorded by the school or the teacher in any form.
iii. Lessons shall not include tests, psychological inventories, surveys, or examinations containing any questions about the student's or his parents' personal beliefs or practices in sex, family life, morality, values or religion.

2. High Schools: Course offering; approval; format.
a. A course in sex education may be provided in the high schools of Arizona.
b. The local governing board shall review the total instructional materials and approve all lessons in the course of study to be offered in sex education.
c. Lessons shall not include tests, psychological inventories, surveys, or examinations containing any questions about the student's or his parents' personal beliefs or practices in sex, family life, morality, values or religion.
d. Local governing boards shall maintain for viewing by the public the total instructional materials to be used in all sex education courses to be offered in high schools within the district.

3. Content of instruction: Common schools and high schools.
a. All sex education materials and instruction shall be age appropriate, recognize the needs of exceptional students, meet the needs of the district, recognize local community standards and sensitivities, shall not include the teaching of abnormal, deviate, or unusual sexual acts and practices, and shall include the following:
i. Emphasis upon the power of individuals to control their own personal behavior. Pupils shall be encouraged to base their actions on reasoning, self-discipline, sense of responsibility, self-control and ethical considerations such as respect for self and others; and
ii. Instruction on how to say "no" to unwanted sexual advances and to resist negative peer pressure. Pupils shall be taught that it is wrong to take advantage of, or to exploit, another person.
b. All sex education materials and instruction which discuss sexual intercourse shall:
i. Stress that pupils should abstain from sexual intercourse until they are mature adults;
ii. Emphasize that abstinence from sexual intercourse is the only method for avoiding pregnancy that is 100 percent effective;
iii. Stress that sexually transmitted diseases have severe consequences and constitute a serious and widespread public health problem;

iv. Include a discussion of the possible emotional and psychological consequences of preadolescent and adolescent sexual intercourse and the consequences of preadolescent and adolescent pregnancy;
v. Promote honor and respect for monogamous heterosexual marriage; and
vi. Advise pupils of Arizona law pertaining to the financial responsibilities of parenting, and legal liabilities related to sexual intercourse with a minor.

B. Certification of compliance. All districts offering a local governing board-approved sex education course of lesson shall certify, under the notarized signature of both the president of the local governing board and the chief administrator of the school district, compliance with this rule except as specified in paragraph (C). Acknowledgment of receipt of the compliance certification from the state Board of Education is required as a prerequisite to the initiation of instruction. Certification of compliance shall be in a format and with such particulars as shall be specified by the Department of Education.
C. All districts offering state Board approved sex education lessons or courses prior to the effective date of this rule shall comply with this rule on or before June 30, 1990.

§ 15-716. Instruction on acquired immune deficiency syndrome; department assistance

A. Each common, high and unified school district may provide instruction to kindergarten programs through the twelfth grade on acquired immune deficiency syndrome and the human immunodeficiency virus.
B. Each district is free to develop its own course of study for each grade. At a minimum, instruction shall:
   1. Be appropriate to the grade level in which it is offered.
   2. Be medically accurate.
   3. Promote abstinence.
   4. Discourage drug abuse.
   5. Dispel myths regarding transmission of the human immunodeficiency virus.
C. No district shall include in its course of study instruction which:
   1. Promotes a homosexual life-style.
   2. Portrays homosexuality as a positive alternative life-style.
   3. Suggests that some methods of sex are safe methods of homosexual sex.
D. At the request of a school district, the department of health services or the department of education shall review instruction materials to determine their medical accuracy.
E. At the request of a school district, the department of education shall provide the following assistance:
   1. A suggested course of study.
   2. Teacher training
   3. A list of available films and other teaching aids.
F. At the request of a parent, a pupil shall be excused from instruction on the acquired immune deficiency syndrome and the human immunodeficiency virus as provided in subsection A of this section. The school district shall notify all parents of their ability to withdraw their child from the instruction.

ADDENDUM

A Brief Description of Ten Major Content Areas in Comprehensive School Health Education

1. **Community Health** includes topics such as individual responsibility; healthful school, home and community environments; community health resources and facilities; official and nonofficial health agencies; health service careers; pollution control; community involvement; current issues; and trends in medical care.

2. **Consumer Health** addresses health care resources i.e., knowing what is available and how to be an educated consumer.

3. **Environmental Health** addresses individual and community responsibility, pollution, effects of environment on health, environmental protection agencies, population density, world health, waste disposal, sanitation, laws and career choices.

4. **Family Life Education** covers information about family dynamics, building relationships, child abuse, choices about relationships, family planning, parenting skills, sex education, and sexually transmitted diseases such as HIV infection and AIDS.

5. **Injury Prevention and Safety** includes learning about first aid and emergency health care and addresses the prevention of unintentional injuries. (Many schools include violence prevention and homicide as health issues within this content area.)

6. **Mental and Emotional Health** includes building self-esteem, effectively coping with stress, and communication skills, among others.

7. **Nutrition** addresses a balanced diet, food preparation, reading and understanding food labels, differences in nutritional needs for pregnant women, and more.

8. **Personal Health** includes physical fitness and lifetime activities, cardiovascular health, sleep, rest, relaxation, recreation, growth and development, oral health, vision and hearing, body systems and their functions, aging, personal wellness plans, and positive health habits and choices.

9. **Prevention and Control of Disease** addresses heart disease, stroke, diabetes, cancer, HIV/AIDS and others.

10. **Substance Use and Abuse** refers to the use and misuse of tobacco, alcohol, and other drugs and often includes topics such as positive decision-making, individual responsibility, substances beneficial to humankind, the classification of substances and their effects on the body, and the formation of habits and their influence.

The ten major content areas in this addendum are provided to assist local school districts in developing sequential curricula. It will be left to the discretion of the local district to determine the emphasis of each of the content areas. The Comprehensive Health Education and Physical Activity Standards are the required competency indicators, while the addendum is a tool to be used by school districts as a cross-reference.

COMPREHENSIVE HEALTH STANDARDS
ESSENTIALS (GRADES 4-5)

STANDARD 1

Students comprehend concepts related to health promotion and disease prevention.

- **1CH-E1. Explain the relationship between positive health behaviors and health care and the prevention of injury, illness, disease, disability and premature death**

  PO 1. Describe positive health behaviors which can prevent common injuries, diseases and other conditions
  PO 2. Describe harmful effects of substance use

- **1CH-E2. Describe the interrelationship of mental, emotional, social and physical health during adolescence**

  PO 1. Draw how thoughts, feelings, being with people and being healthy are all related

- **1CH-E3. Explain how health, growth and development are influenced by the interaction of body systems, genetics, environment and lifestyle**

  PO 1. Contrast healthy and unhealthy lifestyles
  PO 2. Describe the effects on healthy and unhealthy lifestyles on health, growth and development

- **1CH-E4. Describe how family and peers influence the health of adolescents**

  PO 1. Classify healthy and unhealthy choices that you have learned from family and peers

- **1CH-E5. Explain how environmental health and personal health are interrelated**

  PO 1. Describe the relationship between healthy people and a healthy environment

- **1CH-E6. Describe ways to reduce risks related to adolescent health problems**

  PO 1. Identify changes adolescents can make in their lifestyle to reduce health risks

- **1CH-E7. Describe how lifestyle and family history are related to the cause and prevention of disease and other health problems**

  PO 1. Explain how an individual lifestyle and family history can prevent or cause health problems

COMPREHENSIVE HEALTH STANDARDS
ESSENTIALS (GRADES 4-5)

- **1CH-E8. Explain how basic nutrients are utilized by the body and the relationship of a balanced diet and essential nutrients to appropriate weight, appearance and wellness**

  PO 1. Identify the basic nutrients and identify their uses in the body
  PO 2. Describe how a balanced and nutritious diet is related to weight, appearance and wellness

STANDARD 2

Students demonstrate the ability to access accurate health information.

- **2CH-E1. Obtain and utilize accurate health resources from home, school and community**

  PO 1. List accurate health information from home, school and community
  PO 2. Utilize accurate health information

- **2CH-E2. Describe how media influences the selection of health information and products (e.g., exercise equipment, cosmetics)**

  PO 1. Explain how media influences the selection of health information and products

- **2CH-E3. Compare the costs and effectiveness of health products**

  PO 1. Demonstrate effectiveness of a specific health product (e.g., shampoo, soap)
  PO 2. Compare cost of products

- **2CH-E4. Describe situations requiring professional health services**

  PO 1. Same as concept

- **2CH-E5. Identify emergency preparedness and emergency resources (e.g., first aid, CPR)**

  PO 1. List what you need to be prepared for a medical emergency
  PO 2. List emergency resources

COMPREHENSIVE HEALTH STANDARDS
ESSENTIALS (GRADES 4-5)

STANDARD 3

Students demonstrate the ability to practice health-enhancing behaviors and reduce health risks.

- **3CH-E1. Explain the importance of assuming responsibility for personal health behaviors**

  PO 1. Illustrate examples of responsible healthy behavior

- **3CH-E2. Identify strengths of, and risks to, one's personal and family health (e.g., heart disease, diabetes, high blood pressure) and implement strategies to improve or maintain both**

  PO 1. Compare personal and family health risks and strengths
  PO 2. Explain ways to reduce risks and increase strengths

- **3CH-E3. Distinguish between responsible and risky/harmful behaviors (e.g., responsible: exercise, sleep, nutrition; risky: the use of tobacco, alcohol and other drugs)**

  PO 1. List differences between responsible and risky behaviors

- **3CH-E4. Develop injury prevention and management strategies for personal and family health including ways to avoid and reduce threatening situations**

  PO 1. Identify ways to prevent personal and family injuries
  PO 2. Identify ways to avoid dangerous situations for yourself and your family

- **3CH-E5. Demonstrate strategies to manage stress**

  PO 1. Choose five ways to reduce stress

- **3CH-E6. Perform basic safety, first aid and life saving techniques**

  PO 1. Demonstrate basic safety techniques

COMPREHENSIVE HEALTH STANDARDS
ESSENTIALS (GRADES 4-5)

STANDARD 4

Students analyze the influence of culture, media, technology and other factors on health.

- **4CH-E1. Describe health behaviors and the use of health services in different cultures and explain the factors responsible for the differences**

  PO 1. Compare how different cultures regard health
  PO 2. Distinguish the ways health services are used by different cultures

- **4CH-E2. Explain how messages from media and other sources influence health behaviors**

  PO 1. Determine the way media messages influence your health

- **4CH-E3. Describe the influence of technology on personal and family health**

  PO 1. Specify five ways that technology affects your health

- **4CH-E4. Describe how information from peers influences health**

  PO 1. Same as concept

STANDARD 5

Students demonstrate the ability to use interpersonal skills to enhance health.

- **5CH-E1. Demonstrate ways to communicate care, consideration and respect of self and others**

  PO 1. Choose five ways to show that you care about self and others

- **5CH-E2. Identify the causes of conflict among youth in schools and communities and demonstrate refusal and negotiation skills to enhance health**

  PO 1. Explain what influences individuals to engage in conflict
  PO 2. List two problem solving strategies to avoid conflict

- **5CH-E3. Demonstrate strategies to manage conflict in healthy ways**

  PO 1. Classify techniques that will promote conflict resolution
  PO 2. Choose five healthy ways to control conflict

COMPREHENSIVE HEALTH STANDARDS
ESSENTIALS (GRADES 4-5)

STANDARD 6

Students demonstrate the ability to use goal setting and decision-making skills to enhance health.

- **6CH-E1. Apply a sound decision-making process that includes an examination of alternatives and consequences and determines a course of action to resolve health issues and problems individually or collaboratively**

  PO 1. Demonstrate the decision-making process
  PO 2. Choose three alternatives and consequences regarding a health issue

- **6CH-E2. Explain how decisions regarding health behaviors have consequences for self and others**

  PO 1. Identify five (positive or negative) health behaviors
  PO 2. Define the consequences of the above health behaviors

- **6CH-E3. Describe how personal health goals are influenced by information, abilities, priorities and responsibilities**

  PO 1. List five behaviors that maintain personal health
  PO 2. List five strategies for the above information that can impact personal health goals
  PO 3. List five health priorities and responsibilities based on the above list
  PO 4. Describe how these strategies affect health goals

- **6CH-E4. Develop a plan that addresses personal strengths, needs and health risks, and apply strategies and skills needed to attain personal health goals**

  PO 1. Develop three personal health goals
  PO 2. Design a plan to improve strengths, realize needs, and reduce health risks
  PO 3. Describe attainment of personal health goals

STANDARD 7

Students demonstrate the ability to advocate for personal, family and community health.

- **7CH-E1. Research various media for language, subject matter and visual techniques used to influence health-related information and decision-making**

  PO 1. Compare three different types of health information found in the media
  PO 2. Identify which visual techniques used above (in PO 1) about health information is the most dramatic and why

COMPREHENSIVE HEALTH STANDARDS
ESSENTIALS (GRADES 4-5)

- **7CH-E2. Present information about health issues**

  PO 1. Choose a health issue of personal interest
  PO 2. Present the positive and negative aspects about your health issue

- **7CH-E3. Identify barriers to effective communication of information about health issues**

  PO 1. Name three barriers of communication about a health issue

- **7CH-E4. Demonstrate the ability to support others in making positive health choices**

  PO 1. Distinguish three positive strategies to support someone making health choices

- **7CH-E5. Demonstrate the ability to work cooperatively when advocating for healthy individuals, families and schools**

  PO 1. Identify the various roles in a cooperative setting
  PO 2. Construct a cooperative group where everyone has a role toward promoting health awareness for a person, family or school
  PO 3. Determine ways to make this cooperative group successful

Physical Activity Standards Rationale

A wealth of information has been accumulated to point to the importance of physical activity in promoting health and wellness. Evidence also indicates that habits (lifestyles) established in youth are likely to influence adult lifestyles and associated health and wellness. Physical activity, a primary risk factor for many chronic health conditions, is an integral part of comprehensive school health education but also must be promoted as an important educational goal. Meeting physical activity standards includes both promotion of physical activity among youth and promotion of lifelong physical activity that will enhance workplace skills, fitness and wellness associated with quality of life. Achieving lifetime physical activity standards results in learning real life skills. Higher order skills include decision-making and problem solving required to become informed, lifetime physical activity consumers.

Rationale for Standard 1: Students demonstrate proficiency and the achievement of higher order cognitive skills necessary to enhance motor skills.

Movement competence implies the development of sufficient ability to enjoy participation in physical activities and re-establish a foundation to facilitate continued motor skill acquisition and increased ability to engage in developmentally appropriate daily physical activities. In addition to achieving competence in a few movement forms, which increases the likelihood of lifetime activity participation, the students apply concepts from exercise science disciplines that will help them achieve independence in developing movement competence in new movement forms. The focus is on movement forms appropriate for lifetime activity involvement and the establishment of personal competence.

Rationale for Standard 2: Students comprehend basic physical activity principles and concepts that enable them to make decisions, solve problems and become self-directed lifelong learners who are informed physical activity consumers.

Accessing accurate physical activity information, products and services is important to become informed, responsible physical activity consumers.

Rationale for Standard 3: Students exhibit a physically active lifestyle.

The intent of this standard is to establish patterns of regular participation in meaningful physical activity. This standard connects what is taught in school with students' choices for physical activity outside of school. Students are more likely to participate in physical activities if they have had opportunities to develop interests that are personally meaningful to them.

Rationale for Standard 4: Students achieve and maintain a health-enhancing level of physical fitness.

The intent of this standard is for the student to achieve a health-enhancing level of physical fitness. Students should be encouraged to develop personal fitness levels above those necessary for health-enhancement, based on unique personal needs and interests and necessary for many work situations and active leisure participation. Health-related fitness components include cardio-respiratory endurance, muscular strength and endurance, flexibility, and body composition. Expectations for students' fitness levels should be established on a personal basis, taking into account variation in entry levels, rather than setting a single standard for all children at a given grade level.

Rationale for Standard 5: Students develop self-initiated behaviors that promote effective personal and social interactions in physical activity settings.

The intent of this standard is achievement of self-initiated behaviors that promote personal and group success in activity settings. Behaviors such as safe practices, adherence to rules and procedures, etiquette, cooperation and teamwork, ethical behavior in sports, and positive social interaction are necessary for all students to develop effective communication skills.

Rationale for Standard 6: Students demonstrate understanding and respect for differences among people in physical activity settings.

The intent of this standard is to develop respect for similarities and differences through positive interaction among participants in physical activity. Similarities and differences include characteristics of culture, ethnicity, motor performance, disabilities, physical characteristics (e.g., strength, size, shape), gender, race and socioeconomic status.

Rationale for Standard 7: Students develop behavioral skills (self-management skills) essential to maintaining a physically active lifestyle.

The intent of this standard is for students to develop an awareness of the intrinsic benefits of participation in lifelong physical activity. Physical activity can provide opportunities for enjoyment, physical fitness and personal challenge.

PHYSICAL ACTIVITY STANDARDS
ESSENTIALS (GRADES 4-5)

STANDARD 1

Students demonstrate proficiency and the achievement of higher order cognitive skills necessary to enhance motor skills.

- **1PA-E1. Demonstrate competence in a variety of movement forms**

  PO 1. Throw, catch, strike and kick using mature form in a variety of physical activity settings
  PO 2. Dribble and pass a variety of objects to a stationary target/receiver (e.g., hands, feet, equipment)
  PO 3. Balance with control on a variety of objects
  PO 4. Transfer weight from feet to hand at fast and slow speeds, using large extensions (e.g., mule kick, handstand, cartwheel)
  PO 5. Travel, changing speeds and directions, in response to a variety of rhythms

- **1PA-E2. Apply more advanced movement and game strategies**

  PO 1. Use basic offensive and defensive strategies in small group games

- **1PA-E3. Identify the critical elements of more advanced movement skills**

  PO 1. Identify the critical elements of a basic movement made by a fellow student and provide feedback to that student

- **1PA-E4. Identify the characteristics of highly skilled performance in a few movement forms**

  PO 1. Identify the characteristics of a highly skilled performer in a few movement forms

- **1PA-E5. Apply more advanced discipline-specific knowledge (e.g., conditioning and fitness in a selected sport)**

  PO 1. Demonstrate specialized movement skills

PHYSICAL ACTIVITY STANDARDS
ESSENTIALS (GRADES 4-5)

STANDARD 2

Students comprehend basic physical activity principles and concepts that enable them to make decisions, solve problems and to become self-directed lifelong learners who are informed physical activity consumers.

- **2PA-E1. Describe the relationship between a healthy lifestyle and feeling good**

  PO 1. Give examples of the benefits derived from regular physical activity
  PO 2. Identify several moderate to vigorous physical activities that provide personal pleasure

- **2PA-E2. Apply basic principles of training to improve physical fitness**

  PO 1. Engage in appropriate activity that results in the development of muscular strength and endurance
  PO 2. Apply the concepts that impact the quality of physical fitness

- **2PA-E3. Describe physiological indicators of exercise during and after physical activity**

  PO 1. Demonstrate ability to calculate heart rate
  PO 2. Monitor intensity of exercise (e.g., heart rate, respiration, body temperature)

- **2PA-E4. Explain the concept of target zones for health-related physical fitness**

  PO 1. Same as concept

STANDARD 3

Students exhibit a physically active lifestyle.

- **3PA-E1. Participate regularly in health-enhancing physical activities to accomplish personal health goals**

  PO 1. Participate regularly in a physical activity that develops a healthy lifestyle
  PO 2. Describe health benefits that result from regular and appropriate participation in physical activity

- **3PA-E2. Participate in a variety of physical activities of personal interest**

  PO 1. Identify at least one enjoyable activity he/she participates in daily (formal or informal)
  PO 2. Identify opportunities for more formal participation in physical activities in the community
  PO 3. Design games, gymnastics, and dance sequences based on personal interests

PHYSICAL ACTIVITY STANDARDS
ESSENTIALS (GRADES 4-5)

STANDARD 4

Students achieve and maintain a health-enhancing level of physical fitness.

- **4PA-E1. Accomplish the health-related fitness standards as defined by Fitnessgram**

  PO1. Engage in appropriate activities that result in the development of muscular strength and endurance, flexibility, appropriate body composition, and aerobic endurance

- **4PA-E2. Apply basic principles of training to improve or maintain health-related physical fitness**

  PO 1. Participate in moderate to vigorous physical activities at least four days per week
  PO 2. Accumulate 30-60 minutes of moderate activity per day at least four days per week
  PO 3. Maintain continuous aerobic activity for a specified time and activity (e.g., 10 minutes or more)
  PO 4. Demonstrate how to balance food intake with physical activity

STANDARD 5

Students develop self-initiated behaviors that promote effective personal and social interactions in physical activity settings.

