

# 3rd Grade Notebook



## Appendix A – Language Arts | Word List

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### Third Grade

abbreviation  
adverb  
antonyms  
apostrophe  
complete sentence  
context clues  
contraction  
declarative  
exclamatory  
fact  
interrogative  
multi-meaning words  
opinion  
organization  
plural  
possessive  
predicate  
prefixes  
punctuation (commas)  
root word  
run-on sentence (introduction)  
sequence (sequential)  
singular  
story elements (character,  
setting, plot)  
subject  
suffixes  
summarize  
supporting details  
synonyms  
verb (types and functions)

### Fourth Grade

alliteration  
analogy  
audience (as listeners and  
readers)  
author's purpose  
cause/effect  
compare/contrast  
double negatives  
drawing conclusions  
fable  
genre (introduction)  
index  
making inferences  
outline  
possessive nouns  
prediction  
proofread  
punctuation (quotation marks)  
sentence fragment  
simple predicate  
simple subject  
thesaurus  
verb tense

### Fifth Grade

caption (identify)  
comparative adjectives  
coordinating conjunctions  
hyperbole  
idiom (introduction)  
interjections  
introductory paragraph  
main idea/stated and implied  
metaphor  
narrative  
onomatopoeia  
parts of speech  
personification  
plot (main incidents of a plot)  
point of view/perspective  
preposition/prepositional phrase  
prompt  
punctuation marks (colon, semi-  
colon)  
reference source  
root words (as aids in  
determining meaning)  
run-on sentence (correcting)  
simile  
summary  
superlative adjectives  
text  
theme  
transitional words

## Appendix B – Math | Word List

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### Third Grade

addend  
area  
array  
commutative property  
data  
decimal  
denominator  
elapsed time  
estimation  
factor  
graph (using different types)  
horizontal  
measurement  
metric system  
multiple  
letter/number coordinates  
number sentence  
numerator  
perimeter  
place value  
probability (conceptual)  
product  
scale  
three-dimensional  
two-dimensional  
vertical

### Fourth Grade

acute  
associative property  
attributes  
capacity  
computation  
congruent  
dividend  
divisor  
equivalent  
expanded form (whole numbers  
up to 10,000)  
grid  
hundredths  
identity property  
line  
mass  
median  
mode  
obtuse  
point  
quotient  
ray  
reasonable  
similar (comparing figures)  
tenths  
transformations (flips, slides,  
turns)  
volume (conceptual)  
zero property

### Fifth Grade

diameter  
distributive property (numeric)  
edges  
equation (modeling)  
expanded form (from millions to  
two-place decimals)  
faces  
improper fraction  
intersecting (lines)  
inverse operation  
line of symmetry  
mean  
metric units (meter, liter, gram)  
millions  
mixed numbers  
parallel (lines)  
partial product  
perpendicular (lines)  
plane  
polygon (regular/irregular)  
proper fraction  
quadrilateral  
radius  
simplify/reduce  
standard form  
thousandths  
types of triangles (isosceles,  
equilateral, scalene, right,  
acute, obtuse)  
variable  
vertex or vertices  
x, y axis (Quadrant I)

## Appendix C – Science | Word List

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### Third Grade

atmosphere  
conservation  
energy  
extinct  
force  
geological features  
life cycle  
magnetic attraction  
matter (states of)  
moon phases (basic four)  
natural resources  
observe  
offspring  
orbit  
organism  
photosynthesis  
physical change  
physical properties  
pollution  
precipitation  
predator  
prey  
rotation  
scientific method  
solar system  
water cycle  
weathering

### Fourth Grade

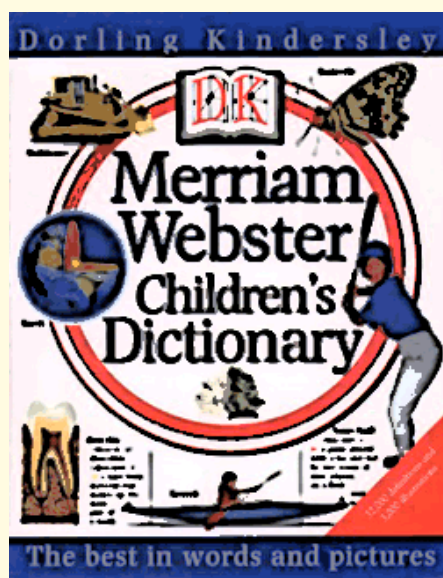
adaptations  
amphibians  
cell (wall, membrane,  
cytoplasm, nucleus, vacuoles)  
condensation  
earth's layers (crust, mantle,  
core)  
edible (parts of plants)  
endangered  
erosion  
evaporation  
friction  
gravity  
heredity  
lunar  
mammals  
mixture/solution  
moon phases (correct sequence)  
parallel circuit  
pitch  
renewable / non-renewable  
reptiles  
series circuit  
simple machines  
solar energy  
threatened  
thriving  
traits / characteristics

### Fifth Grade

acids/bases  
chemical change  
chemical properties  
concave lens  
conduction  
conductor  
contract/expand  
convection  
convex lens  
ecosystem  
environmental changes (human  
& nature)  
fossils (relative age)  
inherited traits  
insulator  
kinetic energy  
light reflection  
light refraction  
magnetic field  
mass  
metamorphosis (complete &  
incomplete)  
potential energy  
radiation  
revolution  
species  
states of matter

## English Standards

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## English Standard 1: Language

### Conceptual Strand 1

Standard American English conventions and vocabulary are essential to effective communication and to success in college classrooms and workplaces.

### Guiding Question 1

How does language usage reflect mastery of Standard American English and its conventions?

### Grade Level Expectations

GLE 1001.1.1 Demonstrate knowledge of Standard English usage, mechanics, and spelling.

GLE 0301.1.2 Demonstrate knowledge of strategies and resources to determine the definition, pronunciation, and usage of words and phrases.

GLE 0301.1.3 Demonstrate knowledge of Standard English sentence structure.

### Checks for Understanding (Formative/Summative Assessment)

- 0301.1.1. Know and use appropriately the meaning, forms, and functions of nouns (e.g. subjects, singular, plural, and possessives), pronouns (e.g. subject and object pronouns, substitutions for nouns, agree with antecedents), verbs (e.g. past/presents/future tenses, irregular verbs, agreement with simple & compound subjects), adjectives (vivid descriptive words, comparative/superlative, articles), and adverbs (common formation, placement in a sentence).
- 0301.1.2. Recognize and avoid errors in Standard English usage (e.g., to/too/two; their/ there/ they're).
- 0301.1.3. Know and apply correctly the rules for capitalization (e.g., names, dates, cities and states, addresses, holidays, titles of books, first word in a sentence, proper nouns, titles, abbreviations, parts of a friendly letter, first word in a direct quotation)
- 0301.1.4. Understand and use correctly standard marks of punctuation (e.g., end punctuation; periods in initials, abbreviations and titles before names; colon between hour and minutes; parts of a letter)
- 0301.1.5. Use commas in direct addresses, dates, locations and addresses, and items in a series.
- 0301.1.6. Recognize and use contractions and possessives using apostrophes.
- 0301.1.7. Spell correctly high-frequency and commonly misspelled words appropriate to grade level
- 0301.1.8. Form and spell contractions, plurals, and possessives
- 0301.1.9. Abbreviate words correctly.
- 0301.1.10. Apply correct orthographic patterns (e.g., consonant doubling, changing "y" to "i", dropping the final silent "e" before adding suffix
- 0301.1.11. Arrange and identify words in alphabetical order for practical purposes occurring in everyday life (e.g. lists, phone directory)
- 0301.1.12. Write legibly in manuscript and in cursive
- 0301.1.13. Recognize sentence types--statements, questions, commands, and exclamations--and apply appropriate end marks when writing and vocal intonation when speaking
- 0301.1.14. Identify the subject and predicate of a sentence (simple and compound)
- 0301.1.15. Recognize complete sentences and sentence fragments and edit appropriately
- 0301.1.16. Combine simple sentences into compound sentences using compound subjects and/or predicates.

- 0301.1.17. Continue to maintain and develop the ability to distinguish sounds and sound patterns within words
- 0301.1.18. Continue to develop word consciousness (e.g., word play, word walls, word sorts)
- 0301.1.19 Define and recognize word synonyms and antonyms
- 0301.1.20 Use a variety of previously learned strategies (e.g., roots and affixes, context, reference resources) to determine the meanings of unfamiliar words.

