



## **Core Knowledge Standards Alignment With Zula Exploration Mission Modules**

SM = Simple Machines Exploration Mission Module

MSCR = Mixtures, Solutions, and Chemical Reactions Exploration Mission Module

FR = Force Exploration Mission Module

HB = Habitats Exploration Mission Module

MA = Matter Exploration Mission Module

LT = Light Exploration Mission Module

H<sub>2</sub>O = Water Exploration Mission Module

PALC = Plants, Animals, and Life Cycles Mission Module

RS = Rocks and Soil Mission Module

WE = Weather Mission Module

All = All current and future Zula activities and lesson plans

FK = Future Mission Exploration Modules

## Pre-Kindergarten

### Language and Literacy

#### Oral Language

##### I. Function

###### Conversing

I-0L2.1a Carry on a dialogue or conversation with an adult initiating comments or responding to partners comments. (ALL)

II-0L2.1b Carry on a dialogue or conversation with a child of approximately the same age, initiating comments or responding to partner's comments. (ALL)

###### Narrate

I-0L4.1 Given a picture, individual object or person within view, indicate the object, person or picture that has been designated. (ALL)

I-0L4.2 Give a picture, individual object or person within view, describe the attributes of the object, person or picture so that someone else may identify it. (ALL)

I-0L4.4a Describe an event or task that one is in the process of completing. (ALL)

II-0L4.4b Describe an event or task that had already taken place outside the immediate place and time. (ALL)

I-0L4.5a Describe an event or task that one has just experienced in the immediate past. (ALL)

II-0L4.5b Describe an event or task that will take place. (ALL)

###### Explain/direct

I-0L5.1a Give simple, single step directions. (ALL)

II-0L5.1b Give simple, multi-step directions. (ALL)

###### Express a point of view and imagine

II-0L6.1 Express a personal opinion. (ALL)

II-0L6.2 Assume a different role or perspective and express different possibilities, imaginary or realistic. (ALL)

###### Predict

I-0L7.1 Answer "what will happen if..." questions. (ALL)

##### II. Form

II-0L9.2b Use increasingly precise nouns related to the home, family, food, clothing, school, town/city, transportation and stores/services. (ALL)

I-0L9.5a Understand increasingly precise verbs related to the five senses (ALL)

II-0L9.5b Understand increasingly precise verbs related to eating, movement and the five senses. (ALL)

I-0L9.6a Use increasingly precise verbs related to the five senses. (ALL)

II-0L9.6b Use increasingly precise verbs related to eating, movement and the five senses. (ALL)

I-0L9.7 Point to colors: black, blue, brown, green, orange, purple, red, white, yellow. (SM, FR, MSCR, LT, FK.)

I-0L9.8 Name colors: black, blue, brown, green, orange, purple, red, white, yellow. (SM, FR, MSCR, LT, FK.)

I-0L9.9a Point to shapes: circle, square, triangle. (SM, FR, H2O, LT, MA, FK)

II-0L9.9b Point to shapes: circle, square, triangle, rectangle. (SM, FR, H2O, LT, MA, FK)

I-0L9.10a Name shapes: circle, square, triangle. (SM, FR, H2O, LT, MA, FK)

II-0L9.10b Name shapes: circle, square, triangle, rectangle. (SM, FR, H2O, LT, MA, FK)

I-0L9.11a Point to: more-less (fewer), one-four. (SM, FR, HB, MSCR, H2O, WE, FK)

II-OL9.11b Point to: any-some, all-none, more-less (fewer), most-least, many-few, equal, one-ten. (SM, FR, HB, MSCR, H2O, WE, FK)

I-OL9.12a Use quantity words: more-less (fewer), one-four. (SM, FR, HB, MSCR, H2O, WE, FK)

II-OL9.12b Use quantity words: any-some, all-none, more-less (fewer), most-least, many-few, equal, one-ten. (SM, FR, HB, MSCR, H2O, WE, FK)

I-OL9.13 Point to sensory attributes: sweet-salty, loud-quiet, hard-soft, rough-smooth, hot-cold, wet-dry. (ALL)

I-OL9.14 Use sensory attributes: sweet-salty, loud-quiet, hard-soft, rough-smooth, hot-cold, wet-dry. (ALL)

II-OL9.15 Understand increasingly precise vocabulary. (ALL)