- **5PA-E1. Explain the influence of peer pressure in physical activity settings**

  PO 1. Explain the difference between acts of courage and reckless acts
  PO 2. Demonstrate responsibility when teaching or learning an activity with a partner or small group

- **5PA-E2. Identify potential consequences when confronted with a behavior choice**

  PO 1. Act in a safe manner during physical activity

- **5PA-E3. Cooperate with a group to achieve group goals in competitive as well as cooperative settings**

  PO 1. Work independently and on task for partner, small or large group activities
  PO 2. Participate in establishing rules and procedures that are safe and effective for specific activities

PHYSICAL ACTIVITY STANDARDS
ESSENTIALS (GRADES 4-5)

- **5PA-E4. Identify the social benefits of participation in physical activity**

  PO 1. Explain the difference between compliance and noncompliance of game rules and demonstrate compliance
  PO 2. Identify one's own performance problems without blaming others

STANDARD 6

Students demonstrate understanding and respect for differences among people in physical activity settings.

- **6PA-E1. Explain the role of sports, games and dance in modern culture**

  PO 1. Explain the validity of games and activities reflecting one's own and others' heritage

- **6PA-E2. Identify behaviors that are supportive and inclusive in physical activity settings**

  PO 1. Demonstrate fairness in games and activities
  PO 2. Demonstrate acceptance of the skills and abilities of others through verbal and nonverbal behavior

- **6PA-E3. Participate in physical activities with others regardless of diversity and ability**

  PO 1. Identify the attributes that individual differences can bring to group activities

STANDARD 7

Students develop behavioral skills (self-management skills) essential to maintaining a physically active lifestyle.

- **7PA-E1. Establish personal physical activity goals**

  PO 1. Explain how appropriate practice improves performance
  PO 2. Use information from internal (self-evaluation) and external sources to set physical activity goals to improve performances

- **7PA-E2. Explore a variety of new physical activities for personal interest**

  PO 1. Identify opportunities for participation in physical activity in the school

- **7PA-E3. Participate in new and challenging activities**

  PO 1. Participate in a variety of physical activities, both in and out of school, based upon individual interests and capabilities

Foreign and Native Language Standards 1997

Essentials (Grades 4-8)

Foreign and Native Language* Standards Rationale

Today's students prepare for the tomorrow in which they will need to function in varied contexts. The constant shrinking of the globe will expand their experience beyond that of previous generations to include contacts with other languages and cultures, both in their private lives and in their work. Languages are increasingly demanded in a wide range of professions. To succeed, students will need new tools, many of which are available primarily, if not solely, through the study of other languages. They include:

- ***the ability to communicate well for varied purposes*.** In other languages, as well as in English, effective communication requires an understanding of both the target language and culture under study and one's own, which implies the ability to interact confidently within many arenas, including the workplace and communities where the language is spoken.

- ***a solid foundation in basic subject matter and skills*.** All core subjects must contribute to this end, in an integrated fashion, to aid students in realizing the connections among the parts of their education. Basic subject matter includes the development of verbal reasoning, and listening skills and knowledge of the great achievements of human cultures, e.g., artistic, literary, scientific. The study of another language has been shown to enhance student performance in other academic fields. Learnings from other fields can also be reinforced in the foreign language classroom.

- ***an understanding and appreciation of the diversity of languages and cultures, including one's own*.** These tools aid students to function as responsible, informed, and confident citizens and enhance their personal development. They allow the finding of one's own place in the wider world.

Introduction to the Foreign Language Standards

The foreign language standards state what students need to know about languages and cultures, including their own; what students need to be able to do; and how this knowledge and these abilities relate to the subject matter of other core areas. The standards are stated clearly and in measurable terms:

- what students need to **know** in order to function successfully as they enter a new millennium that promises major changes in communications and contacts with other languages and cultures;

- what students need to be able to **do**. Knowing about a language and its culture(s), while essential, is not sufficient; students will develop skills for functioning effectively in varied contexts; and

- the integration of foreign languages into the rest of the curriculum so that the connections are clear and so that learning in all areas is facilitated, including the development of a deeper understanding of one's own language and culture. The five strands under which the standards are organized–Communication, Culture, Connections, Comparisons and Communities–are meant to be interwoven among themselves as well, rather than taught as separate entities. Meeting the standards for each one will contribute to reaching the standards of the others.

These standards for foreign language study are highly challenging for all students. They assume an extended sequence of learning throughout the students' school career, thus reflecting the likely nature of schools in the future. Meeting these standards will require the study of grammar–the forms and structures of the language–as well as effective learning strategies. Students will also need to use technologies that will bring the language and the culture to them in new ways and enhance their opportunities to learn.

In these standards we refer to "the target language," which may stand for "world language," "foreign language," "second language," or "heritage language" (i.e., the language that is the predominant language in the home).

Descriptions of Language Abilities for Each Level

Readiness

Students use basic vocabulary related to people, places, things and actions close to their own lives. They express themselves in phrases, short sentences and memorized material. Their language is characterized by an emerging control of the most common basic grammatical forms and structures. Because comprehension of oral and written language normally exceeds production, students are able to comprehend simple descriptions, narratives, and authentic materials such as advertisements, on topics studied in class. Pronunciation and fluency are such that students often might not be understood by native speakers. They are able to write accurately what they can say.

Foundations

Students speak and write extemporaneously using short sentences and sentence strings in present tense on topics within their experience with the language. They can describe, ask and answer questions; engage in simple conversations; and carry out simple realistic functions such as ordering a meal, buying something, or introducing themselves or others to a group. Since their knowledge of the forms and structures of the language has grown rapidly but their practice has been limited, their speech is likely to contain numerous linguistic errors. Students are comprehensible to sympathetic listeners who have experience with non-native speakers of their language. Their written language still mirrors their oral language, although they may be able to express more ideas more accurately in writing, given time to reflect, review and revise.

Essentials

Students speak with somewhat longer utterances and begin to display an ability to connect phrases and sentences to show relations between ideas expressed. Although patterns of errors are still common, students now speak and write extemporaneously in past, present and future time, using vocabulary related to their own lives and interests. Accent and intonation are generally accurate, although pauses and false starts may be common, as students give simple instructions and directions, make comparisons, solve problems together, and engage in conversations on a range of topics including leisure activities, professions and current events. In written work, students' spelling and punctuation are mostly accurate; and they organize their ideas well.

Proficiency

Students use paragraph-length connected discourse to narrate, describe, and discuss ideas and opinions. On topics of interest to them and within their experience, they show few patterns of linguistic errors, they are generally comprehensible to native speakers of the language, and their vocabulary is sufficient to avoid awkward pauses. They are able to circumvent linguistic gaps or lapses by "finding another way to say it." Given time to reflect and revise, they are able to express their ideas completely and interestingly in writing, with generally accurate grammar, vocabulary, spelling, accents and punctuation. They comprehend most authentic expository and fictional material produced for contemporary native speakers.

Distinction

Students show almost no patterns of linguistic errors and are able to carry out almost any task that they can execute in English, albeit with less fluency and control or breadth of vocabulary and grammar. They can argue a point effectively and extemporaneously, explaining their point of view in detail. In writing, their ideas are well organized and clearly, completely, and interestingly presented, with accurate use of the language's writing system. They can comprehend any non-technical material produced for the general public of native speakers in the standard language.

FOREIGN AND NATIVE LANGUAGE STANDARDS ESSENTIALS (GRADES 4-8)

STANDARD 1: COMMUNICATION
Students understand and interpret written and spoken communication on a variety of topics in the target language.

- **1FL-E1. Comprehend the main idea in authentic oral and written materials on a familiar topic**
- **1FL-E2. Comprehend well-developed paragraphs containing complex sentences and idiomatic expressions**
- **1FL-E3. Comprehend, interpret and analyze the style of a short piece of fiction or essay on familiar topics**
- **1FL-E4. Identify characteristics of a variety of literary genres, e.g., short stories, plays, essays**
- **1FL-E5. Identify emotions and feelings from selected reading material**
- **1FL-E6. Read a poem and analyze its components**

STANDARD 2: COMMUNICATION
Students engage in oral and written exchanges which include providing and obtaining information, expressing feelings and preferences, and exchanging ideas and opinions in the target language.

- **2FL-E1. Express and react to a variety of feelings**
- **2FL-E2. Develop and propose solutions to issues and problems cooperatively with other students**
- **2FL-E3. Support opinions with factual information**
- **2FL-E4. Use idiomatic expressions in oral and written communication**

STANDARD 3: COMMUNICATION
Students present information and ideas in the target language on a variety of topics to listeners and readers.

- **3FL-E1. Present understandable written reports and summaries**
- **3FL-E2. Perform short, student-created skits and scenes**
- **3FL-E3. Present a brief speech (monologue)**
- **3FL-E4. Prepare tape- (audio) or video-recorded materials**

FOREIGN AND NATIVE LANGUAGE STANDARDS ESSENTIALS (GRADES 4-8)

- **3FL-E5. Retell a story**

STANDARD 4: CULTURE

Students know "what to do when" and "what to say while doing it" in the culture and use this knowledge to interact appropriately. They also understand the relationships between cultural perspectives, products and practices within cultures.

- **4FL-E1. Investigate and participate in age-appropriate cultural practices related to business, sports and entertainment**
- **4FL-E2. Use and respond appropriately to idiomatic verbal and nonverbal expressions**
- **4FL-E3. Identify, experience or produce expressive products of the culture, e.g., advertisements, stories, poems**
- **4FL-E4. Recognize simple themes, ideas or perspectives of the culture and the relationships to socially acceptable behavior**
- **4FL-E5. Identify the areas in the U.S. where the target language is most commonly spoken, noting the impacts**
- **4FL-E6. Recognize how the target language and its culture add to the richness of our own cultural diversity**
- **4FL-E7. Recognize when to switch between formal and informal language**

STANDARD 5: CONNECTIONS

Students use the target language and authentic sources to reinforce and/or learn other content from the other subject areas.

- **5FL-E1. Present reports in the target language orally and/or in writing on topics being studied in other classes**
- **5FL-E2. Generate reports for other content areas using information acquired through sources in the target language**

STANDARD 6: COMPARISONS

Students develop insights into their own language and their own culture through the study of the target language.

- **6FL-E1. Understand how idiomatic expressions impact communication and reflect culture**
- **6FL-E2. Demonstrate an awareness that there is more than one way to express ideas across languages**
- **6FL-E3. Recognize that there are linguistic and cultural concepts that exist in one language and not in another**

FOREIGN AND NATIVE LANGUAGE STANDARDS ESSENTIALS (GRADES 4-8)

- **6FL-E4. Compare and contrast a variety of art forms (e.g., music, dance, visual arts, drama) with their own culture through oral and/or written descriptions and/or performance**

STANDARD 7: COMMUNITIES

Students use the target language within and beyond the school setting.

- **7FL-E1. Research and present a topic related to the target language or culture, using resources available outside the classroom**

- **7FL-E2. Write letters or electronic messages to native speakers**

- **7FL-E3. Interview community members who speak the target language on topics of personal or professional interest; report the results orally or in writing**

- **7FL-E4. Write letters to U.S. communities and other countries where the target language is used to request information on topics of interest; report orally or in writing about the information received**

- **7FL-E5. Identify and select written or oral materials of individual interest; report on them to others**

Reading Standard Articulated by Grade Level 2003

Grade 5

Reading Standard Articulated by Grade Level

INTRODUCTION

Reading is a complex skill that involves learning language and using it effectively in the active process of constructing meaning embedded in text. It requires students to fluently decode the words on a page, understand the vocabulary of the writer, and use strategies to build comprehension of the text. It is a vital form of communication in the 21st century and a critical skill for students of this "information age" as they learn to synthesize a vast array of texts.

The Reading Standard Articulated by Grade Level will provide a clear delineation of what students need to know and be able to do at each grade level. This allows teachers to better plan instructional goals for students at any grade.

BACKGROUND

The state Board of Education adopted the Arizona Academic Standards in 1996 to define what Arizona's students need to know and be able to do by the end of twelfth grade. Developed by committees comprised of educators, parents, students, and business and community leaders, these standards were written in grade-level clusters with benchmarks at grades 3, 5, 8, and high school.

RATIONALE

Requirements in the *No Child Left Behind Act of 2001* (NCLB) and the standard practice of conducting periodic review of the state academic standards prompted the decision by the Arizona Department of Education to refine and articulate the academic standards for mathematics and reading by grade level. This refinement and articulation project was started in July 2002, and was completed in March 2003.

METHODOLOGY

Work teams for reading consisted of a representative sample of educators from around the state designed to include large and small schools, rural and urban schools, and ethnic diversity. National reading consultants, university professors, and test company consultants advised the teams. The goal was to articulate, or align, the current academic standards by grade level (K-12).

The Reading Articulation Teams utilized information from the National Council of Teachers of English and the findings of the National Reading Panel, which promote quality instruction, based on current, pedagogical, and researched practices.

The articulation process included a restructuring of the Arizona Academic Content Standards to better facilitate the alignment of performance objectives by grade level, while maintaining the content integrity of the existing standards. Over a period of

months, the articulation team and smaller sub-committees of the teams refined the documents. Reasonableness, usefulness, and appropriateness were the guidelines for the articulation process.

External reviews by nationally recognized consultants brought a broad perspective to the articulation process. Internal reviews by university and local experts provided additional validation.

Another important step in the project was the request for public comment. In December 2002, drafts of the Standards Articulated by Grade Level, along with a survey to gather feedback, were posted on the Arizona Department of Education website. This provided the public with easy access to the documents, and the survey allowed reviewers a means for submitting comments. The public and all educators had the opportunity to submit comments and suggestions, either electronically or in writing, until the survey closing date of January 31, 2003. In January, six public hearings were held throughout the state, offering further opportunities for public input.

After all the public comments were collected and organized by topic, the articulated teams met one last time to determine what modifications to the standards documents would be appropriate, based on this information. All public comments were given equal consideration.

The completion of the standards articulation process was followed by the development of rationales, glossaries, and crosswalks. These additional documents were designed to assist educators with the transition from the 1996 standards to the Reading Standard Articulated by Grade Level.

READING STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 1: Reading Process

Reading Process consists of the five critical components of reading, which are Phonemic Awareness, Phonics, Fluency, Vocabulary and Comprehension of connected text. These elements support each other and are woven together to build a solid foundation of linguistic understanding for the reader.

Concept 1: Print Concepts
Demonstrate understanding of print concepts.

(Grades K-3)

Concept 2: Phonemic Awareness
Identify and manipulate the sounds of speech.

(Grades K-2)

Concept 3: Phonics
Decode words, using knowledge of phonics, syllabication, and word parts.

(Grades K-3)

Concept 4: Vocabulary
Acquire and use new vocabulary in relevant contexts.

PO 1. Use knowledge of root words and affixes to determine the meaning of unknown words.

PO 2. Use context to determine the relevant meaning of a word or the intended meaning of a word with multiple meanings (e.g., hatch, arm, boot).

PO 3. Determine the difference between figurative language and literal language.

PO 4. Determine the meaning of figurative language, including similes, personification, and idioms.

PO 5. Determine the meanings, pronunciations, syllabication, synonyms, antonyms, and parts of speech of words, by using a variety of reference aids, including dictionaries, thesauri, glossaries, and CD-ROM and Internet when available.

PO 6. Identify antonyms, synonyms, and homonyms for given words within text.

Concept 5: Fluency
Read fluently.

PO 1. Read from familiar prose and poetry with fluency and appropriate rhythm, pacing, intonation, and expression relevant to the text.

READING STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 6: Comprehension Strategies
Employ strategies to comprehend text.

PO 1. Predict text content using prior knowledge and text features (e.g., illustrations, titles, topic sentences, key words).

PO 2. Confirm predictions about text for accuracy.

PO 3. Generate clarifying questions in order to comprehend text.

PO 4. Use graphic organizers in order to clarify the meaning of the text.

PO 5. Connect information and events in a text to experience and to related text and sources.

PO 6. Use reading strategies (e.g., drawing conclusions, determining cause and effect, making inferences, sequencing) to comprehend text.

Strand 2: Comprehending Literary Text

Comprehending Literary Text identifies the comprehension strategies that are specific in the study of a variety of literature.

Concept 1: Elements of Literature
Identify, analyze, and apply knowledge of the structures and elements of literature.

PO 1. Identify the components of a plot (e.g., main events, conflict, rising action, climax, falling action, resolution).

PO 2. Identify the theme (moral, lesson, meaning, message, view or comment on life) of a literary selection.

PO 3. Distinguish between major characters and minor characters.

PO 4. Analyze how a character's traits influence that character's actions.

PO 5. Identify the narrative point of view (e.g., first person, third person, omniscient) in a literary selection.

PO 6. Determine of all the aspects of the setting (e.g., time of day or year, historical period, place, situation) in a literary selection.

PO 7. Identify the intended effect of the techniques (e.g., appeal of characters, believability of characters and plot, use of figurative language) that the author uses to influence readers' feelings and attitudes.

PO 8. Identify types of poetry (e.g., free verse, haiku, cinquain, limericks).

PO 9. Identify various genres of fiction (e.g., mysteries, science fiction, historical fiction, adventures, fantasies, fables, myths) based upon their characteristics.

READING STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 2: Historical and Cultural Aspects of Literature

Recognize and apply knowledge of the historical and cultural aspects of American, British, and world literature.

PO 1. Describe the historical and cultural aspects found in cross-cultural works of literature.

Strand 3: Comprehending Informational Text

Comprehending Informational Text delineates specific and unique skills that are required to understand the wide array of informational text that is a part of our day-to-day experiences.

Concept 1: Expository Text

Identify, analyze, and apply knowledge of the purpose, structures, and elements of expository text.

PO 1. Identify the main idea and supporting details in expository text.

PO 2. Distinguish fact from opinion in expository text, using supporting evidence from text.

PO 3. Determine author's main purpose (e.g., to inform, to describe, to explain) for writing the expository text.

PO 4. Locate specific information by using organizational features (e.g., table of contents, headings, captions, bold print, glossaries, indices, italics, key words, topic sentences, concluding sentences) of expository text. (Connected to Research Strand in Writing)

PO 5. Locate appropriate print and electronic reference sources (e.g., encyclopedia, atlas, almanac, dictionary, thesaurus, periodical, textbooks, CD-ROM, website) for a specific purpose. (Connected to Research Strand in Writing)

PO 6. Interpret information from graphic features (e.g., charts, maps, diagrams, illustrations, tables, timelines) in expository text. (Connected to Research Strand in Writing)

PO 7. Identify cause and effect relationships (stated and implied).

PO 8. Draw valid conclusions based on information gathered from expository text.

READING STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 2: Functional Text
Identify, analyze, and apply knowledge of the purpose, structures, clarity, and relevancy of functional text.

PO 1. Locate specific information from functional text (e.g., letters, memos, directories, menus, schedules, pamphlets, search engines, signs, manuals, instructions, recipes, labels, forms).

PO 2. Interpret details functional text for a specific purpose (e.g., to follow directions, to solve problems, to perform procedures, to answer questions).

Concept 3: Persuasive Text
Explain basic elements of argument in text and their relationship to the author's purpose and use of persuasive strategies.

PO 1. Determine an author's position regarding a particular idea, subject, concept, or object, using supporting evidence from the text.

PO 2. Identify the intended effect of persuasive vocabulary (e.g., loaded/emotional words, exaggeration, euphemisms) that the author uses to influence readers' opinions.

PO 3. Identify the intended effect of persuasive strategies (e.g., peer pressure, bandwagon, repetition) that the author uses to influence readers' perspectives.

Writing Standard Articulated by Grade Level 2004

Grade 5

Writing Standard Articulated by Grade Level

INTRODUCTION

The purpose of the Writing Standard Articulated by Grade Level is to equip students with the skills and knowledge needed to participate in society as literate citizens. The ability to communicate effectively in writing will be essential to their success in their communities and careers. Students may realize personal fulfillment and enjoyment as they learn to become proficient writers and continue as writers throughout their lives.

Writing is a complex skill that involves learning language and using it effectively to convey meaning through text. This standard recognizes that students' abilities in writing develop from their earliest stages with phonetic spelling; to limited understanding of a certain genre; to the ability to produce conventional, coherent, unified documents. Their ideas are expressed in various forms, such as notes, lists, letters, journal writing, stories, web postings, instant messaging, essays, and reports. Effective writing may be evaluated by examining the use of ideas, organization, voice, word choice, sentence fluency, and conventions.

The Writing Standard Articulated by Grade Level will provide a clear delineation of what students need to know and be able to do at each grade level. This allows teachers to better plan instructional goals for students at any grade.