#### **STATE PERFORMANCE INDICATORS**

- ENGL: SPI 0301.1.1 Identify the correct use of nouns (i.e., as subjects, singular and plural) within context
- ENGL: SPI 0301.1.2 Identify the correct use of verbs (i.e. present, past, and future tense) within context
- ENGL: SPI 0301.1.3. Identify the correct use of adjectives (ie, comparative and superlative)
- ENGL: SPI 0301.1.4. identify correctly used capital letters in names, dates, and addresses
- ENGL: SPI 0301.1.5. Select the simple subject and predicate of a sentence
- ENGL: SPI 0301.1.6. Select the compound sentence that correctly combines two simple sentences
- ENGL: SPI 0301.1.7. Recognize correct capitalization and end punctuation within context
- ENGL: SPI 0301.1.8. Choose the correct formation fo contractions and plurals within context
- ENGL: SPI 0301.1.9. Identify the correct use of commas with dates, addresses, items, items in a series, and the greeting and closing of a friendly letter
- ENGL: SPI 0301.1.10 Identify declarative, interrogative, and exclamatory sentences by recognizing appropriate end marks.
- ENGL: SPI 0301.1.11. Rearrange and identify words in alphabetical order (e.g., lists, phone directory)
- ENGL: SPI 0301.1.12. Choose correctly (or incorrectly) spelled words in context
- ENGL: SPI 0301.1.13. Recognize grade level compound words, contractions, and common abbreviations within context
- ENGL: SPI 0301.1.14. Recognize usage errors occurring within context (ie, double negatives, troublesome words: to/too/two; their/there/they're)
- ENGL: SPI 0301.1.15. Recognize root words and their various inflections (eg, walks, walking, walked)
- ENGL: SPI 0301.1.16 Determine word meaning using prefixes and suffixes and/or context clues
- ENGL: SPI 0301.1.17 Select appropriate synonyms and antonyms within context
- ENGL: SPI 0301.1.18 Distinguish individual sounds, including consonant blends, within words
- ENGL: SPI 0301.1.19 Recognize grade appropriate vocabulary, including multiple-meaning words, within context
- ENGL: SPI 0301.1.20 Determine word meaning through context clues

## English Standard 2: Communication

### Conceptual Strand 2

Effective communication through clear and persuasive expression and attentive listening is necessary for success in school, the workplace, and the larger community.

### Guiding Question 2

What communication skills are essential to achieve success in school, the workplace, and in leisurely pursuits?

### Grade Level Expectations

GLE 0301.2.1 Continue to develop basic listening skills necessary for communication.

GLE 0301.2.2 Continue to develop basic speaking skills necessary for communication.

### Checks for Understanding (Formative/Summative Assessment)

#### LISTENING

- COMM: 0301.2.1 Consistently use established rules for polite conversation and attentive listening (e.g., take turns, raise hands, ask questions, do not interrupt, face speaker).
- COMM: 0301.2.2 Demonstrate the ability to follow oral directions up to three steps.
- COMM: 0301.2.3 Respond to questions from teachers and other group members and pose follow-up questions for clarity.
- COMM: 0301.2.4 Listen and respond to a variety of media (e.g., books, audio tapes, videos).
- COMM: 0301.2.5 Summarize information presented orally by others
- COMM: 0301.2.6 Recognize the main idea conveyed in a speech
- COMM: 0301.2.7 Construct a brief summary of a speech

#### SPEAKING

- COMM: 0301.2.8 Consistently use rules for conversation and verbal participation.
- COMM: 0301.2.9 Give oral directions up to three steps.
- COMM: 0301.2.10 Participate in group discussions.
- COMM: 0301.2.11 Show evidence of expanding oral language through vocabulary growth.
- COMM: 0301.2.12 Participate in creative and expressive responses to text (e.g., choral reading, discussion, dramatizations, oral presentations, personal experiences).

### STATE PERFORMANCE INDICATORS

- COMM: SPI 0301.2.1 identify the main ideas of a speech
- COMM: SPI 0301.2.2 given a list of interactive behaviors (ie, taking turns, behaving courteously, not interrupting, listening, remaining on task), identify those that are appropriate (or inappropriate) for group activities
- COMM: SPI 0301.2.3 Given a written summary of a speech, choose from a list of ideas the one not mentioned in the speech

## Writing Standards

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## Writing Standard 3: Writing

### Conceptual Strand 3

The ability to write clearly and coherently for a variety of purposes to a variety of audiences is vital to individual success.

### Guiding Question 3

How will students demonstrate their ability to write effectively for a variety of purposes and audiences?

### Grade Level Expectations

GLE 0301.3.1 Write for a variety of purposes and to a variety of audiences.

GLE 0301.3.2 Know and apply the steps of the writing process: prewriting, drafting, revising, editing, evaluating, and publishing.

GLE 0301.3.3 Write in a variety of modes and genres, including narration, literary response, personal experience, and subject matter content.

### Checks for Understanding (Formative/Summative Assessment)

- 0301.3.1 Write on a specific topic to a specified audience (e.g., self, peers, adults).
- 0301.3.2 Write for a variety of purposes: to entertain, persuade, inform, demonstrate knowledge, answer questions, tell a story, respond to literature.
- 0301.3.3 Write friendly letters
- 0301.3.4 Write in journals
- 0301.3.5 Practice writing to a prompt within a specified time
- 0301.3.6 Compare characters, setting, and events within and between stories
- 0301.3.7 Write poems, stories, and essays based upon thoughts, feelings, and experiences
- 0301.3.8 Use all steps in the writing process: brainstorm and organize ideas, create a first draft, revise and proofread draft, share completed work.
- 0301.3.9 Construct graphic organizers to group ideas for writing (eg, webs, charts, graphs, diagrams, illustrations)
- 0301.3.10 Select and refine a topic
- 0301.3.11 Write in complete sentences developed into a logical, coherent paragraph with a topic sentence, supporting details, and a concluding sentence.
- 0301.3.12 Use correct page format (e.g., paragraphs, margins, indentations, and titles).
- 0301.3.13 Revise writing to improve detail after determining what could be added or deleted (eg, reread; rearrange words; sentences, paragraphs, add descriptive words; remove unneeded information; incorporate suggestions; vary sentence structures)
- 0301.3.14 Use resources (eg, dictionary, thesaurus, computer) to aid in the writing process
- 0301.3.15 Use a rubric to evaluate own and others' writing through small group discussion and shared work.
- 0301.3.16 Use technology to publish and present.
- 0301.3.17 Identify opportunities for publication (eg, national and/or local contests, Internet websites, newspapers, periodicals)

**STATE PERFORMANCE INDICATORS**

- WRIT: SPI 0301.3.1 Identify the purpose for writing (e.g., to entertain, to inform, to respond to a picture, story, art).
- WRIT: SPI 0301.3.2 Identify the audience for which a text is written
- WRIT: SPI 0301.3.3 Choose a topic sentence for a paragraph.
- WRIT: SPI 0301.3.4 Choose a supporting sentence that best fits the context and flow of ideas in a paragraph.
- WRIT: SPI 0301.3.5 Identify unnecessary information in a paragraph.
- WRIT: SPI 0301.3.6 Rearrange sentences and/or events in a sequential, coherent order.
- WRIT: SPI 0301.3.7 Choose the most specific word to complete a simple sentence.
- WRIT: SPI 0301.3.8 Select an appropriate title that reflects the topic of a written selection
- WRIT: SPI 0301.3.9 Complete a simple graphic organizer to group ideas for writing.

## Writing Standard 4: Research

### Conceptual Strand 4

Effective researchers have the ability to frame, analyze, and solve problems, while building on and evaluating the credibility of existing research.

### Guiding Question 4

How can students develop the ability to find and incorporate reliable, valid research materials into their original work and give appropriate credit to sources?

### Grade Level Expectations

GLE 0301.4.1 Identify and narrow a grade-appropriate research topic.

GLE 0301.4.2 Determine three or more resources using more than one medium.

GLE 0301.4.3 Present research results in a simple written report.

### Checks for Understanding (Formative/Summative Assessment)

- 0301.4.1 Define and narrow a topic for research.
- 0301.4.2 Identify 3 or more resources from more than one medium to support the research topic.
- 0301.4.3 Use reference materials (e.g., dictionary, thesaurus, atlas, and encyclopedia).
- 0301.4.4 Visit the library/media center as a source of information for research.
- 0301.4.5 Organize information gathered using a simple graphic organizer.
- 0301.4.6 Write a simple research report demonstrating the research results.

### STATE PERFORMANCE INDICATORS

- WRIT: SPI 0301.4.1 Identify the most reliable sources of information to support a research topic.
- WRIT: SPI 0301.4.2 Complete a simple graphic organizer (e.g., chart, web) organizing information from text or technological sources.
- WRIT: SPI 0301.4.3 Select appropriate sources from which to gather information on a given topic
- WRIT: SPI 0301.4.4 From a given list, identify information that is (or is not) available in a certain reference source (eg, what information does one find in a thesaurus)

## Reading Standards

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## Reading Standard 5: Logic

### Conceptual Strand 5

Logic develops the skills of reasoning soundly, thinking critically, arguing persuasively, and inferring appropriately.

### Guiding Question 5

How can students develop and demonstrate the ability to apply logic in a sound and systematic way?

### Grade Level Expectations

GLE 0301.5.1 Develop logic skills to enhance thoughtful reasoning and to facilitate learning.

GLE 0301.5.2 Make inferences and draw conclusions.

GLE 0301.5.3 Apply learned logic skills to selections read, as well as to classroom situations.

### Checks for Understanding (Formative/Summative Assessment)

- 0301.5.1 Distinguish fact from opinion.
- 0301.5.2 Distinguish cause from effect.
- 0301.5.3 Compare and contrast two characters, ideas, or stories.
- 0301.5.4 Draw inferences and adjust predictions during reading.
- 0301.5.5 Draw conclusions based on evidence acquired during reading.
- 0301.5.6 Indicate the sequence of events in text.

### STATE PERFORMANCE INDICATORS

- READ: SPI 0301.5.1 Draw appropriate inferences and conclusions from text.
- READ: SPI 0301.5.2 Distinguish between fact and opinion within text.
- READ: SPI 0301.5.3 Identify stated cause-effect relationships in text.
- READ: SPI 0301.5.4 Determine sequence of events in text

## Reading Standard 6: Informational Text

### Conceptual Strand 6

Most texts are informational in nature and require a comprehensive set of skills different from those needed for recreational reading.