I-OL9.16a Demonstrate understanding of temporal words: today, before-after, now, first-last, day-night, current day, week. (ALL)

II-OL9.16b Demonstrate understanding of temporal words: today-tomorrow-yesterday, always-never-sometimes, before-after, now-immediate, first-last, beginning-middle-end, then-next, already, soon. (ALL)

I-OL9.17a Use temporal words: today before-after, now, first-last, day-night, current day, week. (ALL)

II-OL9.17b Use temporal words: today-tomorrow-yesterday, always-never-sometimes, before-after-now-immediate, first-last, beginning-middle-end, then-next, already, soon. (ALL)

I-OL9.18a Demonstrate understanding of spatial words: in-out, in front of-behind, at the top of-at the bottom of, under-over, in a line/row, up-down. (SM, FR, MSCR, FK)

II-OL9.18b Show understanding of spatial words: there-here, in-on, in front of-behind, at the top of-at the bottom of, under-over, above-below, next to-in the middle of, near-far, inside outside, around-between, up-down, high-low, left-right, front-back. (ALL)

I-OL9.19a Use spatial words: in-out, in front of-behind, at the top of-at the bottom of, under-over, in a line/row, up-down. (ALL)

II-OL9.19b Use spatial words: there-here, in-on, in front of-behind, at the top of-at the bottom of, under-over, above-below, next to-in the middle of, near-far, inside-outside, around-between, up-down, high-low, left-right, front-back. (ALL)

I-OL9.23 Ask or answer questions beginning with: who, what, where, when, why. (ALL)

I-OL9.24 Ask or answer increasingly detailed, elaborated questions. (ALL)

II-OL9.30 Point to: large-small, wide-narrow, big-little, full-empty, tall-short, heavy-light, long-short, thick-thin. (ALL)

II-OL9.31 Use size words: large-small, wide-narrow, big-little, full-empty, tall-short, heavy-light, long-short, thick-thin. (ALL)

### **Storybook Reading and Storytelling**

I-SR1.1a Attend and listen to illustrated picture books with simple story lines. (ALL)

II-SR1.1b Attend and listen to picture books with story lines, as well as books of other genres, such as nonfiction. (ALL)

I-SR1.2 Hold a book correctly, turning the pages in accordance with the story being read aloud from beginning to end. (ALL)

I-SR1.3 Find the illustration, or object within the illustration of a book, that is being described. (ALL)

I-SR1.4a Answer who, what and where questions about a read-aloud. (ALL)

II-SR1.4b Answer who, what, where, when and why questions about a read aloud. (ALL)

I-SR2.1 Describe an illustration. (ALL)

I-SR3.1a “Retell” a story that has been read aloud, including characters, a beginning and an ending. (ALL)

II-SR3.1b “Retell” a story that has been read aloud, including character(s), setting (time, place), the plot (central idea) of the story, the sequence of events and an ending. (ALL)

II-SR4.3 Predict events in a story, i.e., what will happen next. (ALL)

## Emerging Literacy Skills in Reading and Writing

### I. Function

- I-EL1.1 Identify different examples of print in the environment. (ALL)
- I-EL2.1a Dictate a caption for a drawing or photograph. (ALL)
- I-EL2.2 Collect objects using an illustrated list. (MSCR, FK)
- II-EL3.2 Dictate a description to accompany one's drawing of people, objects, events, or activities, derived from one's experience or imagination. (ALL)
- II-EL4.1 Follow a simple, illustrated recipe. (MSCR, FK)
- II-EL4.3 Represent "in written form," following an actual experience directions for a recipe or craft or scientific observation of events or experiments. (ALL)

### II. Form

- I-EL7.1 Perform activities requiring small muscle control. (ALL)
- I-EL7.2 Produce written marks on both horizontal and vertical surfaces (ALL)
- I-EL7.4 Color a simple drawing, staying within the lines. (ALL)