BACKGROUND

The state Board of Education adopted the Arizona Academic Standards in 1996 to define what Arizona's students need to know and be able to do by the end of twelfth grade. Developed
by committees comprised of educators, parents, students, and business and community leaders, these standards were written in grade-level clusters with benchmarks at grades 3, 5, 8, and high school.

RATIONALE

Requirements in the No Child Left Behind Act of 2001 (NCLB) and the standard practice of conducting periodic review of the state academic standards prompted the decision by the Arizona Department of Education to refine and articulate the academic standards for mathematics, reading, writing, and science by grade level. This refinement and articulation project was started in December 2003, and was completed in June 2004.

METHODOLOGY

Writing Standard refinement began in January 2004, expanding the standard to include performance objectives for all grade levels, kindergarten through twelfth grade. The writing articulation teams consisted of educators from around the state, representing large and small schools, rural and urban schools, and ethnic diversity. National consultants, university professors, and Arizona Department of Education staff advised the teams. The goal was to articulate and align the current academic standards by grade level (K-12).

The Writing Articulation Committee utilized resources and information from current, effective classroom practices, from other states' standards, and from the National Council of Teachers of English, which promotes quality literacy instruction.

The articulation process included a restructuring of the Arizona Academic Content Writing Standards to better facilitate the alignment of performance objectives by grade level, while maintaining the content integrity.

Over a period of months, the articulation team and smaller subcommittees of the teams refined the documents. Reasonableness, usefulness, and appropriateness were the guidelines for the articulation process.

External reviews by nationally recognized consultants brought a broad perspective to the articulation process. Internal reviews by university and local experts provided additional validation.

Another important step in the project was the request for public comment. In May 2004, a draft of the Writing Standard Articulated by Grade Level, along with a survey to gather feedback, was posted on the Arizona Department of Education website. This provided the public with easy access to the documents, and the survey allowed reviewers a means for submitting comments. The public and all educators had the opportunity to submit comments and suggestions, either electronically or in writing, until the public review closing date of May 27, 2004. In May, three public hearings were held throughout the state, offering further opportunities for public input.

Based on public comment and online survey results, the articulation team met to determine necessary modifications to the standard. All public comments were given equal consideration.

Included in the standard articulation process the development of a rationale, glossary, and a crosswalk (correlation between the 1996 Writing Standard and revised, articulated standard). These additional documents were designed to assist educators with the transition from the 1996 Writing Standards to the 2004 Writing Standard Articulated by Grade Level.

WRITING STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 1: Writing Process

Research has established the major steps of the writing process. These steps are identified in the five concepts of this strand, each supported with specific performance objectives. While all steps are needed and used by effective writers as they compose text, different skills may be emphasized in individual assignments. These steps may be used recursively as a piece moves toward completion. Throughout the process, students should reflect on their own writing skills, set goals, and evaluate their own progress.

Concept 1: Prewriting Prewriting includes using strategies to generate, plan, and organize ideas for specific purposes.
*PO 1. Generate ideas through a variety of activities (e.g., brainstorming, **graphic organizers**, drawing, writer's notebook, group discussion, printed material).*
PO 2. Determine the purpose (e.g., to entertain, to inform, to communicate, to persuade) of a writing piece.
PO 3. Determine the intended audience of a writing piece.
*PO 4. Use organizational strategies (e.g., **graphic organizer, KWL chart**, log) to plan writing.*
PO 5. *Maintain a record (e.g., lists, pictures, journal, folder, notebook) of writing ideas.*
PO 6. Use **time management strategies**, when appropriate, to produce a writing product within a set time period.

Concept 2: Drafting Drafting incorporates prewriting activities to create a first draft containing necessary elements for a specific purpose.
PO 1. Use a **prewriting plan** to develop a draft with main idea(s) and supporting details.
PO 2. Organize writing into a logical sequence that is clear to the audience.

Italics denotes a repetition of a performance objective (learned in an earlier grade) that is to be applied to more complex writing.
The bulleted (lettered) items within a performance objective indicate specific content to be taught.
Words shown in bold print are referenced in the glossary.

WRITING STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 3: Revising Revising includes evaluating and refining the rough draft for clarity and effectiveness. (Ask: Does this draft say what you want it to say?)
PO 1. *Evaluate the draft for use of ideas and content, organization, voice, word choice, and sentence fluency.* (See Strand 2)
PO 2. *Add details to the draft to more effectively accomplish the purpose.*
PO 3. *Rearrange words, sentences, and paragraphs to clarify the meaning of the draft.*
PO 4. Use a combination of sentence structures (i.e., simple, compound) to improve in the draft.
PO 5. Modify word choice appropriate to the application in order to enhance the writing.
PO 6. Apply appropriate tools or strategies (e.g., peer review, checklists, rubrics) to refine the draft.
PO 7. Use resources and reference materials to select more precise vocabulary.

Concept 4: Editing Editing includes proofreading and correcting the draft for conventions.
PO 1. *Identify punctuation, spelling, and grammar and usage errors in the draft.* (See Strand 2)
PO 2. *Use resources (e.g., dictionary, word lists, spelling/grammar checkers) to correct conventions.*
PO 3. *Apply **proofreading marks** to indicate errors in conventions.*
PO 4. *Apply appropriate tools or strategies (e.g., **peer review**, checklists, **rubrics**) to edit the draft.*

Concept 5: Publishing Publishing includes formatting and presenting a final product for the intended audience.
PO 1. Prepare writing in a format (e.g., oral presentation, manuscript, multimedia) appropriate to audience and purpose.
PO 2. Share the writing with the intended audience.
PO 3. Use margins and spacing to enhance the final product.
PO 4. *Write legibly.*

Italics denotes a repetition of a performance objective (learned in an earlier grade) that is to be applied to more complex writing.
The bulleted (lettered) items within a performance objective indicate specific content to be taught.
Words shown in bold print are referenced in the glossary.

WRITING STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 2: Writing Elements

This strand focuses on the elements of effective writing. Good writing instruction incorporates multiple performance objectives into an integrated experience of learning for the student. Throughout the process, students should reflect on their own writing skills, set goals, and evaluate their own progress. The order of the concepts and performance objectives is not intended to indicate a progression or hierarchy for writing instruction. Instructional activities may focus on just one concept or many.

Concept 1: Ideas and Content Writing is clear and focused, holding the reader's attention throughout. Main ideas stand out and are developed by strong support and rich details. Purpose is accomplished.
PO 1. *Express ideas that are clear and directly related to the topic.*
PO 2. *Provide content and selected details that are well-suited to audience and purpose.*
PO 3. *Use relevant details to provide adequate support for the ideas.*

Concept 2: Organization Organization addresses the structure of the writing and integrates the central meaning and patterns that hold the piece together.
PO 1. *Use a structure that fits the type of writing (e.g., letter format, **narrative**, lines of poetry).* (See Strand 3)
PO 2. *Create a beginning that captures the reader's interest.*
PO 3. *Place details appropriately to support the **main idea**.*
PO 4. Use a variety of words or phrases that creates smooth and effective transitions.
PO 5. *Create an ending that provides a sense of **resolution** or closure.*
PO 6. *Construct a paragraph that groups sentences around a topic.*

Concept 3: Voice Voice will vary according to the type of writing, but should be appropriately formal or casual, distant or personal, depending on the audience and purpose.
PO 1. *Show awareness of the audience through word choice and style.*
PO 2. *Convey a sense of originality, sincerity, liveliness, or humor appropriate to topic and mode.*
PO 3. Use language appropriate for topic and purpose.

Italics denotes a repetition of a performance objective (learned in an earlier grade) that is to be applied to more complex writing.
The bulleted (lettered) items within a performance objective indicate specific content to be taught.
Words shown in bold print are referenced in the glossary.

WRITING STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 4: Word Choice

Word choice reflects the writer's use of specific words and phrases to convey the intended message and employs a variety of words that are functional and appropriate to the audience and purpose.

PO 1. *Use a variety of specific and accurate words that effectively convey the intended message.*

PO 2. *Use descriptive words and phrases that energize the writing.*

PO 3. *Apply vocabulary and/or terminology appropriate to the type of writing.*

PO 4. *Use **literal** and **figurative language** where appropriate to purpose.*
(See R05-S1C4-03, -04)

Concept 5: Sentence Fluency

Fluency addresses the rhythm and flow of language. Sentences are strong and varied in structure and length.

PO 1. Write ***simple and compound sentences.***

PO 2. *Write sentences that flow together and sound natural when read aloud.*

PO 3. *Vary sentence beginnings, lengths, and patterns to enhance the flow of the writing.*

PO 4. *Use effective and natural **dialogue** when appropriate.*

Concept 6: Conventions

Conventions addresses the mechanics of writing, including capitalization, punctuation, spelling, grammar and usage, and paragraph breaks.

PO 1. *Use capital letters correctly for:*

a. ***proper nouns:***
   - *place names*
   - holidays
   - languages
   - historical events
   - organizations

b. *literary titles (i.e., book, story, poem, play,* song)
c. titles
d. *abbreviations*
e. words used as names (e.g., Mother, Uncle Jim)

PO 2. *Punctuate endings of sentences using:*

a. periods
b. question marks
c. *exclamation points*

Italics denotes a repetition of a performance objective (learned in an earlier grade) that is to be applied to more complex writing.
The bulleted (lettered) items within a performance objective indicate specific content to be taught.
Words shown in bold print are referenced in the glossary.

WRITING STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

PO 3. *Use commas to punctuate:*
- *a. items in a series*
- *b. greetings and closings of letters*
- *c. dates*
- *d. introductory words*
- **e. dialogue**
- **f. direct address**

PO 4. *Use quotation marks to punctuate:*
- a. simple **dialogue**
- *b. titles*

PO 5. *Use colons to punctuate:*
- a. *time*
- b. business letter salutations

PO 6. *Use apostrophes to punctuate:*
- *a. contractions*
- *b. singular possessive*

PO 7. *Spell **high frequency words** correctly.*

PO 8. *Use common spelling patterns/generalizations to spell words correctly, including:*
- a. ***irregular plurals***
- b. ***silent e***
- c. **i before e**
- d. **words ending in –y**
- e. **doubling final consonant**

PO 9. Spell **homonyms** correctly in context.

PO 10. *Use resources (e.g., dictionaries, **word walls**) to spell correctly.*

PO 11. *Use paragraph breaks to indicate an organizational structure.*

PO 12. *Use the following parts of speech correctly in **simple sentences**:*
- *a. nouns*
- *b. action verbs*
- *c. personal pronouns*
- *d. conjunctions*
- e. adverbs

PO 13. *Use subject/verb agreement in **simple** and **compound sentences**.*

Italics denotes a repetition of a performance objective (learned in an earlier grade) that is to be applied to more complex writing.
The bulleted (lettered) items within a performance objective indicate specific content to be taught.
Words shown in bold print are referenced in the glossary.

WRITING STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 3: Writing Applications

Writing skills particular to the applications listed here may be taught across the curriculum, although some applications may lend themselves more readily to specific content areas. It is imperative that students write in all content areas in order to increase their communication skills, and ultimately to improve their understanding of content area concepts. When appropriate, other content standards are referenced to show interdisciplinary connections.

Concept 1: Expressive

Expressive writing includes **personal narratives**, stories, poetry, songs, and dramatic pieces. Writing may be based on real or imagined events.

*PO 1. Write a **narrative** based on imagined or real events, observations, or memories that includes:*

a. *characters*
b. ***setting***
c. ***plot***
d. *sensory details*
e. *clear language*
f. *logical sequence of events*

PO 2. Write in a variety of expressive forms (e.g., poetry, skit) that may employ:

a. ***figurative language***
b. ***rhythm***
c. ***dialogue***
d. ***characterization***
e. ***plot***
f. *appropriate format*

Concept 2: Expository

Expository writing includes nonfiction writing that describes, explains, informs, or summarizes ideas and content. The writing supports a **thesis** based on research, observation, and/or experience.

PO 1. Record information (e.g., observations, notes, lists, charts, map labels and legends) related to the topic.

PO 2. Write an expository paragraph that contains:

a. *a topic sentence*
b. *supporting details*
c. *relevant information*

PO 3. Write in a variety of expository forms (e.g., essay, summary, newspaper article, reflective paper, log, journal).

Concept 3: Functional

Functional writing provides specific directions or information related to real-world tasks. This includes letters, memos, schedules, directories, signs, manuals, forms, recipes, and technical pieces for specific content areas.

*PO 1. Write a variety of functional text (e.g., directions, recipes, procedures, **rubrics,** labels, graphs/tables).*
(See R05-S3C2; M05-S2C1)

PO 2. Write communications, including:

a. *thank-you notes*
b. ***friendly letters***
c. ***formal letters***
d. *messages*
e. *invitations*

Italics denotes a repetition of a performance objective (learned in an earlier grade) that is to be applied to more complex writing.
The bulleted (lettered) items within a performance objective indicate specific content to be taught.
Words shown in bold print are referenced in the glossary.

Approved 6.28.04

WRITING STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

PO 3. Address an envelope for correspondence that includes:
- a. *an appropriate return address*
- b. *an appropriate recipient address*

Concept 4: Persuasive

Persuasive writing is used for the purpose of influencing the reader. The author presents an issue and expresses an opinion in order to convince an audience to agree with the opinion or to take a particular action.

PO 1. Write persuasive text (e.g., advertisements, paragraphs) that attempts to influence the reader.
(See R05-S3C3)

Concept 5: Literary Response

Literary response is the writer's reaction to a literary selection. The response includes the writer's interpretation, analysis, opinion, and/or feelings about the piece of literature and selected elements within it.

PO 1. Write a reflection to a literature selection (e.g., journal entry, book review).
(See R05-S2C1)

PO 2. Write a book report or review that identifies the:
- a. ***main idea***
- b. *character(s)*
- c. ***setting***
- d. *sequence of events*
- e. ***conflict/resolution***

(See R05-S2C1)

PO 3. Write a response that demonstrates an understanding of a literary selection, and depending on the selection, includes:
- a. *evidence from the text*
- b. *personal experience*
- c. *comparison to other text/media*

(See R05-S2C1)

Concept 6: Research

Research writing is a process in which the writer identifies a topic or question to be answered. The writer locates and evaluates information about the topic or question, and then organizes, summarizes, and synthesizes the information into a finished product.

PO 1. Paraphrase information from a variety of sources (e.g., Internet, reference materials).
(See R05-S3C1-04, -05, -06)

PO 2. Organize notes in a meaningful sequence.
(See R05-S3C1-04, -05, -06)

*PO 3. Write an informational report that includes **main idea**(s) and relevant details.*
(See R05-S3C1-04, -05, -06)

Italics denotes a repetition of a performance objective (learned in an earlier grade) that is to be applied to more complex writing.
The bulleted (lettered) items within a performance objective indicate specific content to be taught.
Words shown in bold print are referenced in the glossary.

Language Arts Standards 1996

Standard 3: Listening and Speaking
Standard 4: Viewing and Presenting

Essentials (Grades 4-8)

Language Arts Standards Rationale

A Vision for Arizona's Students

Arizona's students must be able to communicate effectively in their schools and communities. The communication skills of reading, writing, listening, speaking, viewing and presenting form the core of language and literacy. The ultimate purpose of the following language arts standards is to ensure that all students be offered the opportunities, the encouragement and the vision to develop the language skills they need to pursue lifelong goals, including finding personal enrichment and participating as informed members of society. The language art standards presented in this document are organized into four areas:

- Reading
- Writing
- Listening and Speaking
- Viewing and Presenting

Reading, writing, listening and speaking are commonly recognized as language skills. Visual communication skills have long been applied in language arts classrooms through the use of media and visual resources. However, with the increase in the availability and variety of media, students are faced with numerous demands for interpreting and creating visual messages. In this document, viewing (interpreting visual messages) and presenting (creating visual messages) are the two aspects of visual communication. Resources available for teaching visual communication range from charts, graphs and photographs to the most sophisticated electronic media.

The interdependency of reading, writing, listening, speaking, viewing and presenting requires that language arts skills be integrated in two ways:

- Within language art
- Across other content areas

Students use language skills to understand academic subject matter and to enrich their lives. They develop literacy at different rates and in a variety of ways. Consequently, interdependent language arts skills and processes should be taught in a variety of learning situations.

Assessment of language arts skills and processes should be comprehensive, authentic and performance based. Multiple assessment methods should be used to evaluate a student's knowledge base and the application of reading, writing, listening, speaking, viewing and presenting. Assessment tasks should reflect those experiences encountered in the home, community and workplace. Issues concerning assessment of specific populations pose complex questions with no simple solutions. As programs and assessments are developed, these issues must be resolved to enable all students to meet the standards.

In conclusion, the standards in the language arts framework form the core of every student's ability to function effectively in society. Students will need a wide repertoire of communication strategies and skills to succeed as learners, citizens, workers and fulfilled individuals in the 21st century.

LANGUAGE ARTS STANDARD
STRAND 3 – LISTENING AND SPEAKING AND
STRAND 4 – VIEWING AND PRESENTING
ESSENTIALS (GRADES 4-8)

STANDARD 3: LISTENING AND SPEAKING

Students effectively listen and speak in situations that serve different purposes and involve a variety of audiences.

- **LS-E1. Prepare and deliver an organized speech and effectively convey the message through verbal and nonverbal communications with a specific audience**

- **LS-E2. Prepare and deliver an oral report in a content area and effectively convey the information through verbal and nonverbal communications with a specific audience**

- **LS-E3. Interpret and respond to questions and evaluate responses both as interviewer and interviewee**

- **LS-E4. Predict, clarify, analyze and critique a speaker's information and point of view**

STANDARD 4: VIEWING AND PRESENTING

Students use a variety of visual media and resources to gather, evaluate and synthesize information and to communicate with others.

- **VP-E1. Analyze visual media for language, subject matter and visual techniques used to influence opinions, decision making and cultural perceptions**

- **VP-E2. Plan, develop and produce a visual presentation, using a variety of media such as videos, films, newspapers, magazines and computer images**

- **VP-E3. Compare, contrast and establish criteria to evaluate visual media for purpose and effectiveness**

Mathematics Standard Articulated by Grade Level 2008

Grade 5

Mathematics Standard Articulated by Grade Level

The Arizona Mathematics Standard Articulated by Grade Level describes a connected body of mathematical understandings and competencies that provide a foundation for all students. This standard is coherent, focused on important mathematics, and well articulated across the grades. Concepts and skills that are critical to the understanding of important processes and relationships are emphasized.

The need to understand and use a variety of mathematical strategies in multiple contextual situations has never been greater. Utilization of mathematics continues to increase in all aspects of everyday life, as a part of cultural heritage, in the workplace, and in scientific and technical communities. Today's changing world will offer enhanced opportunities and options for those who thoroughly understand mathematics.

Communication, problem solving, reasoning and proof, connections, and representation are the process standards as described in the *Principles and Standards for School Mathematics* from the National Council of Teachers of Mathematics (NCTM). These process standards are interwoven within each of the content strands of the Arizona Mathematics Standard and are explicitly connected to the teaching of specific performance objectives in the grade level documents. The process standards emphasize ways to acquire and apply the content knowledge.
Mathematics education should enable students to fulfill personal ambitions and career goals in an informational age. In the NCTM *Principles and Standards* document it asks us to "*Imagine a classroom, a school, or a school district where all students have access to high-quality, engaging mathematics instruction. There are ambitious expectations for all, with accommodations for those who need it".*[1] The Arizona Mathematics Standard Articulated by Grade Level is intended to facilitate this vision.

BACKGROUND

The State Board of Education adopted the Mathematics Standard Articulated by Grade Level in 2003 to define what Arizona students need to know and be able to do at each grade level through the end of tenth grade. Developed by a committee comprised of a diverse group of educators, this standard was written in response to the requirements of *No Child Left Behind Act of 2001* (NCLB).

RATIONALE

In 2007 the State Board of Education began the process for increasing the high school graduation requirement in mathematics from two to four years. This requirement was approved in December 2007 effective with the graduating class of 2013. This increase, along with the need to complete a periodic review of the standard, prompted the Arizona Department of Education to initiate the process of refining and rearticulating the Mathematics Standard. This refinement and articulation project began in June 2007 and was completed in June 2008.

1 National Council of Teachers of Mathematics, Principles and Standards for School Mathematics, NCTM Publications, Reston, VA, 2000, p. 3.