### Guiding Question 6

What specific strategies and skills are required in order to understand and interpret various informational texts?

### Grade Level Expectations

GLE 0301.6.1 Apply appropriate reading strategies to comprehend informational text (e.g., prereading strategies, comprehension strategies).

GLE 0301.6.2 Recognize the different features of informational text (e.g., separate text boxes, diagrams, captions, charts, graphs).

### Checks for Understanding (Formative/Summative Assessment)

- 0301.6.1 Develop and use pre-reading strategies (e.g., identify a purpose for reading {for information, for enjoyment, for understanding a writer's position}, make predictions using text features {illustrations, graphics}, preview text using illustrations, graphics, text format, text structures, and skimming)
- 0301.6.2 Demonstrate strategies for determining meaning while reading (e.g., formulate clarifying questions, predict outcomes, create a mental image)
- 0301.6.3. Check for understanding after reading (e.g., draw conclusions based on evidence gained while reading)
- 0301.6.4 identify the main idea and supporting details in text.
- 0301.6.5 Distinguish fiction from nonfiction
- 0301.6.6 Use text features to locate information (e.g., charts, tables of contents, maps, illustrations).
- 0301.6.7 Follow multi-tasked instructions in informational and technical texts (eg, follow a recipe, complete assembly instructions)

### STATE PERFORMANCE INDICATORS

- READ: SPI 0301.6.1 Select questions used to focus and clarify thinking before, during, and after reading text
- READ: SPI 0301.6.2 Identify the stated main idea in a reading selection.
- READ: SPI 0301.6.3 Indicate which of a given set of illustrations or graphics best supports a particular text.
- READ: SPI 0301.6.4 Locate information using available text features (e.g., charts, maps, graphics)
- READ: SPI 0301.6.5 Recognize the parts of a book (e.g., glossary, table of contents)
- READ: SPI 0301.6.6 From a list of statements, locate the factual statements from the fictional ones
- READ: SPI 0301.6.7 Arrange a set of instructions in a sequential, step-by-step order

## Reading Standard 7: Media

### Conceptual Strand 7

An ability to understand and analyze media technology will be a vital, ongoing life skill.

### Guiding Question 7

What strategies will help students become thoughtful users of information coming from a wide variety of media?

### Grade Level Expectations

GLE 0301.7.1 Recognize that media can provide sources of information and entertainment.

GLE 0301.7.2 Use media to publish and present information.

### Checks for Understanding (Formative/Summative Assessment)

- 0301.7.1 Use media to access information (e.g., online catalog, nonfiction books, encyclopedias, CD-ROM references, Internet).
- 0301.7.2 Use media to enhance reports and oral presentations.
- 0301.7.3 Understand the main idea or message in a visual image (e.g., pictures, cartoons, weather reports on television, newspapers, photographs).
- 0301.7.4 Visit libraries/media centers and regularly check out materials.

### STATE PERFORMANCE INDICATORS

- READ: SPI 0301.7.1 Determine the main idea in a visual image.
- READ: SPI 0301.7.2 Select the most appropriate medium or media for accessing information, writing a report, or making a presentation.
- READ: SPI 0301.7.3 Recognize the sort of information available through a specific medium (e.g., the accent and emotion through audiotapes; visual images through videos)
- READ: SPI 0301.8.4 Choose the most effective medium to enhance a short oral presentation (e.g., still pictures, a model, short video clip, recording)

## Reading Standard 8: Literature

### Conceptual Strand 8

Educated members of adult society gain knowledge of themselves and others through the study of literature, thus becoming critical readers and lifelong members of literacy communities.

### Guiding Question 8

What skills and strategies are necessary for students to understand literary text and to make appropriate connections among themselves, the text, and the human community?

### Grade Level Expectations

GLE 0301.8.1 Maintain previously learned reading strategies and skills, such as concepts of print, phonemic awareness, fluency, and vocabulary.

GLE 0301.8.2 Develop and use strategies for reading before, during, and after reading.

GLE 0301.8.3 Read in a variety of genres and content areas.

GLE 0301.8.4 Learn basic characteristics of literary genres.

### Checks for Understanding (Formative/Summative Assessment)

- 0301.8.1 Develop and use pre-reading strategies (e.g., identify a purpose for reading {for information, for enjoyment, for understanding a writer's position}, make predictions using text features {illustrations, graphics}, preview text using illustrations, graphics, text format, text structures, and skimming)
- 0301.8.2 Demonstrate strategies for determining meaning while reading (e.g., formulate clarifying questions, predict outcomes, create a mental image)
- 0301.8.3 Check for understanding after reading (e.g., draw conclusions based on evidence gained while reading, identify the stated or implied main idea)
- 0301.8.4 Read with increasing fluency and confidence from a variety of texts (e.g., paired readings, shared reading, choral reading, teacher-led reading, reading from tapes/CDs).
- 0301.8.5 Build vocabulary by listening to literature and participating in discussions.
- 0301.8.6 Recognize varying forms of text (e.g., poems {lines and stanzas}, plays {acts, stage directions}, novels {chapters}).
- 0301.8.7 Read and review various literary (e.g., short stories, fairy tales, folk-tales, poetry, plays, and nonfiction)
- 0301.8.8 Define and identify setting, characters (including main and minor characters), and plot (including sequence of events)
- 0301.8.9 Compare and contrast different versions/representations of similar stories, legends, lessons, or events reflecting different cultures.
- 0301.8.10 Explore the use of language in literary texts (e.g., rhythm, beat, imagery, simile, and metaphor).
- 0301.8.11 identify and produce rhyming words
- 0301.8.12 Explore the concept of first person point of view.
- 0301.8.13 Visit libraries/media centers; select and check out materials.
- 0301.8.14 Read longer narrative and expository text independently, including chapter books.
- 0301.8.15 Discuss literature (e.g., book discussions, literacy circles, writing, oral presentations)

**STATE PERFORMANCE INDICATORS**

- READ: SPI 0301.8.1 Identify and/or select rhyming words.
- READ: SPI 0301.8.2 Identify setting, characters, and plot, including the sequence of events, in a reading selection.
- READ: SPI 0301.8.3 Identify forms of text as poems, plays, or stories.
- READ: SPI 0301.8.4 Recognize basic plot features of fairy tales, folk tales, fables, and myths.
- READ: SPI 0301.8.5 identify the author's purpose (e.g., to entertain, to inform, to describe, to share feelings.)
- READ: SPI 0301.8.6 Determine the problem in a story and recognize its solution

## Math Standards

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## Math Standard 1: Mathematical Process

### Grade Level Expectations:

- GLE 0306.1.1 Use mathematical language, symbols, and definitions while developing mathematical reasoning.
- GLE 0306.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.
- GLE 0306.1.3 Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.
- GLE 0306.1.4 Move flexibly between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies.
- GLE 0306.1.5 Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret solutions.
- GLE 0306.1.6 Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely.
- GLE 0306.1.7 Recognize the historical development of mathematics, mathematics in context, and the connections between mathematics and the real world.
- GLE 0306.1.8 Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts.

### Checks for Understanding (Formative/Summative Assessment):

- 0306.1.1 Read and write time to the nearest minute.
- 0306.1.2 Compare and order decimal amounts in the context of money.
- 0306.1.3 Count the value of combinations of coins and bills up to five dollars.
- 0306.1.4 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, and observing patterns.
- 0306.1.5 Determine when and how to break a problem into simpler parts.
- 0306.1.6 Use estimation to check answers for reasonableness, and calculators to check for accuracy.
- 0306.1.7 Make and investigate mathematical conjectures.
- 0306.1.8 Explain and justify answers on the basis of mathematical properties, structures, and relationships.
- 0306.1.9 Use manipulatives to demonstrate that the commutative property holds for addition but not for subtraction.
- 0306.1.10 Use correct, clearly written and oral mathematical language to pose questions and communicate ideas.
- 0306.1.11 Develop strategies for solving problems involving addition and subtraction of measurements.
- 0306.1.12 Analyze and evaluate the mathematical thinking and strategies of others.
- 0306.1.13 Create and use representations to organize, record, and communicate mathematical ideas.
- 0306.1.14 Use age-appropriate books, stories, and videos to convey ideas of mathematics.

**State Performance Indicators:**

- MATH: SPI 0306.1.1 Solve problems using a calendar.
- MATH: SPI 0306.1.2 Solve problems involving elapsed time.
- MATH: SPI 0306.1.3 Determine the correct change from a transaction less than a dollar.
- MATH: SPI 0306.1.4 Match the spoken, written, concrete, and pictorial representations of fractions with denominators up to ten.
- MATH: SPI 0306.1.5 Represent problems mathematically using diagrams, numbers, and symbolic expressions.
- MATH: SPI 0306.1.6 Identify and use vocabulary to describe attributes of two- and three-dimensional shapes.
- MATH: SPI 0306.1.7 Select appropriate units and tools to solve problems involving measures.
- MATH: SPI 0306.1.8 Express answers clearly in verbal, numerical, or graphical (bar and picture) form, using units when appropriate.

## Math Standard 2: Number & Operations

### Grade Level Expectations:

GLE 0306.2.1 Understand the place value of whole numbers to ten-thousands place including expanded notation for all arithmetic operations.

GLE 0306.2.2 Develop understanding of multiplication and related division facts through multiple strategies and representations.

GLE 0306.2.3 Relate multiplication and division as inverse operations.

GLE 0306.2.4 Solve multiplication and division problems using various representations.

GLE 0306.2.5 Understand the meaning and uses of fractions.