## Mathematical Reasoning and Number Sense

- I-MR1.1a Identify pairs of objects as the same or different, with different pairs varying in gross details. (SM, FR, HB, MSCR, LT, H2O, RS, MA, PALC, FK)
- II-MR1.1b Identify pairs of objects or pictures as the same or different, with different pairs increasingly similar, varying only in one or more minor details and with images becoming more abstract and symbolic. (SM, FR, HB, MSCR, LT, H2O, RS, MA, PALC, FK)
- I-MR1.2a Given a sample object/picture and verbal description of the selection criteria, sort objects/pictures according to a single criterion: Sort objects by color. (SM, FR, RS, MSCR, FK)
- II-MR1.2b Classify by color. (SM, FR, RS, MSCR, FK)
- I-MR1.3a Given a sample object/picture and verbal description of the selection criteria, sort objects/pictures according to a single criterion: Sort objects by shape. (SM, FR, RS, MSCR, FK)
- II-MR1.3b Classify by shape. (SM, FR, RS, MSCR, FK)
- II-MR1.4 Given a sample object/picture and verbal description of the selection criteria, sort objects/pictures according to a single criterion: Sort by size. (SM, FR, RS, MSCR, FK)
- II-MR1.5 Given a sample object/picture and verbal description of the selection criteria, sort objects/pictures according to a single criterion: Sort by function. (SM, FR, HB, MSCR, H2O, FK)
- I-MR1.6 Indicate whether an object belongs to a given collection. (SM, FR, H2O, HB, RS, MSCR, FK)
- II-MR1.7 Classify by size. (SM, FR, RS, MSCR, FK)
- II-MR1.8 Classify by function. (SM, FR, MSCR, H2O, HB, FK)
- II-MR1.9 Classify by other conceptual categories. (SM, FR, HB, RS, MSCR, PALC, LT, H2O, FK)
- II-MR1.10 Verbally label the single common attribute or characteristic of a group of objects or pictures. (SM, FR, RS, PALC, MSCR, FK)
- II-MR1.11 Verbally label the difference or criteria used for classification of several groups of objects or pictures. (SM, FR, MA, RS, HB, PALC, MSCR, FK)
- II-MR1.12 Select an object or picture according to a description that includes two properties. (SM, FR, HB, RS, PALC, MSCR, FK)
- I-MR2.1 Duplicate a pattern of six to ten objects in which one property is alternated. (FR, FK)
- I-MR3.3a Given a collection of assorted shapes, sort and name the circles. (SM, FR, H2O, FK)
- II-MR3.3b Given a collection of assorted shapes, classify and name the circles, rectangles and triangles. (SM, FR, H2O, FK)
- II-MR3.4 Find examples of circles or rectangles in everyday objects. (SM, FR, H2O, WE, FK)
- II-MR3.5 Divide one item into approximately equal pieces for two people. (SM, FK)
- II-MR3.6 Compare pairs of objects: length (short-long). (LT, SM, FK)
- II-MR3.7 Compare pairs of objects: height (tall-short). (SM, FK)

II-MR3.8 Compare pairs of objects: large-small, thick-thin, wide-narrow. (LT, MSCR, SM, H2O, FK)

II-MR3.9 Compare pairs of objects: volume (full-empty). (RS, MSCR, FK)

II-MR3.10 Compare pairs of objects: mass (heavy-light). (SM, H2O, FK)

II-MR3.11 Compare pairs of objects: temperature (hot-cold). (MA, WE, FK)

II-MR3.12 Use an arbitrary tool of measurement to compare the length and height of objects, using comparative vocabulary. (HB, LT, MSCR, SM, FK)

II-MR3.13 Use a straight edge to compare the length and height of objects, using comparative vocabulary. (HB, LT, SM, FK)

II-MR3.14 Seriate at least three items by length, height or size in ascending or descending order, using comparative vocabulary. (MSCR, SM, FK)

I-MR4.1a Recite the number sequence, 1-4. (MA, RS, HB, PALC, FR, MSCR, H2O, SM, FK)

II-MR4.1b Recite the number sequence 1-10. (MA, RS, HB, PALC, MSCR, H2O, SM, FK)

I-MR4.2a Compare two groups of no more than four objects per group and use quantitative vocabulary to describe the groups. (SM, RS, HB, FR, MSCR, FK)

II-MR4.2b Compare two groups of no more than six objects per group and use quantitative vocabulary to describe the groups. (SM, RS, HB, FR, MSCR, FK)

I-MR4.3a Demonstrate one-to-one correspondence with concrete objects, up to four objects. (SM, FR, H2O, RS, HB, PALC, MSCR, FK)

II-MR4.3b Demonstrate one-to-one correspondence with concrete objects, up to six objects. (SM, FR, H2O, RS, HB, PALC, MSCR, FK)

I-MR4.4a Construct a collection of objects so that it has the same number of objects as another group, up to four objects. (SM, FR, FK)