METHODOLOGY

Work teams representing populations from around the state were formed. These groupings were comprised of large and small schools, rural and urban schools, and were ethnically diverse. Included were classroom teachers, curriculum directors, mathematics teacher leaders, Career and Technical Education teachers, second-career teachers, and university/community college faculty. The goal was to revise and articulate the Mathematics Standard K-12 to align with the increased state requirement of four years of high school mathematics.

The mathematics revision teams utilized the National Council of Teachers of Mathematics *Principles and Standards* as a reference in the development of the revised Mathematics Standard. Additionally, the findings and recommendations from the National Mathematics

Advisory Panel, the American Diploma Project Benchmarks, the National Assessment of Educational Progress Framework, the Curriculum Focal Points, the Framework for 21st Century Skills, and other states' frameworks were used as guiding documents.

The revision grade level teams created draft documents with performance objectives articulated to the appropriate grade levels. Over a period of months, these teams and smaller sub-committees of teams refined the draft documents based on clarity, cohesiveness, and comprehensiveness. Reasonableness, usefulness, and appropriateness were key guidelines for the articulation process. The measurability of each performance objective was also a consideration.

External reviews by nationally recognized consultants brought a broader perspective to the refinement process. Another important step in the process was the gathering of public comment. In March 2008, drafts of the Revised Mathematics Standard Articulated by Grade Level, along with a survey to gather feedback, were posted on the Arizona Department of Education website. This provided the public with easy access to the documents, and a survey allowed reviewers a means for submitting comments. Also, crosswalks were created from the Draft 2008 Mathematics Standard to the 2003 Mathematics Standard and were posted on the website. The public had the opportunity to submit comments and suggestions, either electronically or in writing, until the survey closing date of March 28, 2008. Additionally, five public hearings were held in March throughout the state offering further opportunities for public feedback.

After all the public comments were collected, organized, and categorized by grade level and topic, the revision teams met to determine what modifications to the standard document would be appropriate. Upon completion of the revision work, crosswalks were created to assist educators with the transition from the 2003 Arizona Mathematics Standard Articulated by Grade Level to the revised 2008 Mathematics Standard.

ORGANIZATION OF THE MATHEMATICS STANDARD

The Mathematics Standard Articulated by Grade Level is divided into five main strands:

- Number and Operations
- Data Analysis, Probability, and Discrete Mathematics
- Patterns, Algebra, and Functions
- Geometry and Measurement
- Structure and Logic.

Each strand is divided into concepts that broadly define the skills and knowledge that students are expected to know and be able to do. Under each concept are performance objectives (POs) that more specifically delineate the ideas to be taught and learned.

The comprehensive document (K-12) is designed so that teachers can read the performance objectives across grade levels to incorporate learning from previous, current, and future grade levels. The standard is separated into two separate documents due to the addition of College Work Readiness (grades 11-12). The first document spans grade levels K through 6, and the second document covers grades 7 through College Work Readiness. Viewing the Mathematics Standard document from left to right helps the teacher to see the mathematics continuum across the grade levels. There is a purposeful clustering of performance objectives in order to emphasize certain key understandings. Every effort was made to eliminate repetitions. The intent was to build on the learning in previous grade levels, connect important ideas, and highlight new content each year. This coherency supports students in developing new understandings and skills. Looking down each individual column enables a teacher to see the performance objectives that students are expected to know and be able to do at any grade level.

This organization does not imply that the teaching and learning of mathematics should be fragmented or compartmentalized. Mathematics is a highly interconnected discipline; important mathematical ideas from all five mathematics strands need to be continuously integrated as needed to make meaning and connections to other concepts and performance objectives. In each grade level document, these connections are highlighted.

The order of the strands, concepts, and performance objectives (POs) in the Mathematics Standard document are not intended to be a checklist for mathematics instruction. Mathematical concepts develop with a spiraling of ideas/skills that are interconnected and dependent on each other, and this is reflected in the standard document. Effective instruction often incorporates several performance objectives into an integrated experience of learning for the student.
The content in College Work Readiness (grades 11-12) is a new addition to the Mathematics Standard. This content is separated into the five main strands. Performance objectives highlighted in italics in the document have been identified as core to an Algebra II course. As districts/schools create additional high school mathematics courses, they may select from the comprehensive set of performance objectives contained within the five strands.

New to the 2008 Mathematics Standard is the development of more comprehensive grade level documents. The format of these documents will support the implementation of the revised standard. After each concept statement, there are summary expectations appropriate for that specific grade level. These statements provide a roadmap for instruction. Teachers will notice that there are now three columns of information. The first column lists the performance objectives with accompanying strand/concept and content area connections. The middle column highlights explicit connections to Strand 5, Concept 2 performance objectives. These performance objectives are grounded in the core processes of logic, reasoning, problem-solving and proof. The third column provides instructional support to teachers in the form of explanation and examples.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Every student should understand and use all concepts and skills from the previous grade levels. The standard is designed so that new learning builds on preceding skills. Communication, Problem-solving, Reasoning & Proof, Connections, and Representation are the process standards that are embedded throughout the teaching and learning of all mathematical strands.

Strand 1: Number and Operations

Number sense is the understanding of numbers and how they relate to each other and how they are used in specific context or real-world application. It includes an awareness of the different ways in which numbers are used, such as counting, measuring, labeling, and locating. It includes an awareness of the different types of numbers such as, whole numbers, integers, fractions, and decimals and the relationships between them and when each is most useful. Number sense includes an understanding of the size of numbers, so that students should be able to recognize that the volume of their room is closer to 1,000 than 10,000 cubic feet. Students develop a sense of what numbers are, i.e., to use numbers and number relationships to acquire basic facts, to solve a wide variety of real-world problems, and to estimate to determine the reasonableness of results.

Concept 1: Number Sense

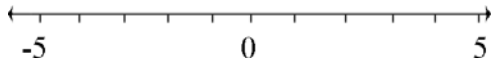
Understand and apply numbers, ways of representing numbers, and the relationships among numbers and different number systems.

In Grade 5, students extend their work with equivalency among fractions, decimals, and percents to include ordering and comparing. In preparation for number concepts in Grades 6 and 7, they will work with factors, multiples, prime and composite numbers, and integers.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Determine equivalence by converting between benchmark fractions, decimals, and percents. Connections: M05-S1C1-04, M05-S1C1-05, M05-S1C2-01, M05-S1C3-01, M05-S2C2-01, M05-S5C1-01	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	Students use models, pictures, symbols and spoken and written words. Benchmark fractions include common fractions between 0 and 1 such as halves, thirds, fourths, fifths, sixths, eighths, and tenths. Continued on next page

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
		Examples: • Write $\frac{3}{8}$ as a decimal and as a percent. • Write $0.\overline{6}$ as a fraction and a percent. • Write 20% as a fraction in simplest form and a decimal.
PO 2. Differentiate between prime and composite numbers; differentiate between factors and multiples for whole numbers. Connections: M05-S1C2-01, M05-S1C2-02, M05-S1C2-03, M05-S5C1-01, M05-S5C2-09	M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions.	Divisibility rules can help determine whether a number has particular factors. Examples: • Factors of 12 are 1, 2, 3, 4, 6, 12 • The multiples of 12 are 12, 24, 36, 48…
PO 3. Locate integers on a number line. Connections: M05-S1C1-06, SS05-S1C1-02, SS05-S2C1-02		Example: • On the number line below, describe the location of -4.  -4 is located 4 units to the left of zero

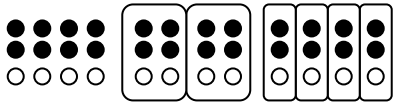
The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 4. Compare and order positive fractions, decimals, and percents. Connections: M05-S1C1-01, M05-S1C3-01	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem.	Positive fractions include proper and improper fractions as well as mixed numbers. Students identify multiple strategies to compare and order. Some possible strategies include using a common denominator or common numerator, using benchmark fractions as listed in M05-S1C1-01, or representing all values in decimal form. Examples: • Order the following from least to greatest: $\frac{7}{5}$, 1.25, 10% • Order the following from greatest to least: 0.32, 83%, $\frac{1}{5}$, $\frac{2}{3}$ • Ms. Lopez, the girls' basketball coach, needs to pick a 5th grader for the school's free-throw competition. In the last practice, Amy made 2 baskets out of three tries; Maria made 7 out of 10 free-throws; and Emily made 60% of her free-throws. Which girl should Ms. Lopez pick for the contest to give the 5th graders the best chance of winning?
PO 5. Use ratios and unit rates to model, describe and extend problems in context. Connections: M05-S1C1-01, M05-S1C3-01, M05-S2C1-02, M05-S2C2-01, M05-S3C4-01	M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	A ratio is a comparison of two quantities which can be written as a to b, $\frac{a}{b}$, or a:b. A rate is a ratio that compares different types of measures. A unit rate compares a quantity in terms of one unit of another quantity. Students need many opportunities to use models to demonstrate the relationships between quantities before they are expected to work with rates numerically. Continued on next page

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
		A comparison of 8 black circles to 4 white circles can be written as the ratio of 8:4 and can be regrouped into 4 black circles to 2 white circles (4:2) and 2 black circles to 1 white circle (2:1).  Examples: • Using the information in the table, find the number of yards in 24 feet. Feet | 3 | 6 | 9 | 15 | 24 Yards | 1 | 2 | 3 | 5 | ? There are several strategies that students could use to determine the solution to this problem. o Add quantities from the table to total 24 feet (9 feet and 15 feet); therefore the number of yards must be 8 yards (3 yards and 5 yards). o Use multiplication to find 24 feet: 1) 3 feet x 8 = 24 feet; therefore 1 yard x 8 = 8 yards, or 2) 6 feet x 4 = 24 feet; therefore 2 yards x 4 = 8 yards. • If you can travel 20 miles in 4 hours on a bicycle, what is the unit rate (the distance you can travel in 1 hour)? • Compare the number of black to white circles. If the ratio remains the same, how many black circles will you have if you have 60 white circles? ● ● ● ● ○ ○ ○ Black | 4 | 40 | 20 | 60 | ? White | 3 | 30 | 15 | 45 | 60

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 6. Express or interpret positive and negative numbers in context. Connections: M05-S1C1-03, SS05-S1C1-02, SS05-S2C1-02, SS05-S5C5-01	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	Context may include number lines, thermometers, elevation, credit/debit, or games such as football or golf.

Strand 1: Number and Operations
Concept 2: Numerical Operations

Understand and apply numerical operations and their relationship to one another.

In Grade 5, students expand their understanding of equality, and build on their previous work in adding and subtracting fractions to include unlike denominators. They develop fluency with the operations and standard algorithms for adding and subtracting fractions and decimals and multiplying and dividing whole numbers. They extend their work with order of operations to numerical expressions.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Add and subtract decimals through thousandths and fractions expressing solutions in simplest form. Connections: M05-S1C1-01, M05-S1C1-02, M05-S1C2-05, M05-S1C3-01, M05-S3C1-01, M05-S5C1-01	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	Examples: • $4-1.7$ • $0.125+0.09$ • $\frac{2}{5}+\frac{7}{8}$ • $3\frac{1}{4}-\frac{5}{6}$

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 2. Multiply multi-digit whole numbers. Connections: M05-S1C1-02, M05-S1C2-05, M05-S1C3-01	M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	Students are expected to fluently and accurately multiply multi-digit whole numbers. Multi-digit at this grade level refers to any number of digits.
PO 3. Divide multi-digit whole numbers by whole number divisors with and without remainders. Connections: M05-S1C1-02, M05-S1C2-05, M05-S1C3-01	M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	Students are expected to fluently and accurately divide multi-digit whole numbers. Divisors can be any number of digits at this grade level.
PO 4. Apply the associative, commutative, and distributive properties to solve numerical problems. Connections: M05-S1C2-05, M05-S5C1-01, M05-S5C2-10	M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	The raised dot (•) is first introduced in Grade 5 to represent multiplication. This representation of multiplication transitions students into algebraic notation. Examples: • 92 + 28 = 90 + 2 + 20 + 8 = (90 + 20) + (2 + 8) • 12 x 2 = (10 x 2) + (2 x 2) • 4 • 3 = 3 • 4
PO 5. Simplify numerical expressions (including fractions and decimals) using the order of operations with or without grouping symbols. Connections: M05-S1C2-01, M05-S1C2-02, M05-S1C2-03, M05-S1C2-04, M05-S5C2-10	M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	Examples: • $2+18\div 2-4\times 2$ • $6-\left(\frac{1}{2}+\frac{1}{3}\right)$

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 1: Number and Operations
Concept 3: Estimation

Use estimation strategies reasonably and fluently while integrating content from each of the other strands.

In Grade 5, students use estimation skills to verify the reasonableness of their solutions. They make reasonable estimates with whole numbers for sums, differences, products and quotients. They also make reasonable estimates for sums and differences of fractions and decimals.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Make estimates appropriate to a given situation or computation with whole numbers, fractions, and decimals Connections: M05-S1C1-01, M05-S1C1-04, M05-S1C1-05, M05-S1C2-01, M05-S1C2-02, M05-S1C2-03, M05-S2C1-02, M05-S2C1-03, M05-S2C2-01, M05-S2C3-02, M05-S2C4-02, M05-S3C1-01, M05-S3C3-01, M05-S3C4-01, M05-S4C4-01, M05-S4C4-02, M05-S4C4-04, M05-S4C4-05	M05-S5C2-01. Analyze a problem situation to determine the question(s) to be answered. M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions.	Students should estimate using all four operations with whole numbers and addition and subtractions with fractions and decimals. Estimation skills include identifying when estimation is appropriate, determining the level of accuracy needed, selecting the appropriate method of estimation, and verifying solutions or determining the reasonableness of situations using various estimation strategies. Estimation strategies for calculations with fractions and decimals extend from students' work with whole number operations and can be supported through the use of physical models. Estimation strategies include, but are not limited to: • front-end estimation with adjusting (using the highest place value and estimating from the front end making adjustments to the estimate by taking into account the remaining amounts), • clustering around an average (when the values are close together an average value is selected and multiplied by the number of values to determine an estimate), Continued on next page

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
		• rounding and adjusting (students round down or round up and then adjust their estimate depending on how much the rounding affected the original values), • using friendly or compatible numbers such as factors (students seek to fit numbers together - i.e., rounding to factors and grouping numbers together that have round sums like 100 or 1000), and • using benchmark numbers that are easy to compute (students select close whole numbers for fractions or decimals to determine an estimate). Specific strategies also exist for estimating measures. Students should develop fluency in estimating using standard referents (meters, yard, etc) or created referents (the window would fit about 12 times across the wall). Example: • Jared is making a frame for a picture that is $10\frac{3}{4}$ inches wide and $15\frac{1}{8}$ inches tall. He has a 4-ft length of metal framing material. Estimate whether he will have enough framing material. Explain your estimation process and answer.

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 2: Data Analysis, Probability, and Discrete Mathematics
This strand requires students to use data collection, data analysis, statistics, probability, systematic listing and counting, and the study of graphs. This prepares students for the study of discrete functions as well as to make valid inferences, decisions, and arguments. Discrete mathematics is a branch of mathematics that is widely used in business and industry. Combinatorics is the mathematics of systematic counting. Vertex-edge graphs are used to model and solve problems involving paths, networks, and relationships among a finite number of objects.

Concept 1: Data Analysis (Statistics)

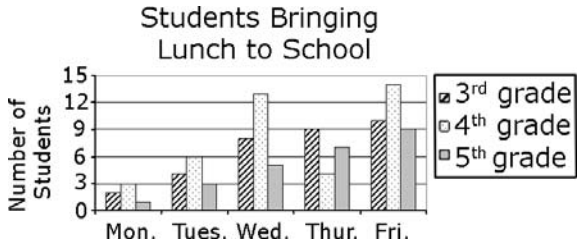
Understand and apply data collection, organization, and representation to analyze and sort data.

In Grade 5, students apply their understanding of whole numbers, fractions, and decimals as they construct, analyze, and describe data. Students apply this understanding of data in other core content areas and in their lives.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Collect, record, organize, and display data using multi-bar graphs or double line graphs. Connections: M05-S2C1-02, SC05-S1C2-05, SC05-S1C4-02, SS05-S4C1-06	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 2. Formulate and answer questions by interpreting and analyzing displays of data, including multi-bar graphs or double line graphs. Connections: M05-S1C1-05, M05-S1C3-01, M05-S2C1-01, M05-S2C1-03, M05-S3C4-01, M05-S5C2-09, SC05-S1C1-01, SC05-S1C1-02, SC05-S1C3-01, SS05-S4C6-02, SS05-S4C6-03	M05-S5C2-02. Identify relevant, missing, and extraneous information related to the solution to a problem. M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions.	Students are expected to estimate and make computations using a data set. Example: • Answer the questions using the graph below. o How many 4th graders brought lunch on Tuesday? o How many more 5th graders than 3rd graders brought their lunch on Thursday? o Susan said that more 5th graders than 3rd graders brought their lunch to school this week. Is Susan's statement true? 

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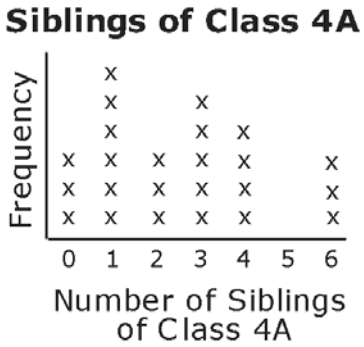
MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 3. Use mean, median, mode, and range to analyze and describe the distribution of a given data set. Connections: M05-S1C3-01, M05-S2C1-02, SC05-S1C3-01	M05-S5C2-02. Identify relevant, missing, and extraneous information related to the solution to a problem. M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions.	Students use sets of data as well as graphical representation of data sets arising from real-world contexts. Example: • What is the median number of siblings that students in this class have? What is the mode of the data? What is the mean number of siblings? What is the range of the number of siblings? What do the mean, median, mode, and range of number of siblings tell you about the students in the class? 

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MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 2: Data Analysis, Probability, and Discrete Mathematics
Concept 2: Probability

Understand and apply the basic concepts of probability.

In Grade 5, students extend their knowledge of fractions to be able to state the theoretical probability of an event as a fraction, decimal, or percent. They predict, record, and compare results in actual experiments. Students begin to understand how probability is determined and make predictions related to probability.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Describe the theoretical probability of events and represent the probability as a fraction, decimal, or percent. Connections: M05-S1C1-01, M05-S1C1-05, M05-S1C3-01, M05-S2C2-02, M05-S2C3-02	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	Example: • A bag contains 4 green marbles, 6 red marbles, and 10 blue marbles. If one marble is drawn randomly from the bag, what is the probability it will be red? What is the probability that it will not be red?
PO 2. Explore probability when performing experiments by • predicting the outcome, • recording the data, • comparing outcomes of the experiment to predictions, and • comparing the results of multiple repetitions of the experiment. Connections: M05-S2C2-01	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-08. Make and test conjectures based on data or information collected from explorations and experiments.	Students should have opportunities to perform experiments using spinners, number cubes, or other objects.

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MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 2: Data Analysis, Probability, and Discrete Mathematics
Concept 3: Systematic Listing and Counting

Understand and demonstrate the systematic listing and counting of possible outcomes.

In Grade 5, students will extend their understanding of counting problems and their relation to probability. They will analyze different representations and make connections to the multiplication principle of counting.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Analyze relationships among representations and make connections to the multiplication principle of counting. Connections: M05-S2C3-02, M05-S5C2-09, M05-S5C2-10	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	Students create and use multiple representations such as charts, systematic lists, and tree diagrams. They note the similarities and differences among the representations and connect them to the multiplication principle of counting. Example: • Use multiple representations to show the number of meals possible if each meal consists of one main dish and one drink. The menu is shown below. Analyze the various representations and describe how the representations illustrate the multiplication principle of counting.  Continued on next page

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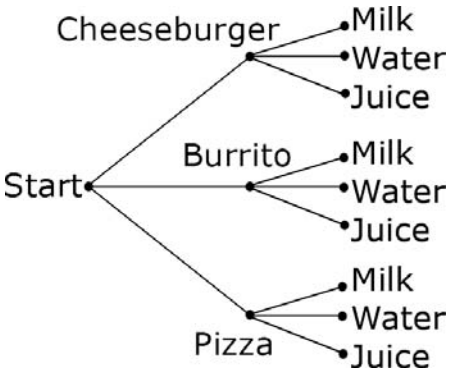
MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
		 Milk Water Juice Cheeseburger x x x Burrito x x x Pizza x x x Both of the representations above illustrate a 3 • 3 relationship, which connects to the multiplication principle. Students explain where the multiplication principle appears in each representation. In this example, there are 3 • 3 = 9 possible meals.