GLE 0306.2.6 Use various strategies and models to compare and order fractions and identify equivalent fractions.

GLE 0306.2.7 Add and subtract fractions with like denominators using various models.

### Checks for Understanding (Formative/Summative Assessment):

0306.2.1 Represent whole numbers up to 10,000 using various models (such as base-ten blocks, number lines, place-value charts) and in standard form, written form, and expanded form.

0306.2.2 Understand and use the symbols =, < and > to signify order and comparison.

0306.2.3 Use parentheses to indicate grouping.

0306.2.4 Use a variety of methods to perform mental computations and compare the efficiency of those methods.

0306.2.5 Use highest order value (such as tens or hundreds digit) to make simple estimates.

0306.2.6 Solve a variety of addition and subtraction story problems including those with irrelevant information.

0306.2.7 Represent multiplication using various representations such as equal-size groups, arrays, area models, and equal jumps on number lines.

0306.2.8 Represent division using various representations such as successive subtraction, the number of equal jumps, partitioning, and sharing.

0306.2.9 Describe contexts for multiplication and division facts.

0306.2.10 Understand that symbols such as  $\frac{1}{2}$ ,  $\frac{1}{3}$ , and  $\frac{1}{4}$  represent numbers called unit fractions.

0306.2.11 Identify fractions as parts of whole units, as parts of sets, as locations on number lines, and as division of two whole numbers.

0306.2.12 Compare fractions using drawings, concrete objects, and benchmark fractions.

0306.2.13 Understand that when a whole is divided into equal parts to create unit fractions, the sum of all the parts adds up to one.

**State Performance Indicators:**

- MATH: SPI 0306.2.1 Read and write numbers up to 10,000 in numerals and up to 1,000 in words.
- MATH: SPI 0306.2.2 Identify the place value of numbers in the ten-thousands, thousands, hundreds, tens, and ones positions.
- MATH: SPI 0306.2.3 Convert between expanded and standard form with whole numbers to 10,000.
- MATH: SPI 0306.2.4 Compare and order numbers up to 10,000 using the words less than, greater than, and equal to, and the symbols  $<$ ,  $>$ ,  $=$ .
- MATH: SPI 0306.2.5 Identify various representations of multiplication and division.
- MATH: SPI 0306.2.6 Recall basic multiplication facts through 10 times 10 and the related division facts.
- MATH: SPI 0306.2.7 Compute multiplication problems that involve multiples of ten using basic number facts.
- MATH: SPI 0306.2.8 Solve problems that involve the inverse relationship between multiplication and division.
- MATH: SPI 0306.2.9 Solve contextual problems involving the addition (with and without regrouping) and subtraction (with and without regrouping) of two- and three digit whole numbers.
- MATH: SPI 0306.2.10 Identify equivalent fractions given by various representations.
- MATH: SPI 0306.2.11 Recognize and use different interpretations of fractions.
- MATH: SPI 0306.2.12 Name fractions in various contexts that are less than, equal to, or greater than one.
- MATH: SPI 0306.2.13 Recognize, compare, and order fractions (benchmark fractions, common numerators, or common denominators).
- MATH: SPI 0306.2.14 Add and subtract fractions with like denominators.

## Math Standard 3: Algebra

### Grade Level Expectations:

GLE 0306.3.1 Develop meaning for and apply the commutative, associative, and distributive properties using various representations.

GLE 0306.3.2 Develop understanding that a letter or a symbol can represent an unknown quantity in a simple mathematical expression/equation.

GLE 0306.3.3 Describe and analyze patterns and relationships in contexts.

GLE 0306.3.4 Create and represent patterns using words, tables, graphs, and symbols.

### Checks for Understanding (Formative/Summative Assessment):

- 0306.3.1 Show that addition and multiplication are commutative operations.
- 0306.3.2 Show that subtraction and division are not commutative operations.
- 0306.3.3 Use commutative, associative, and distributive properties to multiply whole numbers.
- 0306.3.4 Solve problems using the commutative, associative, and distributive properties.
- 0306.3.5 Find unknowns in number sentences and problems involving addition, subtraction, multiplication, or division.
- 0306.3.6 Analyze patterns in words, tables, and graphs to draw conclusions.
- 0306.3.7 Create different representations of a pattern given a verbal description.
- 0306.3.8 Analyze patterns in quantitative change resulting from computation.

### State Performance Indicators:

- MATH: SPI 0306.3.1 Verify a conclusion using algebraic properties.
- MATH: SPI 0306.3.2 Express mathematical relationships using number sentences/equations.
- MATH: SPI 0306.3.3 Find the missing values in simple multiplication and division equations.
- MATH: SPI 0306.3.4 Describe or extend (including finding missing terms) geometric and numeric patterns.

## Math Standard 4: Geometry & Measurement

### Grade Level Expectations:

- GLE 0306.4.1 Describe, compare, and analyze properties of polygons.
- GLE 0306.4.2 Understand and apply the concepts of congruence and symmetry.
- GLE 0306.4.3 Understand and use attributes of 2- and 3-dimensional figures to solve problems.
- GLE 0306.4.4 Use appropriate units, strategies and tools to solve problems involving perimeter.
- GLE 0306.4.5 Solve measurement problems involving fractional parts of linear units and capacity units.

### Checks for Understanding (Formative/Summative Assessment):

- 0306.4.1 Describe properties of plane figures (such as circles, triangles, squares and rectangles) and solid shapes (such as spheres, cubes and cylinders).
- 0306.4.2 Classify polygons according to the number of their sides and angles.
- 0306.4.3 Classify lines and segments as parallel, perpendicular, or intersecting.
- 0306.4.4 Identify, create, and describe figures with line symmetry.
- 0306.4.5 Understand that all measurements require units.
- 0306.4.6 Recognize the use of fractions in liquid measures.
- 0306.4.7 Recognize the relationships among cups, pints, quarts, and gallons.
- 0306.4.8 Estimate and/or measure the capacity of a container.
- 0306.4.9 Measure weight to the nearest ounce or gram.
- 0306.4.10 Use reasonable units of length (i.e. kilometer, meter, centimeter; mile, yard, foot, inch) in estimates and measures.
- 0306.4.11 Know common equivalences for length (1 meter = 100 centimeters, 1 yard = 3 feet, 1 foot = 12 inches).
- 0306.4.12 Make and record measurements that use mixed units within the same system of measurement (such as feet and inches, meters and centimeters).
- 0306.4.13 Use common abbreviations: km, m, cm, in, ft, yd, mi.

### State Performance Indicators:

- MATH: SPI 0306.4.1 Recognize polygons and be able to identify examples based on geometric definitions.
- MATH: SPI 0306.4.2 Determine if two figures are congruent based on size and shape.
- MATH: SPI 0306.4.3 Identify the line of symmetry in a two-dimensional design or shape.
- MATH: SPI 0306.4.4 Calculate the perimeter of shapes made from polygons.
- MATH: SPI 0306.4.5 Choose reasonable units of measure, estimate common measurements using benchmarks, and use appropriate tools to make measurements.
- MATH: SPI 0306.4.6 Measure length to the nearest centimeter or half inch.
- MATH: SPI 0306.4.7 Solve problems requiring the addition and subtraction of lengths.

## Math Standard 5: Data Analysis, Statistics, and Probability

### Grade Level Expectations:

GLE 0306.5.1 Organize, display, and analyze data using various representations to solve problems.

### Checks for Understanding (Formative/Summative Assessment):

- 0306.5.1 Collect and organize data using observations, surveys, and experiments.
- 0306.5.2 Construct a frequency table, bar graph, pictograph, or line plot of collected data.
- 0306.5.3 Compare and interpret different representations of the same data.
- 0306.5.4 Solve problems using data from frequency tables, bar graphs, pictographs, or line plots.

### State Performance Indicators:

- MATH: SPI 0306.5.1 Interpret a frequency table, bar graph, pictograph, or line plot.
- MATH: SPI 0306.5.2 Solve problems in which data is represented in tables or graph.
- MATH: SPI 0306.5.3 Make predictions based on various representations of data.

## Science Standards

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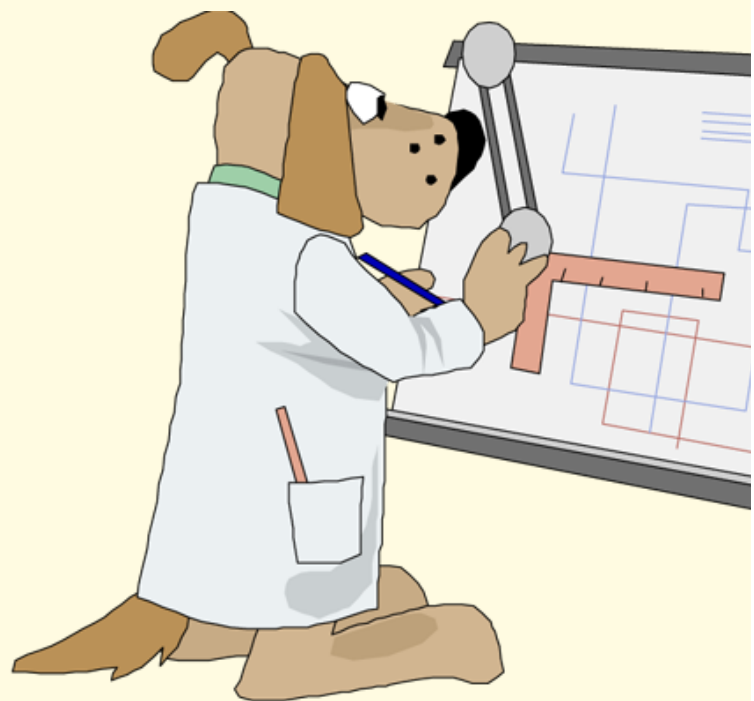
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## Embedded

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## Science Embedded: Inquiry

### Conceptual Strand

Understandings about scientific inquiry and the ability to conduct inquiry are essential for living in the 21st century.