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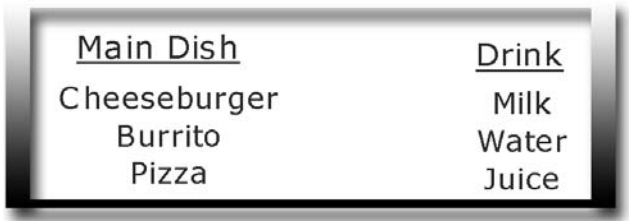
MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 2. Solve a variety of counting problems and explain the multiplication principle of counting. Connections: M05-S1C3-01, M05-S2C2-01, M05-S2C3-01	M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem. M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	Examples: • How many different ways can you arrange the letters CAT? Illustrate your solution and relate it to the multiplication principle of counting. • Create a meal by choosing one main dish and one drink from the menu. How many possible meals can be made from the menu? Make a systematic list of your possibilities. How can you use the multiplication principle of counting to determine the number of meals? 

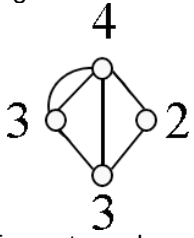
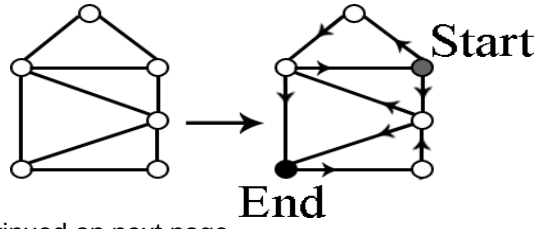
The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 2: Data Analysis, Probability, and Discrete Mathematics
Concept 4: Vertex-Edge Graphs

Understand and apply vertex-edge graphs.

In Grade 5, students continue to develop their understanding of vertex-edge graphs by investigating and solving problems involving Euler paths and circuits.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Investigate properties of vertex-edge graphs • Euler paths, • Euler circuits, and • degree of a vertex. Connections: M05-S2C4-02	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-08. Make and test conjectures based on data or information collected from explorations and experiments.	The number of edges that meet at a vertex is called the degree of the vertex. In the vertex-edge graph below the numbers indicate the degree of the corresponding vertices.  Below is an example of a vertex-edge graph. The graph below and to the right, shows a possible Euler path one could travel. There are several different Euler paths in this graph. An Euler path travels along every edge in the graph exactly once. Vertices may be revisited, but edges may not be repeated. An Euler circuit is an Euler path that ends where it begins.  Continued on next page

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MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
		Students should be provided guided explorations and make observations about the characteristics of Euler paths and circuits in graphs. Discussions should include ideas of connectedness, paths, circuits, odd and even vertices, and if the graph contains an Euler path, Euler circuit, or both. Ultimately, students should understand that: • If a graph is connected and has no vertices of odd degree, then the graph has an Euler circuit. An Euler circuit can begin and end at any vertex. • If a graph is connected and has exactly two vertices of odd degree, then the graph has an Euler path. An Euler path begins at one of the vertices of odd degree and ends at the other vertex of odd degree. This discussion may lead to: Is every path a circuit? And Is every circuit a path?
PO 2. Solve problems related to Euler paths and circuits. Connections: M05-S1C3-01, M05-S2C4-01, M05-S5C2-10	M05-S5C2-01. Analyze a problem situation to determine the question(s) to be answered. M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem.	If a vertex-edge graph is connected and has no vertices of odd degree, then the graph has an Euler circuit. An Euler circuit can begin and end at any vertex. Continued on next page

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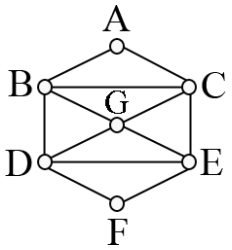
MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
		Example: • Peter's cat was lost. He canvassed his neighborhood with a flyer describing his missing cat. It was important that Peter visit every street in his neighborhood as soon as possible. Trace a route he might take. Is he able to start at one vertex, travel every edge, and return to his starting vertex?  One possible circuit is C, E, G, C, B, D, F, E, D, G, B, A, C. Are there other possible paths?

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MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 3: Patterns, Algebra, and Functions
Patterns occur everywhere in nature. Algebraic methods are used to explore, model and describe patterns, relationships, and functions involving numbers, shapes, iteration, recursion, and graphs within a variety of real-world problem solving situations. Iteration and recursion are used to model sequential, step-by-step change. Algebra emphasizes relationships among quantities, including functions, ways of representing mathematical relationships, and the analysis of change.

Concept 1: Patterns

Identify patterns and apply pattern recognition to reason mathematically while integrating content from each of the other strands.

In Grade 5, students extend their work with numerical sequences to include fractions and decimals and improve their communication of algebraic reasoning as they analyze sequences.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Recognize, describe, create, and analyze a numerical sequence involving fractions and decimals using addition and subtraction. Connections: M05-S1C2-01, M05-S1C3-01, M05-S3C4-01	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem.	Sequential numerical patterns should involve use of fractions, decimals, and/or whole numbers. Examples: • 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, … • 9, 8.75, 8.25, 7.5, … -0.25 -0.5 -0.75 • Create a numerical sequence which involves fractions or decimals and addition or subtraction. Trade sequences with a partner. Analyze and describe the rule your partner used to create the sequence.

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 3: Patterns, Algebra, and Functions
Concept 2: Functions and Relationships

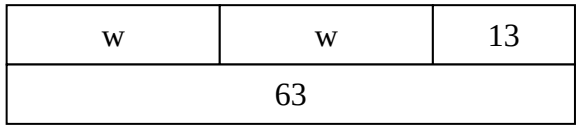
Describe and model functions and their relationships.

In Grade 5, there are no performance objectives in this concept.

Strand 3: Patterns, Algebra, and Functions
Concept 3: Algebraic Representations

Represent and analyze mathematical situations and structures using algebraic representations.

In Grade 5, students use variables to write algebraic equations and apply properties to solve those equations.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Create and solve two-step equations that can be solved using inverse operations with whole numbers. Connections: M05-S1C3-01, M05-S5C2-10	M05-S5C2-01. Analyze a problem situation to determine the question(s) to be answered. M05-S5C2-02. Identify relevant, missing, and extraneous information related to the solution to a problem.	Students are expected to create and solve equations representing a given context. Example: • The soccer club is going on a trip to the water park. The cost of attending the trip is $63. Included in that price is $13 for lunch and the cost of 2 wristbands, one for the morning and one for the afternoon. Write an equation representing the cost of the field trip and determine the price of one wristband. 

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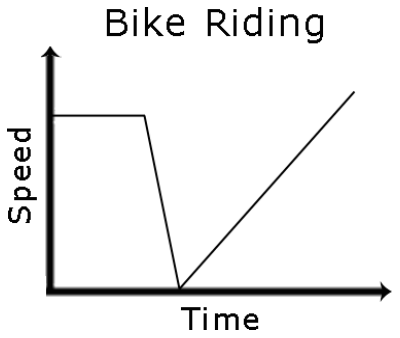
MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 3: Patterns, Algebra, and Functions
Concept 4: Analysis of Change

Analyze how changing the values of one quantity corresponds to change in the values of another quantity.

In Grade 5, students will build on their knowledge of change over time and extend this to include describing patterns of change as constant, increasing, or decreasing.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Describe patterns of change including constant rate and increasing or decreasing rate. Connections: M05-S1C1-05, M05-S1C3-01, M05-S2C1-02, M05-S3C1-01, M05-S5C2-10, SC05-S1C3-01	M05-S5C2-02. Identify relevant, missing, and extraneous information related to the solution to a problem. M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	Example: • Describe the change in speed over time shown by the graph. 

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MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

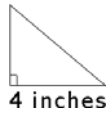
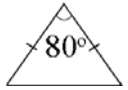
Strand 4: Geometry and Measurement

Geometry is a natural place for the development of students' reasoning, higher thinking, and justification skills culminating in work with proofs. Geometric modeling and spatial reasoning offer ways to interpret and describe physical environments and can be important tools in problem solving. Students use geometric methods, properties and relationships, transformations, and coordinate geometry as a means to recognize, draw, describe, connect, analyze, and measure shapes and representations in the physical world. Measurement is the assignment of a numerical value to an attribute of an object, such as the length of a pencil. At more sophisticated levels, measurement involves assigning a number to a characteristic of a situation, as is done by the consumer price index. A major emphasis in this strand is becoming familiar with the units and processes that are used in measuring attributes.

Concept 1: Geometric Properties

Analyze the attributes and properties of 2- and 3- dimensional figures and develop mathematical arguments about their relationships.

In Grade 5, students analyze and categorize polygons by their properties. They build upon their knowledge of polygons to relate and compare two- and three-dimensional figures.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Draw and label 2-dimensional figures given specific attributes including angle measure and side length. Connections: M05-S4C1-03, M05-S4C1-04, M05-S4C4-03, M05-S5C2-10	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	Examples: • Draw a triangle with a 90˚ angle and one leg that is 4 inches long.  • Draw a quadrilateral with two sets of parallel sides and four right angles.
PO 2. Solve problems by understanding and applying the property that the sum of the interior angles of a triangle is 180˚. Connections: M05-S4C4-03	M05-S5C2-01. Analyze a problem situation to determine the question(s) to be answered. M05-S5C2-02. Identify relevant, missing, and extraneous information related to the solution to a problem.	Example: • What is the measurement of each of the unknown angles in the following isosceles triangle? 

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MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 3. Classify quadrilaterals by their properties. Connections: M05-S4C1-01, M05-S4C1-04, M05-S4C4-04, M05-S4C4-05, M05-S5C1-02, M05-S5C2-10	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols. M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions.	Properties of quadrilaterals may include • Properties of sides—parallel, perpendicular, congruent • Properties of angles—types of angles, congruent
PO 4. Compare attributes of 2-dimensional figures with 3-dimensional figures by drawing and constructing nets and models. Connections: M05-S4C1-01, M05-S4C1-03	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-08. Make and test conjectures based on data or information collected from explorations and experiments.	Students construct models and nets of three dimensional figures, describing them by the number of edges, vertices, and faces. Students also describe the types of faces needed to create the three dimensional figure. Students make and test conjectures by determining what is needed to create a specific three-dimensional figure. Example: • Describe the shapes of the faces needed to construct a rectangular pyramid. Cut out the shapes and create a model. Did your faces work? Why or why not?

Strand 4: Geometry and Measurement
Concept 2: Transformation of Shapes

Apply spatial reasoning to create transformations and use symmetry to analyze mathematical situations.

In Grade 5, there are no performance objectives in this concept.

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 4: Geometry and Measurement
Concept 3: Coordinate Geometry

Specify and describe spatial relationships using rectangular and other coordinate systems while integrating content from each of the other strands.

In Grade 5, there are no performance objectives in this concept.

Strand 4: Geometry and Measurement
Concept 4: Measurement

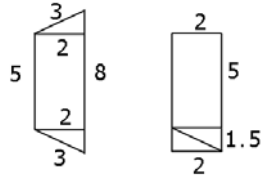
Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.

In Grade 5, students extend their thinking about measurement to include measuring angles and determining the appropriate unit and degree of accuracy for measurements made in context. Students solve problems involving time, area, and perimeter.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Solve problems using elapsed time. Connections: M05-S1C3-01	M05-S5C2-01. Analyze a problem situation to determine the question(s) to be answered. M05-S5C2-04. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem.	Example: • Anthony started painting a room at 11:45 AM. If he finishes after 2½ hours, what time does he complete the job?
PO 2. State an appropriate measure and degree of accuracy in a given context. Connections: M05-S1C3-01, M05-S4C4-03, SC05-S1C2-04	M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions.	Types of measurements include, but are not limited to, measurement for length, capacity, angles, time, and mass in both U.S. Customary and metric units.

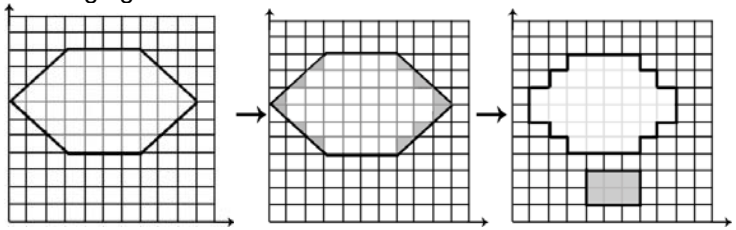
The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 3. Measure angles between 0 and 360 degrees. Connections: M05-S4C1-01, M05-S4C1-02, M05-S4C4-02	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection.	
PO 4. Solve problems involving the area of 2-dimensional figures by using the properties of parallelograms and triangles. Connections: M05-S1C3-01, M05-S4C1-03, M05-S5C1-02	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	Students are expected to determine the area of the figures listed below by applying what they know about finding the area of triangles and parallelograms.  Using the figure on the left, students can divide the area of the trapezoid into a rectangle and two triangles. These shapes can be rearranged as shown in the figure on the right. By applying the properties of parallelograms and triangles, students determine the measures of the figure and calculate the area. In a parallelogram, opposite sides are congruent; therefore the side opposite the side with a measurement of 5 must also measure 5. Since the entire length of the side is 8, that leaves 3 remaining. Three is equally divided between the two triangles, leaving a height of 1.5. The two congruent triangles together form a rectangle with a base of 2 and a height of 1.5. This area can be calculated and added to the area of the rectangle with a base of 2 and a height of 5 to get the total area of the trapezoid.

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 5. Solve problems involving area and perimeter of regular and irregular polygons using reallotment of square units. Connections: M05-S1C3-01, M05-S4C1-03, M05-S5C1-02	M05-S5C2-03. Select and use one or more strategies to efficiently solve the problem and justify the selection. M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	Students determine the area of the hexagon using the grid below and by combining the triangular parts to create complete squares as demonstrated in the second and third grids. Students demonstrate the reallotment of square units by cutting the triangular parts from the diagram and physically rearranging them. 

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MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 5: Structure and Logic
This strand emphasizes the core processes of problem solving. Students draw from the content of the other four strands to devise algorithms and analyze algorithmic thinking. Strand One and Strand Three provide the conceptual and computational basis for these algorithms. Logical reasoning and proof draws its substance from the study of geometry, patterns, and analysis to connect remaining strands. Students use algorithms, algorithmic thinking, and logical reasoning (both inductive and deductive) as they make conjectures and test the validity of arguments and proofs. Concept two develops the core processes as students evaluate situations, select problem solving strategies, draw logical conclusions, develop and describe solutions, and recognize their applications.

Concept 1: Algorithms and Algorithmic Thinking

Use reasoning to solve mathematical problems.

In Grade 5, students extend their work analyzing common algorithms for calculation with fractions and decimals, explaining why the procedures work on the basis of properties of operations and place value. They also use their understanding of geometric properties to develop algorithms for calculating area and perimeter of polygons.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 1. Analyze common algorithms for adding and subtracting fractions and decimals using the associative, commutative, and distributive properties. Connections: M05-S1C1-01, M05-S1C1-02, M05-S1C2-01, M05-S1C2-04, M05-S5C2-10	M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions. M05-S5C2-07. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.	Students are expected to apply the associative, commutative, and distributive properties as well as concepts of place value. The example listed below illustrates one way to approach adding fractions that builds on the understanding of relating fractions to decimals. Continued on next page

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
		Examples: • Analyze the algorithm shown below for finding the sum $2.059 + 0.76$. Do you think this method will work for finding the sum of different decimals? For all decimals? o expand using place value $\left(2+\frac{0}{10}+\frac{5}{100}+\frac{9}{1000}\right)+\left(\frac{7}{10}+\frac{6}{100}\right)$ o use the commutative property to group by place value $2+\frac{0}{10}+\frac{7}{10}+\frac{5}{100}+\frac{6}{100}+\frac{9}{1000}$ o use the associative property to combine like terms $2+\left(\frac{0}{10}+\frac{7}{10}\right)+\left(\frac{5}{100}+\frac{6}{100}\right)+\frac{9}{1000}$ o add $2+\frac{7}{10}+\frac{11}{100}+\frac{9}{1000}$ o regroup $2+\frac{7}{10}+\frac{10}{100}+\frac{1}{100}+\frac{9}{1000}$ o use the associative property to combine like terms $2+\left(\frac{7}{10}+\frac{1}{10}\right)+\frac{1}{100}+\frac{9}{1000}$ o add $2+\frac{8}{10}+\frac{1}{100}+\frac{9}{1000}=2.819$

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:		
PO 2. Develop an algorithm or formula to calculate areas and perimeters of simple polygons. Connections: M05-S4C1-03, M05-S4C4-04, M05-S4C4-05, M05-S5C2-10	M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions.	Using grids, geoboards, or other manipulatives, students are expected to determine the area and perimeter of a variety of polygons, and then develop a general algorithm or formula for finding the area of rectangles and triangles and the perimeter of any simple polygon.

Strand 5: Structure and Logic
Concept 2: Logic, Reasoning, Problem Solving, and Proof

Evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions, and recognize their applications.

In Grade 5, students will select and use efficient strategies to solve problems, evaluate their method and solution, and develop arguments to defend their choices in problems that integrate the content of strands one through four.

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:	Some of the Strand 5 Concept 2 performance objectives are listed throughout the grade level document in the Process Integration Column (2nd column). Since these performance objectives are connected to the other content strands, the process integration column is not used in this section next to those performance objectives.	
PO 1. Analyze a problem situation to determine the question(s) to be answered.		

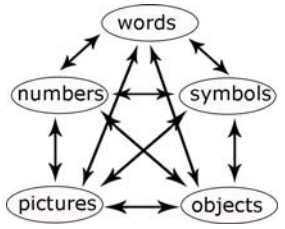
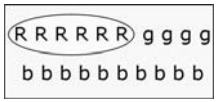
The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:	Some of the Strand 5 Concept 2 performance objectives are listed throughout the grade level document in the Process Integration Column (2nd column). Since these performance objectives are connected to the other content strands, the process integration column is not used in this section next to those performance objectives.	
PO 2. Identify relevant, missing, and extraneous information related to the solution to a problem.		
PO 3. Select and use one or more strategies to efficiently solve the problem and justify the selection.		Strategies may include, but are not limited to, finding a pattern; making a table or organized list; drawing a picture or diagram; working backwards; solving a simpler problem; and guess, check, and revise. Focus should be on the students' selection and justification of strategies to help them recognize why some strategies might work better in a given situation than another.
PO 4. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem.		

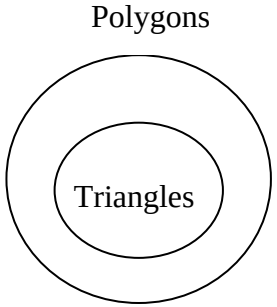
The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:	Some of the Strand 5 Concept 2 performance objectives are listed throughout the grade level document in the Process Integration Column (2nd column). Since these performance objectives are connected to the other content strands, the process integration column is not used in this section next to those performance objectives.	
PO 5. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.		The following graphic shows how a problem can be illustrated using different representations. Using multiple representations can provide a richer understanding of the processes involved in solving a problem. 6 out of 20 $\frac{6}{20} = \frac{3}{10}$  $P(red) = \frac{\text{outcome}}{\text{sample space}}$  
PO 6. Summarize mathematical information, explain reasoning, and draw conclusions.		
PO 7. Analyze and evaluate whether a solution is reasonable, is mathematically correct, and answers the question.		

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:	Some of the Strand 5 Concept 2 performance objectives are listed throughout the grade level document in the Process Integration Column (2nd column). Since these performance objectives are connected to the other content strands, the process integration column is not used in this section next to those performance objectives.	
PO 8. Make and test conjectures based on data or information collected from explorations and experiments.		
PO 9. Identify simple valid arguments using *if…then* statements based on graphic organizers. Connections: M05-S1C1-02, M05-S2C1-02, M05-S2C3-01, M05-S5C2-10	M05-S5C2-05. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.	Example: • Use the Venn diagram to determine if the statements are valid. o If a figure is a triangle, then it is a polygon (valid). o If a figure is a polygon, then it is a triangle (invalid). 

The bulleted items within a performance objective indicate the specific content to be taught.

MATHEMATICS STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Performance Objectives	***Process Integration***	***Explanations and Examples***
Students are expected to:	Some of the Strand 5 Concept 2 performance objectives are listed throughout the grade level document in the Process Integration Column (2nd column). Since these performance objectives are connected to the other content strands, the process integration column is not used in this section next to those performance objectives.	
PO 10. Construct *if… then* statements to generalize rules for computation, geometric properties and algebraic functions. Connections: M05-S1C2-04, M05-S1C2-05, M05-S2C3-01, M05-S2C4-02, M05-S3C3-01, M05-S3C4-01, M05-S4C1-01, M05-S4C1-03, M05-S5C1-01, M05-S5C1-02, M05-S5C2-09	M05-S5C2-06. Summarize mathematical information, explain reasoning, and draw conclusions.	Geometric properties include properties of sides (parallel, perpendicular, congruent), properties of angles (type, measurement, congruent), and properties of symmetry (point and line). Examples: • If the opposite sides on a parallelogram are parallel and congruent, then rectangles are parallelograms. • If the function is $x = y + 2$ and $x = 8$, then $y = 6$.