### Guiding Question

What tools, skills, knowledge, and dispositions are needed to conduct scientific inquiry?

### Grade Level Expectations

GLE 0307.Inq.1 Explore different scientific phenomena by asking questions, making logical predictions, planning investigations, and recording data.

GLE 0307.Inq.2 Select and use appropriate tools and simple equipment to conduct an investigation.

GLE 0307.Inq.3 Organize data into appropriate tables, graphs, drawings, or diagrams.

GLE 0307.Inq.4 Identify and interpret simple patterns of evidence to communicate the findings of multiple investigations.

GLE 0307.Inq.5 Recognize that people may interpret the same results in different ways.

GLE 0307.Inq.6 Compare the results of an investigation with what scientists already accept about this question.

### Checks for Understanding

- 0307.Inq.1 Identify specific investigations that could be used to answer a particular question and identify reasons for this choice.
- 0307.Inq.2 Identify tools needed to investigate specific questions.
- 0307.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.
- 0307.Inq.4 Analyze and communicate findings from multiple investigations of similar phenomena to reach a conclusion.

### State Performance Indicators

- SCIENCE: SPI 0307.Inq.1 Select an investigation that could be used to answer a specific question.

## Science Embedded: Technology & Engineering

### Conceptual Strand

Society benefits when engineers apply scientific discoveries to design materials and processes that develop into enabling technologies.

### Guiding Question

How do science concepts, engineering skills, and applications of technology improve the quality of life?

### Grade Level Expectations

GLE 0307.T/E.1 Describe how tools, technology, and inventions help to answer questions and solve problems.

GLE 0307.T/E.2 Recognize that new tools, technology, and inventions are always being developed.

GLE 0307.T/E.3 Identify appropriate materials, tools, and machines that can extend or enhance the ability to solve a specified problem.

GLE 0307.T/E.4 Recognize the connection between scientific advances, new knowledge, and the availability of new tools and technologies.

GLE 0307.T/E.5 Apply a creative design strategy to solve a particular problem generated by societal needs and wants.

### Checks for Understanding

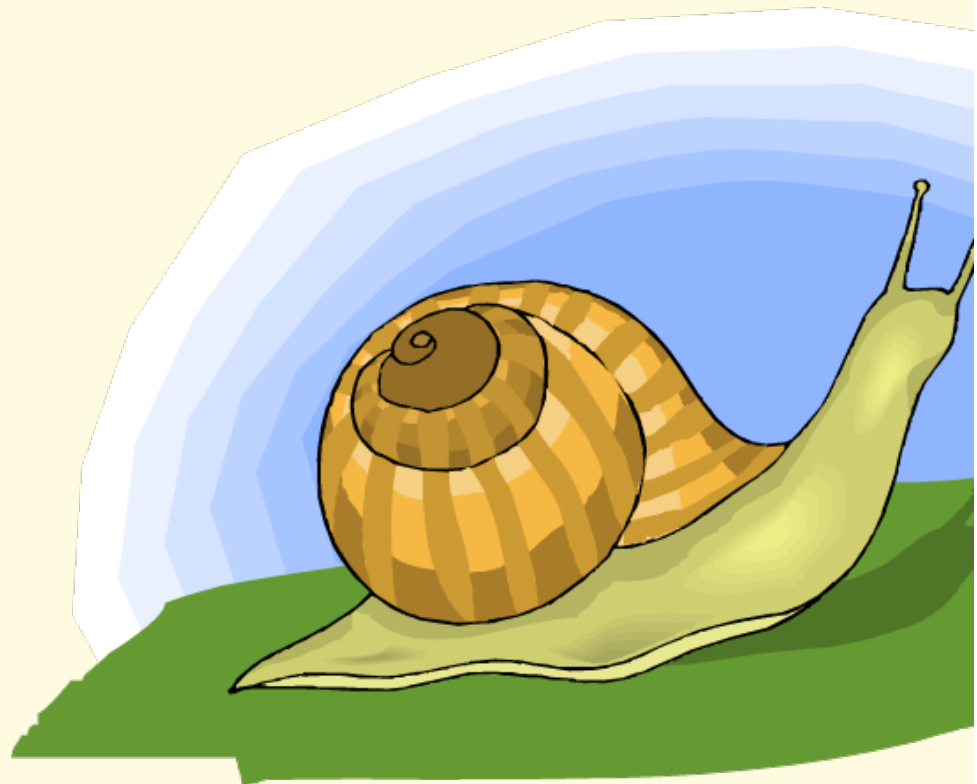
- 0307.T/E.1 Explain how different inventions and technologies impact people and other living organisms.
- 0307.T/E.2 Design a tool or a process that addresses an identified problem caused by human activity.
- 0307.T/E.3 Determine criteria to evaluate the effectiveness of a solution to a specified problem.
- 0307.T/E.4 Evaluate an invention that solves a problem and determine ways to improve the design.

### State Performance Indicators

- SCIENCE: SPI 0307.T/E.1 Select a tool, technology, or invention that was used to solve a human problem.
- SCIENCE: SPI 0307.T/E.2 Recognize the connection between a scientific advance and the development of a new tool or technology.

## Life Science

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## Science Standard 1: Cells

### Conceptual Strand 1

All living things are made of cells that perform functions necessary for life.

### Guiding Question 1

How are plant and animals cells organized to carry on the processes of life?

### Grade Level Expectations

GLE 0307.1.1 Use magnifiers to make observations of specific plant and body parts and describe their functions.

### Checks for Understanding

- 0307.1.1 Use a magnifier to investigate and describe the function of root hairs, stem cross sections, and leaf veins.

Root hairs are small hair-like extensions of the outer layer of root CELLS. Their function is to absorb nutrients and water. Roots can have an amazingly large number of root hairs. Root hairs increase the surface area of the roots, increasing the capacity to absorb nutrients and water. For example, a rye plant can have more than 14 billion root hairs that make up a surface area about as large as a football field. Root hairs are often destroyed when a plant is dug from the soil. Careful transplanting reduces root hair damage

Stem cross sections

leaf veins: It not only delivers water and nutrients from the soil to the leaves but also carries the products of photosynthesis (glucose and other carbohydrates) and other plant nutrients (protein and fats or oil) back to the stems and trunk to keep them alive. It's a 2-way transport system. And as MindClear says they support the leaf cells to give the leaf its structure

- 0307.1.2 Use a magnifier to investigate and describe the function of skin pores, hair follicles, finger nails, veins, and cuticles, etc.

### State Performance Indicators

- SCIENCE: SPI 0307.1.1 Identify specific parts of a plant and describe their function.

## Science Standard 2: Interdependence

### Conceptual Strand 2

All life is interdependent and interacts with the environment.

### Guiding Question 2

How do living things interact with one another and with the non-living elements of their environment?

### Grade Level Expectations

GLE 0307.2.1 Categorize things as living or non-living.

GLE 0307.2.2 Explain how organisms with similar needs compete with one another for resources.

### Checks for Understanding

0307.2.1 Use a T-Chart to compare and contrast the characteristics of living and nonliving things.

0307.2.2 Label a drawing of an environment to illustrate interrelationships among plants and animals.

0307.2.3 Construct a diagram to demonstrate how plants, animals, and the environment interact to provide basic life requirements

### State Performance Indicators

SCIENCE: SPI 0307.2.1 Distinguish between living and non-living things.

SCIENCE: SPI 0307.2.2 Determine how plants and animals compete for resources such as food, space, water, air, and shelter.

## Science Standard 3: Flow of Matter & Energy

### Conceptual Strand 3

Matter and energy flow through the biosphere.

### Guiding Question 3

What scientific information explains how matter and energy flow through the biosphere?

### Grade Level Expectations

GLE 0307.3.1 Describe how animals use food to obtain energy and materials for growth and repair.

### Checks for Understanding

- 0307.3.1 Label a diagram to illustrate the food relationships that exist between plant and animals.
- 0307.3.2 Create a chart to show how plants and animals satisfy their energy requirements.
- 0307.3.3 Identify structures used by different plants and animals to meet their basic energy requirements.
- 0307.3.4 Use a piece of text to obtain basic information about how plants and animals obtain food.

### State Performance Indicators

- SCIENCE: SPI 0307.3.1 Identify the basic needs of plants and animals.
- SCIENCE: SPI 0307.3.2 Recognize that animals obtain their food by eating plants and other animals.

## Science Standard 4: Heredity

### Conceptual Strand 4

Plants and animals reproduce and transmit hereditary information between generations.

### Guiding Question 4

What are the principal mechanisms by which living things reproduce and transmit information between parents and offspring?

### Grade Level Expectations

GLE 0307.4.1 Identify the different life stages through which plants and animals pass.

GLE 0307.4.2 Recognize common human characteristics that are transmitted from parents to offspring.

### Checks for Understanding

- 0307.4.1 Sequence diagrams that illustrate various stages in the development of an organism.
- 0307.4.2 Create a timeline to depict the changes that occur during an organism's life cycle.
- 0307.4.3 Differentiate among the stages in the life cycle of a butterfly, mealworm, frog, and plant.
- 0307.4.4 Draw conclusions about the similarities and differences between parents and their offspring
- 0307.4.5 Make a list of human characteristics that are transmitted from parents to their offspring.