The bulleted items within a performance objective indicate the specific content to be taught.

Science Standard Articulated by Grade Level 2004

Grade 5

Science Standard Articulated by Grade Level

INTRODUCTION

Students are naturally curious about the world and their place in it. Sustaining this curiosity and giving it a scientific foundation must be a high priority in Arizona schools. Application of scientific thinking enables Arizona students to strengthen skills that people use every day: solving problems creatively, thinking critically, working cooperatively in teams, using technology effectively, and valuing lifelong learning.

Science education is much more than merely learning content. It is the active process of investigation and the critical review of evidence related to the world around us, both visible and invisible. Science is a dynamic process of gathering and evaluating information, looking for patterns, and then devising and testing possible explanations. Active engagement in scientific investigation leads students to think critically and to develop reasoning skills that allow them to become independent, lifelong learners. Science methods and thought processes have application well beyond the bounds of science and support learning goals in all subject areas.

The Arizona Science Standard Articulated by Grade Level has been written for ALL students. The science standard is set with the expectation that science instruction occurs at all grade levels – beginning in early grades with simple exploration, progressing to increasingly organized and sophisticated science investigations in higher grades.

Underlying all of the science standard strands are the five unifying concepts as identified in the National Science Education Standards (1995):

- Systems, Order, and Organization
- Evidence, Models, and Explanation
- Constancy, Change, and Measurement
- Evolution and Equilibrium
- Form and Function

This conceptual framework provides students with productive and insightful ways of considering and integrating a range of basic ideas that explain the natural world. Because the understanding and abilities associated with major conceptual and procedural schemes need to be developed over an entire education, the unifying concepts and processes transcend disciplinary boundaries.

These unifying concepts can be introduced in early grades and developed appropriately through the elementary grades and high school. Students should be explicitly shown how each of these unifying concepts apply to and connect life, physical, and Earth and space sciences. These science content areas can be taught in conjunction with each other, as well as with other subject areas in an interdisciplinary approach. The unifying

concepts in science education help focus instruction and provide a link to other disciplines.

BACKGROUND

The state Board of Education adopted the Arizona Academic Standards in 1998 to define what Arizona's students need to know and be able to do by the end of twelfth grade. Developed by committees comprised of educators, parents, students, and business and community leaders, these standards were written in grade-level clusters with benchmarks at 3, 5, 8, and high school.

RATIONALE

Requirements in the *No Child Left Behind Act of 2001* (NCLB) and the need for periodic review of the state academic standards prompted the decision by the Arizona Department of Education (ADE) to refine and articulate the academic standard for science by grade level. This refinement and articulation project was started in April 2003, and was completed in May 2004.

METHODOLOGY

The Science Standard Revision Committee was composed of a statewide representation of scientists and science educators to reflect school districts large and small, rural and urban, as well as the ethnic diversity of Arizona. National science consultants, university professors, and community members advised the committee and provided valuable reviews of the work in progress. The goal was to articulate, or align, the current academic standards by grade level (K-8) and in high school with the state requirement of two years of high school science.

The committee utilized several nationally recognized publications to establish content guidelines during the development of the draft:

- National Research Council (NRC)
    - *National Science Education Standards*
    - *Inquiry and the National Science Education Standards*
    - *Designing Mathematics or Science Curriculum Programs*
- The American Association for the Advancement of Science
    - *Atlas of Science Literacy*
    - *Benchmarks for Science Literacy*
    - *Design for Science Literacy*
    - *Science for All Americans*
- *Science Framework for the 1996 and 2000 National Assessment of Educational Progress (NAEP)*

The committee created draft documents by first reviewing the existing standards. The performance objectives were articulated, or aligned, to the appropriate grade levels. Over a period of months, subcommittees, composed of representatives of the full committee, met to refine the documents. A guiding principle in the articulation process was whether a performance objective was reasonable, useful, and appropriate. The measurability of each performance objective was also considered.

External reviews by nationally recognized consultants and reviews by university and local experts provided additional guidance and perspective to the committees.

Public review of the Science Standard Articulated by Grade Level occurred during the month of February 2004. A draft of the standard was placed on the ADE website with the option for individuals to make comments online. Six public hearings occurred throughout the state to collect additional comments. After all public comments were collected and organized, the committee met to review them and to recommend appropriate modifications to the standard. This final draft was presented to the state Board of Education in May 2004 for adoption as the Arizona Science Standard Articulated by Grade Level.

SCIENCE STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

The goal in the development of the standard was to assure that the six strands and five unifying concepts are interwoven into a fabric of science that represents the true nature of science. Students have the opportunity to develop both the skills and content knowledge necessary to be scientifically literate members of the community.

Strands 1, 2, and 3 are designed to be explicitly taught and embedded within each of the content Strands 4, 5, and 6, and are not intended to be taught in isolation. The processes, skills, and content of the first three strands are designed to "umbrella" and complement the content of Life Science, Physical Science, and Earth and Space Science.

Strand 1: Inquiry Process

Inquiry Process establishes the basis for students' learning in science. Students use scientific processes: questioning, planning and conducting investigations, using appropriate tools and techniques to gather data, thinking critically and logically about relationships between evidence and explanations, and communicating results.

Concept 1: Observations, Questions, and Hypotheses

Formulate predictions, questions, or hypotheses based on observations. Locate appropriate resources.

PO 1. Formulate a relevant question through observations that can be tested by an investigation.
(See M05-S2C1-01)

PO 2. Formulate predictions in the realm of science based on observed cause and effect relationships.

PO 3. Locate information (e.g., book, article, website) related to an investigation.
(See W05-S3C6-01 and R05-S3C1-05)

Concept 2: Scientific Testing (Investigating and Modeling)

Design and conduct controlled investigations.

PO 1. Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.

PO 2. Plan a simple investigation that identifies the variables to be controlled.

PO 3. Conduct simple investigations (e.g., related to forces and motion, Earth processes) based on student-developed questions in life, physical, and Earth and space sciences.

PO 4. Measure using appropriate tools (e.g., ruler, scale, balance) and units of measure (i.e., metric, U.S. customary).
(See M05-S4C4-01)

PO 5. Record data in an organized and appropriate format (e.g., t-chart, table, list, written log).
(See W05-S3C2-01 and W05-S3C3-01)

SCIENCE STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 3: Analysis and Conclusions

Analyze and interpret data to explain correlations and results; formulate new questions.

PO 1. Analyze data obtained in a scientific investigation to identify trends and form conclusions. (See M05-S2C1-03)

PO 2. Analyze whether the data is consistent with the proposed explanation that motivated the investigation.

PO 3. Evaluate the reasonableness of the outcome of an investigation.

PO 4. Develop new investigations and predictions based on questions that arise from the findings of an investigation.

PO 5. Identify possible relationships between variables in simple investigations (e.g., time and distance; incline and mass of object).

Concept 4: Communication

Communicate results of investigations.

PO 1. Communicate verbally or in writing the results of an inquiry.
(See W05-S3C3-01)

PO 2. Choose an appropriate graphic representation for collected data:

- *bar graph*
- *line graph*
- *Venn diagram*
- *model*

(See M05-S2C1-02)

PO 3. Communicate with other groups or individuals to compare the results of a common investigation.

Italics denote a repetition of a performance objective (learned in an earlier grade) that is to be applied to grade level content or at a higher level of complexity.
The bulleted items within a performance objective indicate specific content to be taught.

SCIENCE STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 2: History and Nature of Science

Scientific investigation grows from the contributions of many people. History and Nature of Science emphasizes the importance of the inclusion of historical perspectives and the advances that each new development brings to technology and human knowledge. This strand focuses on the human aspects of science and the role that scientists play in the development of various cultures.

Concept 1: History of Science as a Human Endeavor

Identify individual, cultural, and technological contributions to scientific knowledge.

PO 1. Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Percy Lavon Julian [scientist], supports Strand 4; Niels Bohr [scientist], supports Strand 5; Edwin Hubble [scientist], supports Strand 6).

Concept 2: Nature of Scientific Knowledge

Understand how science is a process for generating knowledge.

PO 1. Provide examples that support the premise that science is an ongoing process that changes in response to new information and discoveries (e.g., space exploration, medical advances).

PO 2. Explain the cycle by which new scientific knowledge generates new scientific inquiry.

PO 3. Describe how scientific knowledge is subject to modification and/or change as new information/technology challenges prevailing theories.

PO 4. Compare collaborative approaches that scientists use for investigations (e.g., teams, individual with peer review).

PO 5. Describe qualities of the scientists' habits of mind (e.g., openness, skepticism, integrity, tolerance).

Italics denote a repetition of a performance objective (learned in an earlier grade) that is to be applied to grade level content or at a higher level of complexity.
The bulleted items within a performance objective indicate specific content to be taught.

SCIENCE STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 3: Science in Personal and Social Perspectives

Science in Personal and Social Perspectives emphasizes developing the ability to design a solution to a problem, to understand the relationship between science and technology, and the ways people are involved in both. Students understand the impact of science and technology on human activity and the environment. This strand affords students the opportunity to understand their place in the world – as living creatures, consumers, decision makers, problem solvers, managers, and planners.

Concept 1: Changes in Environments

Describe the interactions between human populations, natural hazards, and the environment.

PO 1. Explain the impacts of natural hazards on habitats (e.g., global warming, floods, asteroid or large meteor impacts).

PO 2. Propose a solution, resource, or product that addresses a specific human, animal, or habitat need.

PO 3. Evaluate the possible strengths and weaknesses of a proposed solution to a specific problem relevant to human, animal, or habitat needs.

Concept 2: Science and Technology in Society

Develop viable solutions to a need or problem.

PO 1. Describe the relationship between science and technology.

PO 2. Explain how scientific knowledge, skills, and technological capabilities are integral to a variety of careers.

PO 3. *Design and construct a technological solution to a common problem or need using common materials.*

Italics denote a repetition of a performance objective (learned in an earlier grade) that is to be applied to grade level content or at a higher level of complexity.

The bulleted items within a performance objective indicate specific content to be taught.

SCIENCE STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 4: Life Science

Life Science expands students' biological understanding of life by focusing on the characteristics of living things, the diversity of life, and how organisms and populations change over time in terms of biological adaptation and genetics. This understanding includes the relationship of structures to their functions and life cycles, interrelationships of matter and energy in living organisms, and the interactions of living organisms with their environment.

Concept 1: Structure and Function in Living Systems

Understand the relationships between structures and functions of organisms.

PO 1. Identify the functions and parts of the skeletal system:
- protection – rib cage, cranium
- support – vertebrae
- movement – pelvis, femur, hip

PO 2. Identify the following types of muscles:
- cardiac – heart
- smooth – stomach
- skeletal – biceps

PO 3. Identify the functions and parts of the nervous system:
- control center – brain
- relay mechanism – spinal cord
- transport messages – nerves

PO 4. Distinguish between voluntary and involuntary responses.

Concept 2: Reproduction and Heredity

Understand the basic principles of heredity.

No performance objectives at this grade level

Concept 3: Populations of Organisms in an Ecosystem

Analyze the relationships among various organisms and their environment.

No performance objectives at this grade level

Concept 4: Diversity, Adaptation, and Behavior

Identify structural and behavioral adaptations.

No performance objectives at this grade level

Italics denote a repetition of a performance objective (learned in an earlier grade) that is to be applied to grade level content or at a higher level of complexity.

The bulleted items within a performance objective indicate specific content to be taught.

SCIENCE STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 5: Physical Science

Physical Science affords students the opportunity to increase their understanding of the characteristics of objects and materials they encounter daily. Students gain an understanding of the nature of matter and energy, including their forms, the changes they undergo, and their interactions. By studying objects and the forces that act upon them, students develop an understanding of the fundamental laws of motion, knowledge of the various ways energy is stored in a system, and the processes by which energy is transferred between systems and surroundings.

Concept 1: Properties and Changes of Properties in Matter

Understand physical and chemical properties of matter.

PO 1. Identify that matter is made of smaller units called:
- molecules (e.g., H_2O, CO_2)
- atoms (e.g., H, N, Na)

PO 2. Distinguish between mixtures and compounds.

PO 3. Describe changes of matter:
- physical – cutting wood, ripping paper, freezing water
- chemical – burning of wood, rusting of iron, milk turning sour

Concept 2: Motion and Forces

Understand the relationship between force and motion.

PO 1. Describe the following forces:
- gravity
- friction

PO 2. Describe the various effects forces can have on an object (e.g., cause motion, halt motion, change direction of motion, cause deformation).

PO 3. Examine forces and motion through investigations using simple machines (e.g., wedge, plane, wheel and axle, pulley, lever).

PO 4. Demonstrate effects of variables on an object's motion (e.g., incline angle, friction, applied forces).

Concept 3: Transfer of Energy

Understand that energy can be stored and transferred.

No performance objectives at this grade level

Italics denote a repetition of a performance objective (learned in an earlier grade) that is to be applied to grade level content or at a higher level of complexity.
The bulleted items within a performance objective indicate specific content to be taught.

SCIENCE STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 6: Earth and Space Science

Earth and Space Science provides the foundation for students to develop an understanding of the Earth, its history, composition, and formative processes, and an understanding of the solar system and the universe. Students study the regularities of the interrelated systems of the natural world. In doing so, they develop understandings of the basic laws, theories, and models that explain the world (NSES, 1995). By studying the Earth from both a historical and current time frame, students can make informed decisions about issues affecting the planet on which they live.

Concept 1: Structure of the Earth

Describe the composition and interactions between the structure of the Earth and its atmosphere.

No performance objectives at this grade level

Concept 2: Earth's Processes and Systems

Understand the processes acting on the Earth and their interaction with the Earth systems.

PO 1. Describe how the Moon's appearance changes during a four-week lunar cycle.

PO 2. Describe how Earth's rotation results in day and night at any particular location.

PO 3. Distinguish between revolution and rotation.

PO 4. Describe the role of gravity as an attractive force between celestial objects.

Concept 3: Earth in the Solar System

Understand the relationships of the Earth and other objects in the solar system.

PO 1. Identify the known planets of the solar system.

PO 2. Describe the distinguishing characteristics of the known planets in the solar system.

PO 3. Describe various objects in the sky (e.g., asteroids, comets, stars, meteors/shooting stars).

PO 4. Describe the change in position and motion of the following objects in the sky over time:
- real motion – Moon, planets
- apparent motion (due to the motion of the Earth) – Sun, Moon, stars

PO 5. Explain the apparent motion of the Sun and stars.

PO 6. Describe efforts to explore space (e.g., Apollo missions, space shuttles, Hubble space telescope, space probes).

(See Strand 2)

Italics denote a repetition of a performance objective (learned in an earlier grade) that is to be applied to grade level content or at a higher level of complexity.

The bulleted items within a performance objective indicate specific content to be taught.

Social Studies Standard Articulated by Grade Level 2006

Grade 5

Social Studies Standard Articulated by Grade Level

INTRODUCTION

To maintain the Union that supports our freedoms, we must rely on the knowledge, skills, and character of its citizens and those they elect to public office. Critical to the preservation and improvement of America's republican form of government is the study of our founding principles, namely those detailed in the United States Constitution, the Declaration of Independence, and *The Federalist Papers*. The standard includes the study of rich and diverse contributions that people of many backgrounds have made to American life and institutions while emphasizing our shared heritage. Well-informed citizens understand our political, cultural and economic interaction with the rest of the world. Geographic knowledge expands the understanding of our development and identity in the world. The standard requires that students attain knowledge of essential facts, concepts, people, and events as well as a firm grasp of reasoning, inquiry, and research skills. Students must learn how to frame and test hypotheses, distinguish logical from illogical reasoning, develop informed opinions based on different points of view, and employ reflective thinking and evaluation. In this way students will be prepared to fulfill their responsibilities as citizens of our democratic republic. The standard presents academic content and skills in the four interrelated disciplines of history, geography, civics/government, and economics that are essential to an understanding of our human experience, past and present.

BACKGROUND

The state Board of Education began the development process for the Arizona academic standards in 1996 to define what Arizona students need to know and be able to do by the end of twelfth grade. The Social Studies Standards were adopted in 2000 and partially revised in 2003. Developed by committees comprised of educators, subject matter experts, and business and community leaders, the Social Studies Standard was fully revised and written in articulated grade-specific performance objectives in 2004 - 2005.

RATIONALE

Requirements in the *No Child Left Behind Act of 2001* (NCLB) and the practice of periodic review of the state academic standards prompted the decision by the Arizona Department of Education to refine and articulate the academic standards for mathematics, reading, writing, and science by grade level. An articulation of the social studies standard was included in the process in order to provide consistency across content areas. The skills and content of social studies are not only a critical component of a comprehensive curriculum they also support student success in other areas.

METHODOLOGY

A committee to articulate the social studies standard was formed consisting of a representative sample of educators from around the state. It represented large and small schools, rural and urban districts, and ethnic diversity. Subject matter experts, university professors, and community members advised the committees. The goal was to articulate, or align, the current academic standards by grade level (K-12).

The Social Studies Articulation Committee utilized information from the National Council for the Social Studies, the National Council for Geographic Education, the Arizona Council on Economics Education, the Arizona Geographic Alliance, the Bill of Rights Institute, and other sources to promote quality instruction based on current, pedagogical, and research-based practices.

The articulation process included a restructuring of the Arizona Academic Content Standards to better facilitate the alignment of performance objectives by grade level, while maintaining the content integrity of the existing standards. Over a period of months, the articulation committees and smaller sub-committees refined the documents. Reasonableness, usefulness, and appropriateness were the guidelines for the articulation process.

External reviews by nationally recognized consultants and reviews by university and local experts provided additional guidance and perspective to the committee.

SOCIAL STUDIES STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Fifth Grade History Strands emphasize American history from the earliest Native American cultures to the Civil War. The issues of exploration and rebellion as they occurred throughout the world are also studied in more depth.

Strand 1: American History

A study of American History is integral for students to analyze our national experience through time, to recognize the relationships of events and people, and to interpret significant patterns, themes, ideas, beliefs, and turning points in Arizona and American history. Students will be able to apply the lessons of American History to their lives as citizens of the United States.

Concept 1: Research Skills for History

Historical research is a process in which students examine topics or questions related to historical studies and/or current issues. By using primary and secondary sources effectively students obtain accurate and relevant information. An understanding of chronological order is applied to the analysis of the interrelatedness of events. These performance objectives also appear in Strand 2: World History. They are intended to be taught in conjunction with appropriate American or World History content, when applicable.

***PO 1**. Use the following to interpret historical data:*

a. timelines – B.C.E. and B.C.; C.E. and A.D.

b. graphs, tables, charts, and maps

PO 2. Construct timelines of the historical era being studied (e.g., presidents/ world leaders, key events, people).

***PO 3.** Describe the difference between primary and secondary sources.*

***PO 4**. Locate information using both primary and secondary sources.*

***PO 5**. Describe how archaeological research adds to our understanding of the past.*

Concept 2: Early Civilizations Pre 1500

The geographic, political, economic and cultural characteristics of early civilizations made significant contributions to the later development of the United States.

No performance objectives at this grade

Concept 3: Exploration and Colonization 1500s – 1700s

The varied causes and effects of exploration, settlement, and colonization shaped regional and national development of the U.S.

(Note: The Colonial period was introduced in Grade 1. European exploration was introduced in Grade 3. Spanish exploration was taught in Grade 4.)

PO 1. Recognize that Native American tribes resided throughout North America before the period of European exploration and colonization.

PO 2. Explain the reasons for the explorations of Samuel Champlain, Henry Hudson, John Cabot, Jacques Cartier, Ponce de Leon, and Hernan de Soto in the New World**.**

PO 3. Explain the reasons (e.g., religious freedom, desire for land, economic opportunity, a new life) for colonization of America.

Connect with: Strand 2 Concept 5, Strand 5 Concept 1

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SOCIAL STUDIES STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

PO 4. Describe the contributions of geographic and economic conditions, religion, and colonial systems of government to the development of American democratic practices.
Connect with: Strand 5 Concept 1

PO 5. Describe the geography, cultures, and economics of the Southern, Middle Atlantic, and New England Colonies.
Connect with: Strand 4 Concept 2, 6, Strand 5 Concept 1

PO 6. Identify contributions of individuals (e.g., John Smith, William Penn, Lord Baltimore, Roger Williams, Anne Hutchinson, James Ogelthorpe) who were important to the colonization of America.