### State Performance Indicators

- SCIENCE: SPI 0307.4.1 Select an illustration that shows how an organism changes as it develops.
- SCIENCE: SPI 0307.4.2 Distinguish between characteristics that are transmitted from parents to offspring and those that are not.

## Science Standard 5: Biodiversity & Change

### Conceptual Strand 5

A rich variety of complex organisms have developed in response to a continually changing environment.

### Guiding Question 5

How does natural selection explain how organisms have changed over time?

### Grade Level Expectations

GLE 0307.5.1 Explore the relationship between an organism's characteristics and its ability to survive in a particular environment.

GLE 0307.5.2 Classify organisms as thriving, threatened, endangered, or extinct.

### Checks for Understanding

- 0307.5.1 Create representations of animals that have characteristics necessary to survive in a particular environment.
- 0307.5.2 Investigate the connection between an organism's characteristics and its ability to survive in a specific environment.
- 0307.5.3 Describe how environmental factors change over place and time.
- 0307.5.4 Determine how changes in an environmental variable can affect plants and animals of an area.
- 0307.5.5 Construct a diorama that shows plants and animals in an appropriate environment.
- 0307.5.6 Identify evidence used to determine the previous existence of an organism.
- 0307.5.7 Use a data chart or informational text to classify organisms as thriving, threatened, endangered, or extinct.

### State Performance Indicators

- SCIENCE: SPI 0307.5.1 Investigate an organism's characteristics and evaluate how these features enable it to survive in a particular environment.
- SCIENCE: SPI 0307.5.2 Investigate populations of different organisms and classify them as thriving, threatened, endangered, or extinct.
- SCIENCE: SPI 0307.5.3 Match the organism with evidence of its prior existence.

## Earth & Space Science

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## Science Standard 6: The Universe

### Conceptual Strand 6

The cosmos is vast and explored well enough to know its basic structure and operational principles.

### Guiding Question 6

What big ideas guide human understanding about the origin and structure of the universe, Earth's place in the cosmos, and observable motions and patterns in the sky?

### Grade Level Expectations

GLE 0307.6.1 Identify and compare the major components of the solar system.

### Checks for Understanding

- 0307.6.1 Create a model of the solar system depicting the major components and their relative positions and sizes.
- 0307.6.2 Use a table to compare and contrast the major solar system components.

### State Performance Indicators

- SCIENCE: SPI 0307.6.1 Identify the major components of the solar system, i.e., sun, planets and moons.

## Science Standard 7: The Earth

### Conceptual Strand 7

Major geologic events that occur over eons or brief moments in time continually shape and reshape the surface of the Earth, resulting in continuous global change.

### Guiding Question 7

How is the earth affected by long-term and short term geological cycles and the influence of man?

### Grade Level Expectations

GLE 0307.7.1 Use information and illustrations to identify the earth's major landforms and water bodies.

GLE 0307.7.2 Recognize that rocks can be composed of one or more minerals.

GLE 0307.7.3 Distinguish between natural and manmade objects.

GLE 0307.7.4 Design a simple investigation to demonstrate how earth materials can be conserved or recycled.

### Checks for Understanding

- 0307.7.1 Use a Venn diagram to compare and contrast two different landforms or bodies of water.
- 0307.7.2 Analyze the physical characteristics of different kinds of rocks.
- 0307.7.3 Use a magnifier to observe, describe, and compare materials to determine if they are natural or manmade.
- 0307.7.4 Design and evaluate a method for reusing or recycling classroom materials.
- 0307.7.5 Create a web that demonstrates the link between basic human needs and the earth's resources.

### State Performance Indicators

- SCIENCE: SPI 0307.7.1 Classify landforms and bodies of water according to their geological features and identify them on a map.
- SCIENCE: SPI 0307.7.2 Describe how rocks can be classified according to their physical characteristics.
- SCIENCE: SPI 0307.7.3 Identify an object as natural or manmade.
- SCIENCE: SPI 0307.7.4 Determine methods for conserving natural resources.

## Science Standard 8: The Atmosphere

### Conceptual Strand 8

The earth is surrounded by an active atmosphere and an energy system that controls the distribution of life, local weather, climate, and global temperature.

### Guiding Question 8

How do the physical characteristics and the chemical makeup of the atmosphere influence surface processes and life on Earth?

### Grade Level Expectations

GLE 0307.8.1 Recognize that there are a variety of atmospheric conditions that can be measured.

GLE 0307.8.2 Use tools such as the barometer, thermometer, anemometer, and rain gauge to measure atmospheric conditions.

GLE 0307.8.3 Identify cloud types associated with particular atmospheric conditions.

GLE 0307.8.4 Predict the weather based on cloud observations.

### Checks for Understanding

- 0307.8.1 Select appropriate tools used for collecting weather data that correspond to the atmospheric condition being measured.
- 0307.8.2 Identify major cloud types and associate them with particular weather conditions.

### State Performance Indicators

- SCIENCE: SPI 0307.8.1 Choose the correct tool for measuring a particular atmospheric condition.
- SCIENCE: SPI 0307.8.2 Match major cloud types with specific atmospheric conditions.

## Physical Science

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## Science Standard 9: Matter

### Conceptual Strand 9

The composition and structure of matter is known, and it behaves according to principles that are generally understood.

### Guiding Question 9

How does the structure of matter influence its physical and chemical behavior?

### Grade Level Expectations

GLE 0307.9.1 Design a simple experiment to determine how the physical properties of matter can change over time and under different conditions.

GLE 0307.9.2 Investigate different types of mixtures.

GLE 0307.9.3 Describe different methods to separate mixtures.

### Checks for Understanding

- 0307.9.1 Use physical properties to compare and contrast substances.
- 0307.9.2 Compare and contrast events that demonstrate evaporation, crystallization, and melting.
- 0307.9.3 Make predictions and conduct experiments about conditions needed to change the physical properties of particular substances.
- 0307.9.4 Classify combinations of materials according to whether they have retained or lost their individual properties.
- 0307.9.5 Investigate different ways to separate mixtures such as filtration, evaporation, settling, or using a sieve.

### State Performance Indicators

- SCIENCE: SPI 0307.9.1 Describe a substance in terms of its physical properties.
- SCIENCE: SPI 0307.9.2 Identify methods for separating different types of mixtures.

## Science Standard 10: Energy

### Conceptual Strand 10

Various forms of energy are constantly being transformed into other types without any net loss of energy from the system.

### Guiding Question 10

What basic energy related ideas are essential for understanding the dependency of the natural and man-made worlds on energy?

### Grade Level Expectations

GLE 0307.10.1 Investigate phenomena that produce heat.

GLE 0307.10.2 Design and conduct an experiment to investigate the ability of different materials to conduct heat.

### Checks for Understanding

- 0307.10.1 Associate the sun's energy with the melting of an ice cube placed in a window.
- 0307.10.2 Investigate various materials to explore heat conduction.

### State Performance Indicators

- SCIENCE: SPI 0307.10.1 Use an illustration to identify various sources of heat energy.
- SCIENCE: SPI 0307.10.2 Classify materials according to their ability to conduct heat.

## Science Standard 11: Motion

### Conceptual Strand 11

Objects move in ways that can be observed, described, predicted, and measured.

### Guiding Question 11

What causes objects to move differently under different circumstances?

### Grade Level Expectations

GLE 0307.11.1 Explore how the direction of a moving object is affected by unbalanced forces.

GLE 0307.11.2 Recognize the relationship between the mass of an object and the force needed to move it.

GLE 0307.11.3 Investigate how the pitch and volume of a sound can be changed.

### Checks for Understanding

0307.11.1 Plan an investigation to illustrate how changing the mass affects a balanced system.

0307.11.2 Use a variety of materials to produce sounds of different pitch and volume.

0307.11.3 Classify a variety of taped sounds according to their pitch and volume.

### State Performance Indicators

SCIENCE: SPI 0307.11.1 Identify how the direction of a moving object is changed by an applied force.

SCIENCE: SPI 0307.11.2 Demonstrate how changing the mass affects a balanced system.

SCIENCE: SPI 0307.11.3 Distinguish between pitch and volume.

SCIENCE: SPI 0307.11.4 Identify how sounds with different pitch and volume are produced.

## Science Standard 12: Forces in Nature

### Conceptual Strand 12

Everything in the universe exerts a gravitational force on everything else; there is an interplay between magnetic fields and electrical currents.

### Guiding Question 12

What are the scientific principles that explain gravity and electromagnetism?

### Grade Level Expectations

GLE 0307.12.1 Explore how magnets attract objects made of certain metals.

### Checks for Understanding

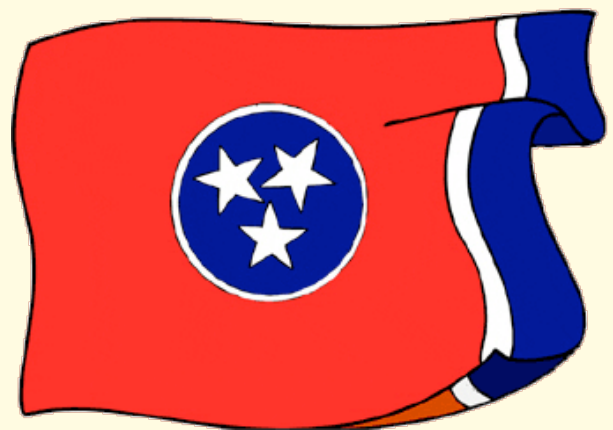
- 0307.12.1 Experiment with magnets to determine how distance affects magnetic attraction.
- 0307.12.2 Determine that only certain types of objects are attracted to magnets.