PO 7. Describe interactions (e.g., agricultural and cultural exchanges, alliances, conflicts) between Native Americans and European settlers.
Connect with: Strand 2 Concept 5, Strand 4 Concept 5, Strand 5 Concept 1

PO 8. Describe the causes and effects of triangular trade.
Connect with: Strand 2 Concept 5, Strand 5 Concept 1

Concept 4: Revolution and New Nation 1700s – 1820

The development of American constitutional democracy grew from political, cultural, and economic issues, ideas, and events.

(Note: Colonial America and the Revolutionary War were introduced in Grades 1 and 2.)

PO 1. Describe the significance of the following events leading to the American Revolution
a. French and Indian War
b. Proclamation of 1763
c. Tea Act
d. Stamp Act
e. Boston Massacre
f. Intolerable Acts

Connect with: Strand 2 Concept 6, Strand 3 Concept 5, Strand 5 Concept 2

PO 2. Describe the significance of the following events in the Revolutionary War:
a. Declaration of Independence
b. the battles of Lexington and Concord, Saratoga
c. aid from France
d. surrender at Yorktown

Connect with: Strand 3 Concept 1

PO 3. Identify the impact of the following individuals on the Revolutionary War:
a. Benjamin Franklin
b. Thomas Jefferson
c. George Washington
d. Patrick Henry
e. Thomas Paine
f. King George III

Connect with: Strand 3 Concept 1

PO 4. Describe how one nation evolved from thirteen colonies through the following events:
a. Constitutional Convention
b. George Washington's presidency
c. creation of political parties

Connect with: Strand 3 Concept 2, 3, 5

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SOCIAL STUDIES STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 5: Westward Expansion 1800 – 1860

Westward expansion, influenced by political, cultural, and economic factors, led to the growth and development of the U.S.

(Note: Westward expansion was introduced in Grades 2 and 4.)

PO 1. Describe the following events of 19th century presidencies of:

a. Thomas Jefferson – Louisiana Purchase; explorations of Lewis and Clark
b. James Madison – War of 1812
c. James Monroe – The Monroe Doctrine
d. Andrew Jackson – Nationalism and Sectionalism; Trail of Tears
e. James Polk – Mexican-American War; discovery of gold in California

Connect with: Strand 3 Concept 3, Strand 4 Concept 4, 6

PO 2. Describe the different perspectives (e.g., Native Americans, settlers, Spanish, the U.S. government, prospectors) of Manifest Destiny.

Connect with: Strand 4 Concept 4, 6

PO 3. Identify major westward migration routes of the 19th Century.

Connect with: Strand 4 Concept 4, 6

PO 4. Describe how manufacturing, textiles, transportation improvements, and other innovations of the Industrial Revolution contributed to U.S. growth and expansion.

Connect with: Strand 4 Concept 4, 6

PO 5. Describe the following individuals' role in the reform movement before the Civil War:

a. Frederick Douglass
b. Harriet Tubman
c. William Lloyd Garrison
d. Sojourner Truth

Concept 6: Civil War and Reconstruction 1850 – 1877

Regional conflicts led to the Civil War and resulted in significant changes to American social, economic, and political structures.

(Note: The Civil War was introduced in Grade 3 and the Civil War in Arizona was taught in Grade 4.)

PO 1. Describe factors leading to the Civil War:

a. role of abolitionists and Underground Railroad
b. sectionalism between North and South
c. westward expansion

Connect with: Strand 3 Concept 3, 4; Strand 4 Concept 2, 4, 6; Strand 5 Concept 1

PO 2. Identify the reasons why the following were important events of the Civil War:

a. firing on Ft. Sumter
b. major battles
c. delivery of the Emancipation Proclamation
d. surrender at Appomattox

Concept 7: Emergence of the Modern United States 1875 – 1929

Economic, social, and cultural changes transformed the U.S. into a world power.

No performance objectives at this grade.

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SOCIAL STUDIES STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 8: Great Depression and World War II 1929 – 1945

Domestic and world events, economic issues, and political conflicts redefined the role of government in the lives of U.S. citizens.

No performance objectives at this grade

Concept 9: Postwar United States 1945 – 1970s

Postwar tensions led to social change in the U.S. and to a heightened focus on foreign policy.

No performance objectives at this grade

Concept 10: Contemporary United States 1970s – Present

Current events and issues continue to shape our nation and our involvement in the global community.

***PO 1**. Describe current events using information from class discussions and various resources (e.g., newspapers, magazines, television, Internet, books, maps).*

PO 2. Discuss the connections between current and historical events and issues from content studied in Strand 1 using information from class discussions and various resources (e.g., newspapers, magazines, television, Internet, books, maps).

Strand 2: World History

A study of World History is integral for students to analyze the human experience through time, to recognize the relationships of events and people, and to interpret significant patterns, themes, ideas, beliefs, and turning points in American and world history. Students should be able to apply the lessons of World History to their lives as citizens of the United States and members of the world community.

Concept 1: Research Skills for History

Historical research is a process in which students examine topics or questions related to historical studies and/or current issues. By using primary and secondary sources effectively students obtain accurate and relevant information. An understanding of chronological order is applied to the analysis of the interrelatedness of events. These performance objectives also appear in Strand 1: American History. They are intended to be taught in conjunction with appropriate American or World History content, when applicable.

***PO 1.** Use the following to interpret historical data:*

- *a. timelines – B.C.E. and B.C.; C.E. and A.D.*
- *b. graphs, tables, charts, and maps*

PO 2. Construct timelines of the historical era being studied (e.g., presidents/ world leaders, key events, people).

***PO 3.** Describe the difference between primary and secondary sources.*

***PO 4**. Locate information using both primary and secondary sources.*

***PO 5**. Describe how archaeological research adds to our understanding of the past.*

Concept 2: Early Civilizations

The geographic, political, economic and cultural characteristics of early civilizations significantly influenced the development of later civilizations.

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SOCIAL STUDIES STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 3: World in Transition

People of different regions developed unique civilizations and cultural identities characterized by increased interaction, societal complexity and competition.

No performance objectives at this grade.

Concept 4: Renaissance and Reformation

The rise of individualism challenged traditional western authority and belief systems resulting in a variety of new institutions, philosophical and religious ideas, and cultural and social achievements.

No performance objectives at this grade.

Concept 5: Encounters and Exchange

Innovations, discoveries, exploration, and colonization accelerated contact, conflict, and interconnection among societies world wide, transforming and creating nations.

(Note: European Exploration was introduced in Grades 3 and 4.)

PO 1. Describe the following effects of European exploration, trade, and colonization on other parts of the world:

a. sea routes to Asia
b. colonies established and settled
c. increased power of European countries
d. trade established between Europe, Africa, and Americas
e. introduction of disease and the resulting population decline of Indigenous people
f. triangular trade

Connect with: Strand 1 Concept 3, Strand 3 Concept 2; Strand 4 Concept 2, 4, 5, 6, Strand 5 Concept 1

PO 2. Describe ways in which Spain, France, and England competed for power:

Connect with:
Strand 1 Concept 3, Strand 3 Concept 2, 5, Strand 4 Concept 2, Strand 5 Concept 1

Concept 6: Age of Revolution

Intensified internal conflicts led to the radical overthrow of traditional governments and created new political and economic systems.

(Note: Changing government by revolution was introduced in Grade 1. The American Revolution is taught in Grade 5, Strand 1. Connect to similar events around the world.)

PO 1. Explain the rationale and characteristics of rebellion.

PO 2. Explain the impact that revolution has on a society.

PO 3. Compare the causes of the American Revolution to other revolutions around the world (e.g., France, Haiti, Mexico, South America, Russia).

PO 4. Compare the outcomes of the American Revolution to those of other revolutions around the world (e.g., France, Haiti, Mexico, South America, Russia).

Concept 7: Age of Imperialism

Industrialized nations exerted political, economic, and social control over less developed areas of the world.

No performance objectives at this grade.

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SOCIAL STUDIES STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 8: World at War

Global events, economic issues and political ideologies ignited tensions leading to worldwide military conflagrations and diplomatic confrontations in a context of development and change.

No performance objectives at this grade.

Concept 9: Contemporary World

The nations of the contemporary world are shaped by their cultural and political past. Current events, developments and issues continue to shape the global community.

***PO 1**. Describe current events using information from class discussions and various resources (e.g., newspapers, magazines, television, Internet, books, maps).*

PO 2. Use various resources (e.g., newspapers, magazines, television, Internet, books, maps) to discuss the connections between current events and historical events and issues from content studied in Strand 2.

Strand 3: Civics/Government

The goal of the civics strand is to develop the requisite knowledge and skills for informed, responsible participation in public life; to ensure, through instruction, that students understand the essentials, source, and history of the constitutions of the United States and Arizona, American institutions and ideals (ARS 15-710). Students will understand the foundations, principles, and institutional practices of the United States as a representative democracy and constitutional republic. They will understand the importance of each person as an individual with human and civil rights and our shared heritage in the United States. Students will understand politics, government, and the responsibilities of good citizenship. Citizenship skills include the capacity to influence policies and decisions by clearly communicating interests and the ability to build coalitions through negotiation, compromise, and consensus. In addition, students will learn that the United States influences and is influenced by global interaction.

Concept 1: Foundations of Government

The United States democracy is based on principles and ideals that are embodied by symbols, people and documents.

PO 1. Identify the democratic principles and ideals associated with the following documents*:*

a. Mayflower Compact
b. Declaration of Independence
c. Articles of Confederation
d. United States Constitution
e. Bill of Rights

Connect with: Strand 1 Concept 3

PO 2. Recognize the contributions and roles of the following individuals in creating the American government:

a. John Adams
b. Benjamin Franklin
c. Alexander Hamilton
d. Thomas Jefferson
e. James Madison
f. John Marshall
g. George Washington

Connect with: Strand 1 Concept 4

PO 3. Describe the struggle between the Federalists and the Anti-federalists over the ratification of the Constitution and the creation of the Bill of Rights.

Connect with: Strand 1 Concept 4

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SOCIAL STUDIES STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 2: Structure of Government

The United States structure of government is characterized by the separation and balance of powers.

PO 1. Describe the role of town meetings and representative assemblies in colonial government.

PO 2. Describe how the Constitution is designed to limit central government, as in freedom from a controlling monarchy.

Connect with: Strand 1 Concept 3, 4

Concept 3: Functions of Government

Laws and policies are developed to govern, protect, and promote the well-being of the people.

(Note: Students were introduced to how laws are made in Grade 3.)

PO 1. Explain ways in which the powers of the federal government differed from the Articles of Confederation to the Constitution.

Connect with: Strand 1 Concept 4

PO 2. Identify the process by which a bill becomes a law.

PO 3. Describe how the checks and balance system which established the three branches of the federal government works, as in Andrew Johnson's impeachment.

PO 4. Explain the significance of the Dred Scott Decision.

PO 5. Compare the arguments for states' rights versus the power of the federal government (e.g., the expansion of slavery, taxation).

Concept 4: Rights, Responsibilities, and Roles of Citizenship

The rights, responsibilities and practices of United States citizenship are founded in the Constitution and the nation's history.

PO 1. Describe ways an individual can contribute to a school or community.

PO 2. Describe the character traits (i.e., respect, responsibility, fairness, involvement) that are important to the preservation and improvement of constitutional democracy in the United States.

PO 3. *Describe the importance of citizens being actively involved in the democratic process (e.g., voting,* student government, involvement in political decision making, analyzing issues, petitioning public officials).

Concept 5: Government Systems of the World

Different governmental systems exist throughout the world. The United States influences and is influenced by global interactions.

PO 1. Describe the characteristics of a monarchy and a republic.

Connect with: Strand 1 Concept 3, 4, Strand 2 Concept 6

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SOCIAL STUDIES STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 4: Geography

The goal of the geography strand is to provide an understanding of the human and physical characteristics of the Earth's places and regions and how people of different cultural backgrounds interact with their environment. Geographic reasoning is a way of studying human and natural features within a spatial perspective. Through the study of geography, students will be able to understand local, national, regional, and global issues. Students will interpret the arrangement and interactions of human and physical systems on the surface of the Earth. As these patterns have changed over time and are important to governments and economies, geographic reasoning will enhance students' understanding of history, civics, and economics.

Concept 1: The World in Spatial Terms

The spatial perspective and associated geographic tools are used to organize and interpret information about people, places and environments.

PO 1. Interpret information from a variety of maps:

a. contour
b. population density
c. natural resource
d. historical maps

PO 2. Locate features in the world (e.g., continents, waterways, mountain ranges, cities) on a map using latitude and longitude.

PO 3. Identify the location of significant geographic features from content studied on a physical or political map.

PO 4. Locate physical and human features (e.g., *gulf, delta, isthmus, strait, bay, canyon*, swamp, peninsula, province, cape, tree line) in the United States and world on an appropriate type of map.

PO 5. Identify each state on a U.S. map.

PO 6. Construct maps, charts, and graphs to display geographic information.

Concept 2: Places and Regions

Places and regions have distinct physical and cultural characteristics.

PO 1. Describe how the following regions exemplify the concept of region as an area with unifying human or natural factors:

a. three American colonial regions
b. West, Midwest, Northeast, Southeast, Southwest
c. North and South during the Civil War

Connect with: Strand 1 Concept 3, 4, 5

PO 2. Describe the geographic characteristics of a state in the United States with the assistance of maps, the internet, atlases, and other reference materials.

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SOCIAL STUDIES STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 3: Physical Systems

Physical processes shape the Earth and interact with plant and animal life to create, sustain, and modify ecosystems. These processes affect the distribution of resources and economic development. Science Strands are summarized as they apply to Social Studies content in Grades K-8. In High School, the Performance Objectives are a summary of skills and content for grades 9 -12. These concepts are reinforced in Social Studies classes, but assessed through Science.

(Science Strands are summarized below as they apply to Social Studies content in Grades K-8. These concepts are reinforced in Social Studies classes, but assessed through Science.)

Connect with:
Science Strand 3 Concept 1 Explain the impacts of natural hazards on habitats.
Science Strand 6 Concept 2 Describe lunar cycles, Earth's revolution and rotation, and gravity.
Science Strand 6 Concept 3 Describe the planets, other objects in the solar system, and exploration of the solar system.

Concept 4: Human Systems

Human cultures, their nature, and distribution affect societies and the Earth.

PO 1. Explain why and how boundaries change (e.g., Westward Expansion, Civil War, Mexican - American War).
Connect with: Strand 1 Concept 5, 6

PO 2. Explain the effects (e.g., economic, cultural, environmental, political) of human migration on places.
Connect with: Strand 1 Concept 5, Strand 2 Concept 5, Strand 5 Concept 1

Concept 5: Environment and Society

Human and environmental interactions are interdependent upon one another. Humans interact with the environment- they depend upon it, they modify it; and they adapt to it. The health and well-being of all humans depends upon an understanding of the interconnections and interdependence of human and physical systems.

PO 1. Describe the ways European colonists and Native Americans viewed, adapted, and used the environment.
Connect with: Strand 1 Concept 3, 6

PO 2. Describe the impact that natural events (e.g., floods, earthquakes, droughts) have on human and physical environments.

Concept 6: Geographic Applications

Geographic thinking (asking and answering geographic questions) is used to understand spatial patterns of the past, the present, and to plan for the future.

PO 1. Describe how geographic features influenced events in the past in the Original Thirteen Colonies, the Great Plains, the Pacific Northwest and the West.
Connect with Strand 1 Concept 3, 5, 6

PO 2. Use geographic knowledge and skills (e.g., recognizing patterns, mapping, graphing) when discussing current events.

PO 3. Use geography concepts and skills (e.g., recognizing patterns, mapping, graphing) to find solutions for local, state or national problems (e.g., shortage or abundance of natural resources).

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SOCIAL STUDIES STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Strand 5: Economics

The goal of the economics strand is to enable students to make reasoned judgments about both personal economic questions and broader questions of economic policy. Students will develop an economic way of thinking and problem solving to understand and apply basic economic principles to decisions they will make as consumers, members of the workforce, citizens, voters, and participants in a global marketplace. This will prepare students to weigh both short-term and long-term effects of decisions as well as possible unintended consequences. The study of economics explains historical developments and patterns, the results of trade, and the distribution of income and wealth in local, regional, national, and world economies. Students will be able to analyze current issues and public policies and to understand the complex relationships among economic, political, and cultural systems.

Concept 1: Foundations of Economics

The foundations of economics are the application of basic economic concepts and decision-making skills. This includes scarcity and the different methods of allocation of goods and services.

PO 1. Identify the opportunity costs (i.e., separation from family, indentured service) associated with expeditions to the New World.
Connect with: Strand 1 Concept 3, Strand 2 Concept 5, Strand 4 Concept 2, 4

PO 2. Describe how specialization (e.g., division of labor) improved standards of living in the three colonial regions and the Pre-Civil War North and South.
Connect with: Strand 1 Concept 6

PO 3. Identify how voluntary exchange helps both buyers and sellers as in colonial trade in North America.
Connect with: Strand 1 Concept 3, Strand 2 Concept 5

PO 4. Interpret how trade promoted economic growth throughout U.S. history.
Connect with: Strand 1 Concept 3, Strand 2 Concept 5, Strand 4 Concept 4

Concept 2: Microeconomics

Microeconomics examines the costs and benefits of economic choices relating to individuals, markets and industries, and governmental policies.

PO 1. *Explain how price incentives affect peoples' behavior and choices, such as colonial decisions about what crops to grow and which products to produce.*
Connect with: Strand 1 Concept 3, Strand 2 Concept 5, 8

PO 2. Describe how competition, markets, and prices influence peoples' behavior.
Connect with: Strand 1 Concept 4

PO 3. Identify how people earn income by selling their labor to businesses or governments.

PO 4. Describe ways in which entrepreneurs take risks to develop new goods and services.

PO 5. Describe the function of private business in producing goods and services.

PO 6. Discuss the function of banks in providing checking accounts, savings accounts, and loans.

PO 7. Explain the function of government in providing certain goods and services through taxation.
Connect with: Strand 1 Concept 4

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SOCIAL STUDIES STANDARD ARTICULATED BY GRADE LEVEL
GRADE 5

Concept 3: Macroeconomics

Macroeconomics examines the costs and benefits of economic choices made at a societal level and how those choices affect overall economic well being.

No performance objectives at this grade.

Concept 4: Global Economics

Patterns of global interaction and economic development vary due to different economic systems and institutions that exist throughout the world.

No performance objectives at this grade.

Concept 5: Personal Finance

Decision-making skills foster a person's individual standard of living. Using information wisely leads to better informed decisions as consumers, workers, investors and effective participants in society.

PO 1. Explain how the following are used to purchase goods and services:

a. cash
b. check
c. money order
d. debit card
e. credit card

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Technology Standards 2000

Essentials (Grades 4-8)

Technology Education Standards Rationale

Technology encompasses the tools and strategies for solving problems, using information, increasing productivity and enhancing personal growth. The word *technology* summons an image of a variety of tools ranging from shovels to gene splitters. When asked to develop the original Technology Standards, adopted in 1997, the Committee did so without the benefit of seeing the integration of various technologies into other curricular standards. Over the past four years, significant advances in technology have occurred. These changes have caused many national organizations to review what students need to know and be able to do in relation to technology. Therefore, when asked to review the current standards, the Revision Committee examined national standards (National Educational Technology Standards, Information Power, Information Technology in Education and Technology for All Americans), along with current Arizona standards. The Revision Committee also analyzed current research on technology skills important to business and industry. The Revision Committee reviewed technology that is currently integrated into other content area standards with the vision that as other standards are revised, technology will be seamlessly integrated.

The goal is to help students live, learn and work successfully and responsibly in an increasingly complex, technology-driven society. These Technology Standards are designed to provide foundational skills and processes that students need in order to work productively and creatively in their studies, at work and at home. Research on the transfer of learning strongly supports the position that instruction and educational activities should closely parallel the final desired behavior. It is essential that technology instruction be an integral part of a student's educational experience. Education's role is to help students meet the challenge of the future. Arizona must encourage, assist and provide all students with the required tools and instruction to enable them to acquire knowledge, develop skills and apply these tools successfully in our world.

The following definition of technology is supported in this document:

Technology is the application of tools to solve problems that extend human potential for the benefit of society

TECHNOLOGY EDUCATION STANDARDS
ESSENTIALS (GRADES 4-8)

STANDARD 1: FUNDAMENTAL OPERATIONS AND CONCEPTS
Students understand the operations and function of technology systems and are proficient in the use of technology.