### State Performance Indicators

- SCIENCE: SPI 0307.12.1 Recognize that magnets can move objects without touching them.
- SCIENCE: SPI 0307.12.2 Identify objects that are attracted to magnets.

## Social Studies Standards (not updated)

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## Social Studies 1.0 Culture

### Social Studies: 1.0 Standards

#### Content Standard: 1.0

Culture encompasses similarities and differences among people, including their beliefs, knowledge, changes, values, and traditions. Students will explore these elements of society to develop an appreciation and respect for the variety of human cultures.

#### *Learning Expectations & Accomplishments:*

- 3.1.01 Understand the diversity of human cultures.
  - Recognize that changes in culture occur through the spread of people, languages, ideas, and goods.
  - Compare cultural differences in various regions of the United States and the world.
- 3.1.02 Discuss the cultures and human patterns of places and regions of the world.
  - Describe similarities and differences in the ways groups, societies, and cultures address similar human needs and concerns.
  - Compare ways in which people from different cultures think about and deal with their physical environment and social conditions.
  - Identify and explain the significance of selected individual writers, and artists and their stories, poems, statues, paintings, and other examples of cultural heritage from regions around the world.
- 3.1.03 Recognize the contributions of individuals and people of various ethnic, racial, religious, socioeconomic groups to the development of civilizations.
  - Explain the significance of selected ethnic and/or cultural celebrations in Tennessee, the United States and other nations such as St. Patrick's Day, Cinco de Mayo, and Kwanzaa.
  - Retell the heroic deeds of characters from folktales and legends.
- 3.1.04 Understand the contributions of individuals and people of various ethnic, racial, religious, and socioeconomic groups to Tennessee.
  - Compare ethnic and/or cultural celebrations in Tennessee, the United States, and other nations.
  - Explain the significance of selected individual writers and artists and their stories, poems, statues, paintings and other examples of cultural heritage from regions in Tennessee and around the world.

#### Performance Indicators State:

- at Level 1, the student is able to
  - 3.1.spi.1. recognize some of the major components of a culture (i.e., language, clothing, food, art, and music).
- at Level 2, the student is able to
  - 3.1.spi.2. determine similarities and differences in the ways different cultural groups address basic human needs (i.e., food, water, clothing, and shelter by interpreting pictures).
  - 3.1.spi.3. differentiate the cultural population distribution in the United States using a bar graph.
- at Level 3, the student is able to
  - 3.1.spi.4. interpret a chart or map identifying major cultural groups of the world.

Performance Indicators Teacher:

at Level 1, the student is able to:

- 3.1.tpi.1. exhibit model behavior during a guest speaker's presentation on cultural aspects.
- 3.1.tpi.2. make and sample foods from regions around the world in order to examine the relationship of the environment and cultural ways people meet their needs.
- 3.1.tpi.3. recognize that the world is made up of many people, and their history may differ from the student's own by examining artifacts such as a cultural time capsule or a cultural suitcase.

at Level 2, the student is able to

- 3.1.tpi.4. study, perform, or listen to music from different cultures.
- 3.1.tpi.5. create an original piece of work that reflects a specific culture reflecting how different cultures use symbols to communicate with each other.
- 3.1.tpi.6. examine cultural folklore and legends from different regions around the world.
- 3.1.tpi.7. investigate the cultural heritage of specific individuals in order to understand the relationships among cultures and ethnic groups.
- 3.1.tpi.8. describe customs, celebrations, and traditions of racial, ethnic, and religious groups in Tennessee and around the world.

at Level 3, the student is able to

- 3.1.tpi.9. create a portfolio individually or with a group on specific cultural groups.
- 3.1.tpi.10. compare a different community in the world with their own by examining generalizations, subcultures, similarities and differences by labeling sheets of butcher paper with words or symbols.
- 3.1.tpi.11. give examples of ways people honor traditions in communities around the world.
- 3.1.tpi.12. read aloud various accounts that describe racial and ethnic groups' contributions to the development of the community and world.
- 3.1.tpi.13. explain how examples of art, music, and literature reflect the time and place during which they were created.

## Social Studies 2.0 Economics

### Social Studies: 2.0 Standards

#### Content Standard: 2.0

Globalization of the economy, the explosion of population growth, technological changes and international competition compel students to understand, both personally and globally, the production, distribution, and consumption of goods and services. Students will examine and analyze economic concepts such as basic needs versus wants, using versus/saving money, and policy making versus decision making.

#### *Learning Expectations & Accomplishments:*

- 3.2.01 Describe the potential costs and benefits of personal economic choices in a market economy.
  - Identify ways of earning, spending, and saving money.
  - Analyze a simple budget that allocates money for spending and saving.
- 3.2.02 Give examples of fundamental economic concepts.
  - Identify examples of private and public goods and services.
  - Identify examples of scarcity.
  - Explain how supply and demand affects the price of a good or service.
  - Distinguish between imports and exports.
- 3.2.03 Discuss the patterns and results of international trade.
  - Recognize that the world has different agricultural and industrial regions.
  - Explain the characteristics of a technologically expanding global economy.
  - Explain the impact of scarcity on interdependence within and among regions.
  - Recognize that Tennessee and the United States have different agricultural and industrial regions.
  - Be aware of how goods and services are interchanged between communities at the local, and national levels.
  - Trace the development of a product from a natural resource to a finished product.

#### Performance Indicators State:

- at Level 1, the student is able to
  - 3.2.spi.1. distinguish the difference between a natural resource and finished product.
- at Level 2, the student is able to
  - 3.2.spi.2. interpret a map showing agricultural and industrial areas.
  - 3.2.spi.3. distinguish between import and export.
  - 3.2.spi.4. differentiate the difference between producer and a consumer using a picture.
- at Level 3, the student is able to
  - 3.2.spi.5. differentiate between money and barter economies.

Performance Indicators Teacher:

at Level 1, the student is able to

- 3.2.tpi.1. create a flow chart of a natural resource to a finished product.
- 3.2.tpi.2. recognize people must work in order to provide goods and services in the community.

at Level 2, the student is able to

- 3.2.tpi.3. identify examples of making personal economic choices.
- 3.2.tpi.4. create a personal budget that allocates money for spending and saving.
- 3.2.tpi.5. explain how tools and machines make people more productive.
- 3.2.tpi.6. examine pictures of durable (lasting more than three years) and non-durable goods.
- 3.2.tpi.7. explain why people specialize in different jobs, and how this causes people to engage in trade and to depend on each other (interdependence).

at Level 3, the student is able to

- 3.2.tpi.8. give examples of how economic resources in the home, school, and community are limited and how people must make choices about how to use these resources.
- 3.2.tpi.9. create an advertising campaign for a product.
- 3.2.tpi.10. choose a popular product to illustrate the path from supply to demand.

## Social Studies 3.0 Geography

### Social Studies: 3.0 Standards

#### Content Standard: 3.0

Geography enables the students to see, understand and appreciate the web of relationships between people, places, and environments. Students will use the knowledge, skills, and understanding of concepts within the six essential elements of geography: world in spatial terms, places and regions, physical systems, human systems, environment and society, and the uses of geography.

#### *Learning Expectations & Accomplishments:*

- 3.3.01 Understand how to use maps, globes, and other geographic representations, tools, and technologies to acquire, process and report information from a spatial perspective.
  - Show how the spatial elements of point, line, and area are used on a map or globe.
  - Explain the difference between relative and absolute locations.
  - Locate places on a map using cardinal and intermediate direction.
- 3.3.02 Recognize the interaction between human and physical systems around the world.
  - List the similarities and differences of local places and regions with other places and regions.
  - List the basic components of earth's physical systems (e.g., landforms, water, climate and weather, erosion and deposition).
  - Understand the concept of an ecosystem.
  - Describe how environments and regions differ around the world.
  - Understand how technology allows people to adapt the environment to meet their needs.
- 3.3.03 Demonstrate how to identify and locate major physical and political features on globes and maps.
  - Locate the major cities of Tennessee and the world on a map or globe.
  - Describe the concept of formal (uniform) regions.
  - Define the characteristics that comprise a region.
  - Explain how change affects region and place over time.
  - Show the population distribution of the state, and country.
  - Differentiate between urban, suburban, and rural regions.

Performance Indicators State:

- at Level 1, the student is able to
  - 3.3.spi.1. identify the major physical components of the world (i.e., oceans, equator, continents, and hemispheres).
  - 3.3.spi.2. recognize and use a map key.
  - 3.3.spi.3. find a specific location on a school or community map.
- at Level 2, the student is able to
  - 3.3.spi.4. use absolute and relative locations to identify places on a map (i.e., north, south, east, west, borders, lines of longitude and latitude, the equator, the north and south poles).
  - 3.3.spi.5. identify basic components of earth's systems (i.e., landforms, water, climate and weather).
  - 3.3.spi.6. utilize skills to locate a place using cardinal directions and symbols given an appropriate map with a key.
  - 3.3.spi.7. determine the climate of a specific region of the world using a map.
- at Level 3, the student is able to
  - 3.3.spi.8. differentiate the distinguishing characteristics of ecosystems (i.e., deserts, grasslands, rainforests).
  - 3.3.spi.9. recognize the identifying characteristics of certain geographic features (i.e., peninsula, islands, continents, mountains, rivers, deserts, oceans, and forests).

Performance Indicators Teacher:

- at Level 1, the student is able to
  - 3.3.tpi.1. make simple maps to show how communities in Tennessee are linked together.
  - 3.3.tpi.2. create a map of neighborhood or city using components of our earth's system (e.g., water, lake, park, mountain or hill).
- at Level 2, the student is able to
  - 3.3.tpi.3. write or draw a geographic description of the school using the five themes of geography: location, place, region, movement, and human-environment interactions.
  - 3.3.tpi.4. understand boundaries can both be manmade and natural in order to show the relationship between natural and social systems.
  - 3.3.tpi.5. determine direction using a compass, sun, and the stars.
  - 3.3.tpi.6. explore how people and their physical environments interact to explore the unity/disunity of humankind with nature by discussing world issues.
- at Level 3, the student is able to
  - 3.3.tpi.7. create a model of a specific ecosystem.
  - 3.3.tpi.8. understand how natural environment influences human settlement.
  - 3.3.tpi.9. demonstrate an understanding of how human interaction with the physical environment is reflected in the use of land, building of towns/cities and ecosystems.
  - 3.3.tpi.10. describe and compare urban and rural communities in Tennessee and other regions of the world. Explain their interdependence.

## Social Studies 4.0 Governance and Civics

### Social Studies: 4.0 Standards

#### Content Standard: 4.0

Governance establishes structures of power and authority in order to provide order and stability. Civic efficacy requires understanding rights and responsibilities, ethical behavior, and the role of citizens within their community, nation, and world.

#### *Learning Expectations & Accomplishments:*

- 3.4.01 Discuss the structure and purposes of governance.
  - Describe the basic structures of government in the state.
  - Recognize who makes laws in the state.
  - Know that governmental agencies exist to protect the environment at local, state, and national levels.
  - Describe varied basic structures of governments in the state, nation, and world.
  - Examine how regions choose to govern in different ways.
- 3.4.02 Describe the Constitution of the United States and the Tennessee State Constitution in principle and practice.
  - Identify services commonly provided by the state government and contrast with other regions.
  - Compare the Tennessee and the United State Constitutions with other governing procedures around the world.
- 3.4.03 Understand the rights, responsibilities and privileges of citizens living in a democratic republic.
  - Identify government officials and explain how they are chosen.
  - Explain the concept of the consent of the governed and its importance to the functions of government.
  - Identify examples of rights and responsibilities of citizens.
  - Describe how public policies are used to address issues of public concern.
  - Identify and explain the importance of acts of civic responsibility, including obeying laws and voting.
  - Identify diverse historic figures that exemplified good citizenship.
  - Identify ordinary people who exemplify good citizenship.
- 3.4.04 Understand the qualities of a contributing citizen in our participatory democracy.
  - List the differences between community, city, county, state, and country events which occur.
  - Recognize the relationship of local governments to the state, the nation, and the world.

#### Performance Indicators State:

- at Level 1, the student is able to
  - 3.4.spi.1. select from a set of visual representations a service provided by the government (i.e., parks, schools, and libraries).
- at Level 2, the student is able to
  - 3.4.spi.2. determine the representative acts of a good citizen (i.e., obeying speed limit, not littering, walking within the crosswalk).

Performance Indicators Teacher:

at Level 1, the student is able to

- 3.4.tpi.1. recognize different types of governments exist in the world.
- 3.4.tpi.2. discuss the reason why people have governments.
- 3.4.tpi.3. contribute to the development of class rules.

at Level 2, the student is able to

- 3.4.tpi.4. identify and explain the importance of acts of civic responsibility including obeying laws and voting.
- 3.4.tpi.5. recognize the differences of the local, state, and federal level by making a chart showing the difference among governments.
- 3.4.tpi.6. rotate offices, tasks, and chores within the context of the overall welfare of the classroom in order to practice social citizenship.
- 3.4.tpi.7. participate in an election or mock election within the classroom.
- 3.4.tpi.8. describe the relationship of Tennessee to the United States as one of the 50 states.
- 3.4.tpi.9. explain how tax dollars provide some goods and services.
- 3.4.tpi.10. create a set of laws for the school.

at Level 3, the student is able to

- 3.4.tpi.11. perform a community service project (e.g., cleaning a park, planting flowers).
- 3.4.tpi.12. evaluate a set of rules or laws.

## Social Studies 5.0 History

### Social Studies: 5.0 Standards

#### Content Standard: 5.0

History involves people, events, and issues. Students will evaluate evidence to develop comparative and casual analyses, and to interpret primary sources. They will construct sound historical arguments and perspectives on which informed decisions in contemporary life can be based.

#### *Learning Expectations & Accomplishments:*

- 3.5.01 Identify major people, events, and issues in Tennessee, United States, and world history.
  - Identify the heroic deeds of characters from state, national, and global histories.
  - Identify historical figures that helped to shape regions.
- 3.5.02 Understand the place of historical events in the context of past, present and future.
  - Describe the order of events by using designation of time periods such as ancient times and modern times.
  - Describe how individuals, events, and ideas cause regional change over time.
  - Use vocabulary related to chronology, including past, present and future.
  - Describe and measure calendar time by days, weeks, months, and years.
- 3.5.03 Explain how to use historical information acquired from a variety of sources.
  - Create and interpret timelines.
  - Identify factors that cause development and change in communities.
  - Compare various interpretations of the same time period using evidence such as photographs and interviews.

#### Performance Indicators State:

- at Level 1, the student is able to
  - 3.5.spi.1. label historical events as past, present and future.
- at Level 2, the student is able to
  - 3.5.spi.2. use a timeline to determine the order of a historical sequence of events.
- at Level 3, the student is able to
  - 3.5.spi.3. read and interpret facts from a historical passage.

Performance Indicators Teacher:

at Level 1, the student is able to

- 3.5.tpi.1. use facts and concepts drawn from history.
- 3.5.tpi.2. define past, present, and future.
- 3.5.tpi.3. perform daily activities without modern conveniences (e.g., mash potatoes manually, read by candle light, wash clothes by hand).

at Level 2, the student is able to

- 3.5.tpi.4. create a classroom timeline depicting events.
- 3.5.tpi.5. participate in a field trip to a historical place.
- 3.5.tpi.6. identify people, events, areas and ideas that create a history of a place.
- 3.5.tpi.7. assemble historical information using a variety of sources (e.g., newspaper, book, video, and computer).
- 3.5.tpi.8. create a journal entry about a major historical event or figure.
- 3.5.tpi.9. create a "then" and "now" class museum.

at Level 3, the student is able to

- 3.5.tpi.10. choose a favorite historical event and research it using computer and media.
- 3.5.tpi.11. create a personal home furnishings inventory list and compare this to a home in America's past or to another home found in a different culture.
- 3.5.tpi.12. identify structures where the use and appearance have been modified throughout time.
- 3.5.tpi.13. use facts and concepts drawn from history along with methods of historical inquiry to make informed decisions.
- 3.5.tpi.14. create a time capsule.

## Social Studies 6.0 Individuals, Groups, & Interactions

### Social Studies: 6.0 Standards

#### Content Standard: 6.0

Personal development and identity are shaped by factors including culture, groups, and institutions. Central to this development are exploration, identification, and analysis of how individuals, and groups work independently and cooperatively.

#### *Learning Expectations & Accomplishments:*

- 3.6.01 Recognize the impact of individual and group decisions on citizens and communities.
  - Give examples of conflict, cooperation and interdependence among individuals, groups, and nations.
  - Examine the relationships and conflict between personal wants and needs and various global concerns, such as use of imported oil, land use, and environmental protection.
  - Give examples of economic, social, or political changes that result from individual or group decisions.
- 3.6.02 Understand how groups can impact change at the local, state, and national level.
  - Identify examples of actions individuals and groups can take to improve the community.
  - Identify examples of nonprofit and/or civic organizations such as the Red Cross and explain how they serve the common good.

#### Performance Indicators State:

- at Level 1, the student is able to
  - 3.6.spi.1. classify needs and wants using pictures of common items (i.e., food, cleaning products, clothes, candy, makeup).
- at Level 2, the student is able to
  - 3.6.spi.2. distinguish between conflict and cooperation within group interactions as represented by pictures.
- at Level 3, the student is able to
  - 3.6.spi.3. recognize major global concerns (i.e., pollution, conservation of natural resources, global warming, destruction of rain forest).

Performance Indicators Teacher:

at Level 1, the student is able to

3.6.tpi.1. create a list of needs and wants.

3.6.tpi.2. classify needs and wants using pictures using common items (e.g., food, cleaning products, clothes, candy, and makeup).

at Level 2, the student is able to

3.6.tpi.3. understand that scientific discoveries and technology change the way of life for the world across time.

3.6.tpi.4. illustrate or create a school store sorting by wants and needs.

3.6.tpi.5. compare wants and needs of the United States of America as opposed to another country then create graphs to visually represent these differences and similarities.

3.6.tpi.6. determine how scientific and technological discoveries changed the way of life for the world across time (e.g., cotton gin, automobile, electricity, and communications).

3.6.tpi.7. exhibit desirable behavior within the classroom by allowing others to respectfully express their thoughts and beliefs.

at Level 3, the student is able to

3.6.tpi.8. take a global concern such as pollution, rain forest, and create a class project aiding the concern.

3.6.tpi.9. explain a point of view with reasons, evidence and support.