- **1T-E1. Communicate about technology using developmentally appropriate and accurate terminology**
  See: Language Arts (VP-E)

  PO 1. Use basic vocabulary related to technology (e.g., FireWire, USB, parallel, serial, scanning, digitizing, OCR)
  PO 2. Use basic vocabulary related to systems (e.g., network, infrastructure, Internet, Intranet, LAN, WAN, Ethernet, firewall, server, TCP-IP)

- **1T-E2. Demonstrate increasingly sophisticated operation of technology components**
  See: Arts {Music} (1AM-E9-10), Mathematics (1M-E6, 2M-E1), Science (1SC-E2) and Workplace Skills (7WP-E1)

  PO 1. Use touch-typing strategies to reach a minimum of 25 words per minute with accuracy (e.g., meets school-identified standard for accuracy)
  PO 2. Retrieve and save information remotely (e.g., network servers, Internet, Intranet, peripheral devices)
  PO 3. Demonstrate functional operation of technology devices (e.g., presentation devices, digital cameras, scanners, document cameras, scientific probes) (*See Technology 3T-E2, PO1)*

- **1T-E3. When a system is not working properly, demonstrate an understanding of hardware, software and connectivity problem solving processes**
  See: Science (1SC-E1)

  PO 1. Use troubleshooting strategies to solve applications problems (e.g., file management strategies, online help strategies, documentation, collaboration with others)
  PO 2. Use troubleshooting strategies to solve basic hardware problems (e.g., use online help, use documentation, collaboration with others)
  PO 3. Use troubleshooting strategies to identify basic connectivity problems (e.g., use online help, use documentation, collaboration with others)

TECHNOLOGY EDUCATION STANDARDS
ESSENTIALS (GRADES 4-8)

STANDARD 2: SOCIAL, ETHICAL AND HUMAN ISSUES

Students understand the social, ethical and human issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information and software.

- **2T-E1. Discuss basic issues related to responsible use of technology and information and describe personal consequences of inappropriate use**
  See: Comprehensive Health (4CH-E3), Science (2SC-E2) and Social Studies (2SS-E2, PO1, 2SS-E5, PO1, 2SS-E7, PO1)

PO 1. Explain the purpose of an Acceptable Use Agreement/Policy and the consequences of in appropriate use
PO 2. Describe and practice safe Internet/Intranet usage (e.g., do not post inappropriate or harmful material; do not reveal personal information; follow district Acceptable Use Policy)
PO 3. Describe and practice "netiquette" when using the Internet and electronic mail (e.g., publish photographs of people only with their permission)

- **2T-E2. Exhibit legal and ethical behaviors when using technology and information and discuss consequences of misuse**

PO 1. Follow the rules for deciding when permission is needed for using the work of others, (e.g., some sites specify whether permission is required or not, some work is in public domain)
PO 2. Obtain permission to use the work of others (See Technology 5T-E2, PO3)
PO 3. Provide complete citations from electronic media (e.g., use age-level appropriate, district developed standardized reference formats for citing source of information) (See Technology 5T-E2, PO5)
PO 4. Explain copyright laws and "fair use" guidelines (e.g., in relationship to print, video, computer software, multimedia project, music)
PO 5. Describe copyright guidelines[3] for multimedia creation and Internet development
PO 6. State personal consequences (e.g., fines, loss of privileges, grade reduction, academic probation) related to violations of:
  a) Copyright (e.g., sheet music, prerecorded music, print, video, images)
  b) Password security
  c) Privacy (e.g., student files on a network, floppy disk and hard drive)
  d) Internet usage (e.g., inappropriate postings, accessing inappropriate material)
PO 7. Discuss the negative impact of unauthorized intrusions into networked data and describe actions to prevent these intrusions

[3] http://literacy.kent.edu/Oasis/Workshops/copytoc.html; and http://lcweb.loc.gov/copyright/circs/circ1.html

TECHNOLOGY EDUCATION STANDARDS
ESSENTIALS (GRADES 4-8)

2T-E3. Demonstrate knowledge of current changes in technologies and the effect those changes have on the workplace and society

See: Comprehensive Health (4CH-E2) and Social Studies (3SS-E6, PO8, 3SS-E7, PO5)

PO 1. Compare information technologies from past to present and describe the implications of computer power doubling every 18 months (Moore's Law) (e.g., size, speed, cost)

PO 2. Describe the impact of technology use on individuals at home and in the workplace (e.g., computer has replaced the TV for some individuals; free time is spent using technology versus outdoor activities; jobs have been created and/or eliminated due to technological advances; possible infringement of privacy)

PO 3. Discuss the social implications of the "digital divide" (e.g., homes and schools with much technology and connectivity versus those with less or none)

STANDARD 3:TECHNOLOGY PRODUCTIVITY TOOLS

Students use technology tools to enhance learning, to increase productivity and creativity, and to construct technology-enhanced models, prepare publications and produce other creative works.

- **3T-E1. Use formatting capabilities of technology tools for communicating and illustrating**

  See: Language Arts (W-F1, PO5)

  PO 1. Use word processing editing tools to revise a document (e.g., cut and paste, tabs and margins, font size, font style, delete and undo, selecting, spell check, click and drag)

  PO 2. Design a word processing document with graphical elements (e.g., clip art, digital photographs, symbols, using text wrap, cropping, sizing, drawing tools)

- **3T-E2. Use a variety of technology tools for data collection and analysis**

  See: Mathematics (5M-E6) and Social Studies (1SS-E8, PO1)

  PO 1. Use technology device(s) to collect and record data (e.g., science probe, graphing calculator, PDA {personal digital assistant}, alternative keyboards, webcams, GPS and Internet)

  PO 2. Create and use a spreadsheet to analyze data (e.g., use formulas, create charts and graphs)

  PO 3. Create a database with multiple fields to manipulate data in a variety of ways (e.g., sort, merge, list and report)

- **3T-E3. Publish and present information using technology tools**

  See: Science (1SC-E3, PO2 grades 4-5, or PO1, grades 6-8)

  PO 1. Design and create a multimedia presentation or Web page using multiple digital sources (e.g., from camera, video, scanner, CD-ROM, Internet)

PO 2. Publish or present the above production (*See Technology 4T-E2, PO1 or 4T-E3)*

- **3T-E4. Use technology tools to support system analysis and modeling**
  See: Mathematics (2M-E5,6M-E1), Science (1SC-E2, E5) and Workplace Skills (6WP-E1)

  PO 1. Manipulate several variables in a computer simulation to reach a desired outcome (e.g., simulation software, Web-based simulation, textbook support software)

STANDARD 4: TECHNOLOGY COMMUNICATIONS TOOLS
Building on productivity tools, students will collaborate, publish, and interact with peers, experts and other audiences using telecommunications and media.

- **4T-E1. Use telecommunications efficiently and effectively to access remote information and communicate with others in support of facilitated and independent learning**
  See: Language Arts (W-E3-E6)

  PO 1. Communicate independently via e-mail, Internet, and/or videoconference with people in a remote location *(For Internet safety see Technology 2T-E1)*

- **4T-E2. Use technology tools for individual and collaborative writing, communication and publishing activities to create curricular related products for audiences inside and outside the classroom**
  See: Language Arts (W-E2-E7, LS-E)

  PO 1. Plan, design and present an academic product using technology tools (e.g., multimedia authoring, presentation software, digital cameras, scanners, projection devices)

- **4T-E3. Collaboratively use telecommunications and online resources**
  See: Arts {Theatre} (2AT-E1) and Social Studies (1SS-E8, PO2, grades 6-8)
  (For Internet safety issues see Technology 2T-E1)

  PO 1. Request collaborative exchanges among people in local and/or remote locations (e.g., e-mail, online discussions, Web environments)
  PO 2. Communicate electronically to collaborate with experts, peers and others to analyze data and/or develop an academic product (e.g., e-mail, discussion group, videoconferencing)
  PO 3. Present an academic product to share data and/or solutions (e.g., Web site, multimedia presentation, video)

TECHNOLOGY EDUCATION STANDARDS
ESSENTIALS (GRADES 4-8)

STANDARD 5: TECHNOLOGY RESEARCH TOOLS

Students will utilize technology-based research tools to locate and collect information pertinent to the task as well as evaluate and analyze information from a variety of sources.

Note: The performance objectives described in Standard 5 rely upon the mastery of skills and understanding of concepts from Standards 1-4 of this document

- **5T-E1. Locate information from electronic resources**
  See: Arts {Theatre} (2AT-E4), Language Arts (W-E8) and Mathematics (2M-E1, PO1)

  PO 1. Identify electronic research resources
  PO 2. Define subject searching and devise a search strategy to locate information using available electronic research resources (i.e., electronic card catalog, online or CD-ROM reference sources, grade level appropriate Internet resources)
  PO 3. Explain the difference between subject and keyword searching
  PO 4. Construct keyword searches including basic Boolean logic using available electronic research resources (i.e., electronic card catalog, online or CD-ROM reference sources and grade level appropriate Internet resources)
  PO 5. Identify the author, copyright date and publisher of information located in electronic resources, including Internet resources

- **5T-E2. Evaluate the accuracy, relevance, appropriateness, comprehensiveness and bias of electronic information sources**
  See: Social Studies (1SS-E1, PO2 and 1SS-E8, PO5-6)

  PO 1. Create citations for electronic research sources following a prescribed format (*See Technology 2T-E2,PO2)*
  PO 2. Gather research from a variety of electronic sources and identify the most appropriate information for answering the research question (*See Technology 5T-D2, PO2)*
  PO 3. Obtain permission, when appropriate, to use the work of others (*See Technology 2T-E2, PO3)*
  PO 4. Identify the components of a URL to determine the source of the information
  PO 5. Identify the author of the information found from electronic resources and determine whether the author is an authority, displays bias and is a primary or secondary source

TECHNOLOGY EDUCATION STANDARDS
ESSENTIALS (GRADES 4-8)

STANDARD 6: TECHNOLOGY AS A TOOL FOR PROBLEM SOLVING AND DECISION-MAKING

Students use technology to make and support decisions in the process of solving real-world problems.

Note: Problem solving is inherent in all disciplines. Technology Standard 6 is designed to provide a cumulative (capstone) experience

See: Science 3SC in its entirety and Workplace Skills 3WP in its entirety

- **6T-E1. Determine when technology is useful and select and use the appropriate tools and technology resources to solve problems**

  PO 1. Based on a problem selected by the student, identify and use appropriate technology tools to:

  a) collect data (e.g., counting versus using a probe, book index versus online index)
  b) interpret data (e.g., use of a spreadsheet instead of a graphic organizer)
  c) develop a solution to the problem (e.g., creating a model versus using a spreadsheet)
  d) present findings (e.g., create a poster versus an electronic presentation)

Workplace Skills Standards 1997

Essentials (Grades 4-8)

Workplace Skills Standards Rationale

Most students will spend more than a third of their lives in a diverse and constantly changing workplace. Regardless of personal, career, or educational plans, students must demonstrate proficiency both in academics and the following workplace standards.

The Workplace Skills Standards are designed to be integrated into the traditional curriculum taught in schools at all levels and are most effectively learned in the context of an integrated effort involving parents, educators, business partners and members of the community. Student acquisition of critical workplace skills, with an emphasis on application, is a developmental process which encompasses an individual's entire lifetime. The demonstration of these skills is essential for individuals and contributes to the foundation of an educated citizenry.

WORKPLACE SKILLS STANDARDS
ESSENTIALS (GRADES 4-8)

STANDARD 1

Students use principles of effective oral, written and listening communication skills to make decisions and solve workplace problems.

- **1WP-E1. Deliver a speech clearly, with expression and in an organized fashion, making eye contact with audience, and convey the message through nonverbal as well as verbal communications**

  PO 1. Prepare a coherent speech with an introduction, body, and conclusion
  PO 2. Present verbal and non-verbal forms of communication in presenting the speech
  PO 3. Select a variety of forms of print and non-print material to convey the message

- **1WP-E2. Describe communications practices used with sensory-impaired individuals**

  PO 1. Describe more than one way to communicate with a visually-impaired individual
  PO 2. Describe more than one way to communicate with a hearing-impaired individual

- **1WP-E3. Demonstrate correct grammar and punctuation in writing**

  PO 1. Spell correctly
  PO 2. Punctuate correctly (e.g., sentence endings, commas, semicolons, colons)
  PO 3. Apply rules of capitalization correctly (e.g., sentence beginnings, titles, abbreviations, proper nouns)
  PO 4. Apply standard grammar and usage (e.g., subject/verb agreement, simple and compound sentence, appropriate verb tenses, plurals)
  PO 5. Organize paragraphs with a variety of sentence structures (e.g., simple, compound, complex)

- **1WP-E4. Respond to oral and written presentations by formulating relevant feedback, expressing opinions, discerning the main idea and distinguishing fact from opinion**

  PO 1. Summarize main ideas of an oral or written presentation
  PO 2. Differentiate between facts and opinions in a presentation ***(Grades 6-8)***
  PO 3. Formulate related questions in a presentation
  PO 4. Express opinions relating to the main idea in a presentation

- **1WP-E5. Interpret, clarify, and evaluate a presenter's point of view**

  PO 1. Explain the presenter's point of view ***(Grades 4-5)***
  PO 2. Compare the presenter's point of view with personal point of view ***(Grades 6-8)***

WORKPLACE SKILLS STANDARDS
ESSENTIALS (GRADES 4-8)

- **1WP-E6. Speak in a content area (e.g., science, social studies, literature), using vocabulary of the subject accurately; locate and interpret information in documents such as manuals, graphs, and schedules**

  PO 1. Deliver a factual presentation using appropriate terminology
  PO 2. Use a variety of formats such as data, graphs and technical manuals to support a presentation

- **1WP-E7. Identify the relevant details and facts of written materials**

  PO 1. Identify the purpose of written material and response expected from reader
  PO 2. Identify relevant facts contained in selected written material

- **1WP-E8. Write formal communications that have a definite audience and clear purpose; contain no gaps, omissions or assumptions which impede comprehension; and follow the proper form whether it be a personal or business letter, message, memo, manual directions or applications**

  PO 1. Write a formal communication in an appropriate format for a specific audience and purpose
  PO 2. Organize ideas in a meaningful sequence using transitional words or phrases
  PO 3. Write ideas that are clear and directly related to the topic

STANDARD 2

Students apply computation skills and data analysis techniques to make decisions and solve workplace problems.

> *Note: The Essentials Level is central to preparation for the workplace and is adequately covered in the Mathematics Standards document. The Proficiency and Distinction Levels include additional references to what students need to know and do as it relates to the workplace.*

- **2WP-E1. Apply math standards 1-6 to a variety of workplace scenarios**

STANDARD 3

Students apply critical and creative thinking skills to make decisions and solve workplace problems.

- **3WP-E1. Utilize information acquired from several sources and transfer information learned in one situation to another**

  PO 1. Research a designated topic using a wide array of information sources
  PO 2. Analyze the information obtained from the research
  PO 3. Classify the information obtained from the research
  PO 4. Compare the information to a new situation

WORKPLACE SKILLS STANDARDS
ESSENTIALS (GRADES 4-8)

- **3WP-E2. Devise and implement a plan of action by specifying goals and constraints**

  PO 1. Define goals and objectives
  PO 2. Develop appropriate time line
  PO 3. Identify constraints to achieving goals
  PO 4. Identify resources needed to accomplish goals
  PO 5. Develop criteria to evaluate plan of action

- **3WP-E3. Generate alternatives, consider risks, evaluate and choose solutions**

  PO 1. Select from possible solutions in a designated scenario
  PO 2. Evaluate possible solutions in a designated scenario
  PO 3. Identify risks in a designated scenario
  PO 4. Assess risks and risk factors in a designated scenario

- **3WP-E4. Monitor progress and make adjustment to meet stated objectives**

  PO 1. Identify activities for given objectives
  PO 2. Designate assessment tasks to measure progress towards objectives
  PO 3. Evaluate progress towards objective
  PO 4. Revise activities when necessary to achieve objective

- **3WP-E5. Reflect on the action taken to determine what has been gained, lost or achieved**

  PO 1. Evaluate what has been gained, lost or achieved

- **3WP-E6. Identify a need for data, obtain it and develop a validation instrument for determining its accuracy**

  PO 1. Compare the results with the criteria for accuracy
  PO 2. Collect data to analyze workplace problems

STANDARD 4

Students work individually and collaboratively within team settings to accomplish objectives.

- **4WP-E1. Identify ways to build mutual trust and respect and develop an action plan for negotiating concerns**

  PO 1. Identify characteristics of mutual trust
  PO 2. Identify characteristics of mutual respect
  PO 3. Describe ways to build mutual trust and respect
  PO 4. Design action plan for negotiating concerns

WORKPLACE SKILLS STANDARDS
ESSENTIALS (GRADES 4-8)

- **4WP-E2. Analyze the difference between individual and group decisions and accomplishments**

  PO 1. Identify the characteristics of individual decisions and accomplishments
  PO 2. Identify the characteristics of group decisions and accomplishments
  PO 3. Compare the characteristics of individual and group decisions and accomplishments

- **4WP-E3. Exert a high level of effort and perseverance toward goal attainment, as a team member**

  PO 1. Identify the team goal
  PO 2. Identify the team member roles and responsibilities
  PO 3. Develop tool to measure effort and perseverance of individual team members

- **4WP-E4. Assume leadership roles in team settings**

  PO 1. Define leadership skills
  PO 2. Examine self roles/skills in a group setting
  PO 3. Demonstrate leadership roles/skills in a group
  PO 4. Develop a tool to evaluate the roles/skills of self and group

STANDARD 5

Students will demonstrate a set of marketable skills that enhance career options.

- **5WP-E1. Evaluate areas of interest and/or potential career choices**

  PO 1. Identify areas of interest (e.g., personal, career)
  PO 2. Evaluate individual skills
  PO 3. Evaluate a variety of potential career choices

- **5WP-E2. Demonstrate work ethics and behaviors for success as defined by school and community**

  PO 1. Identify characteristics of work ethics and behavior as defined by school and community
  PO 2. Demonstrate identified work ethics and behaviors in your school and community

- **5WP-E3. Demonstrate the connection between academic skills and career pathways by identifying required education and training to achieve career choice(s)**

  PO 1. Identify academic preparation necessary for a variety of careers

WORKPLACE SKILLS STANDARDS
ESSENTIALS (GRADES 4-8)

- **5WP-E4. Identify careers which capitalize on individual strengths and interests**

  PO 1. Identify areas of interest (e.g., personal, career)
  PO 2. Evaluate individual skills
  PO 3. Evaluate a variety of potential career choices

- **5WP-E5. Apply the basic academic skills to develop a resume, job application and interviewing techniques**

  PO 1. Develop a resume
  PO 2. Complete a job application
  PO 3. Participate in the interview process

STANDARD 6

Students illustrate how social, organizational and technological systems function.

Definition: A system equals an organized framework made up of interrelated components acting together as a whole, in which a change in one component may affect the entire operation. Examples of systems are social (e.g., family, school) and technological (e.g., local area network, telephone).

- **6WP-E1.Identify the factors impacting the level of effectiveness of systems**

  PO 1. Define a system
  PO 2. Identify numerous systems that impact students' daily lives
  PO 3. Compare how systems vary in effectiveness
  PO 4. Identify how factors influence the effectiveness of a system

STANDARD 7

Students demonstrate technological literacy for productivity in the workplace.

- **7WP-E1. Demonstrate basic computer operation skills in a variety of applications to organize information**

  PO 1. Use technology to retrieve, organize and manipulate electronic information using media such as CD-ROM, videodisks and telecommunication systems

- **7WP-E2. Use technology to organize information resources such as library and interlibrary catalog databases**

  PO 1. Use organizational features of electronic information (e.g., microfiche headings and numbering; headings for accessing nested information in hypertext media, electronic media, library, interlibrary catalog databases*)*

WORKPLACE SKILLS STANDARDS
ESSENTIALS (GRADES 4-8)

STANDARD 8

Students apply principles of resource management and develop skills that promote personal and professional well-being.

- **8WP-E1. Set and prioritize a set of balanced goals related to school, home, education, and career planning and allocate sufficient time, materials and resources to each task**

  PO 1. Define a personal/professional goal
  PO 2. Create personal/academic goals
  PO 3. Develop a community service goal
  PO 4. Develop a time management program

- **8WP-E2. Describe the importance of balancing home, school and community activities to reduce stress**

  PO 1. Define personal stress factors
  PO 2. Identify how home, school, community activities can affect stress