II-MR4.4b Construct a collection of objects so that it has the same number of objects as another group. (SM, FR, FK)

I-MR4.5a Count of objects with up to four items per group. (RS, HB, MSCR, H2O, SM, FK)

II-MR4.5b Count groups of objects with up to six items per group. (RS, HB, MSCR, H2O, SM, FK)

I-MR4.6a Given an oral number, create a group with the correct number of objects, up to four objects in a group. (HB, FR, SM, FK)

II-MR4.6b Given an oral number, create a group with the correct number of objects, up to six objects. (HB, FR, SM, FK)

I-MR4.7 Name the quantity/amount for one to four items. (RS, HB, FR, MSCR, H2O, SM, FK)

II-MR4.9 Name the quantity/amount for one to six items. (RS, HB, FR, MSCR, SM, H2O, FK)

I-MR4.12 Identify ordinal position for first and last. (FR, MSCR, SM, FK)

II-MR4.14 Organize and read quantitative data in simple bar graphs. (WE, MA, RS, HB, PALC, LT, FK)

## **Scientific Reasoning and the Physical World**

I-SC1.1 Identify and describe objects on the basis of specific properties discerned through the five senses. (ALL)

II-SC1.5 Identify and describe basic needs: food, drink. (H2O, HB, PALC, FK)

II-SC1.6 Identify and describe basic needs: shelter, protection from weather and temperature. (PALC, HB, FK)

II-SC1.9 Care for, observe and record observations of an animal, noting key physical characteristics, development, needs and life cycle. (PALC, FK)

II-SC1.10 Classify images of animals according to habitat or environment in which they naturally live: lake/river, ocean, farm, forest, jungle. (HB, FK)

II-SC1.11 Plant, care for and record observations of a plant, noting the parts of the plant, needs, development and life cycle. (PALC, HB, FK)

II-SC2.1 Observe, describe and record some basic properties of water, its presence and its effects in the physical world. (H2O, MA, FK)

II-SC2.2 Observe, describe and record some basic properties of air, its presence and its effects in the physical world. (WE, FK)

- II-SC2.3 Observe, describe and record some basic properties of light, its presence and its effects in the physical world. (LT, FK)
- II-SC2.4 Observe, describe and record some characteristics of weather. (WE, HB, MA, PALC, FK)
- II-SC2.5 Observe, describe and record some characteristics of seasons. (WE, PALC, FK)
- II-SC2.6 Identify objects and describe objects that can be recycled. (FK)
- II-SC2.7 Identify and describe some ways that resources and energy can be conserved. (FK)
- II-SC2.8 Observe, describe and record the effects of magnets on various objects and other magnets. (FK)
- II-SC4.1 Demonstrate use of the scientific reasoning cycle. (ALL)

## **Kindergarten**

### **Language Arts**

#### **I. Listening and Speaking**

##### **A. CLASSROOM DISCUSSION**

- Participate in age appropriate activities involving listening and speaking. (ALL)
- Speak clearly with volume appropriate to the setting. (ALL)
- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc. (ALL)
- Ask questions to clarify conversations, directions, exercises, and/or classroom routines. (ALL)
- Carry on and participate in a conversation over four to five turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age. (ALL)
- Identify and express physical sensations, mental states, and emotions of self and others. (ALL)
- Understand and use language to express spatial and temporal relationships (*up, down, first, last, before, after, etc.*). (ALL)
- Understand and use narrative language to describe people, places, things, locations, events, actions. (ALL)

##### **B. PRESENTATION OF IDEAS AND INFORMATION**

- Follow multi-step, oral directions. (ALL)
- Give simple directions. (ALL)
- Provide simple explanations. (ALL)

##### **C. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—ALL TEXTS**

- Listen to and understand a variety of texts read aloud, including fictional stories, fairy tales, fables, historical narratives, drama, informational text, and poems. (ALL)

##### **Grasping Specific Details and Key Ideas**

- Describe illustrations. (ALL)
- Answer questions requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (ALL)
- Retell key details. (ALL)
- Ask questions to clarify information in a read-aloud. (ALL)
- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts in a read-aloud. (ALL)

##### **Observing Craft and Structure**

- Understand and use words and phrases heard in read-alouds. (ALL)
- Compare and contrast similarities and differences within a single read-aloud or between two or more read-alouds. (ALL)

- Make personal connections to events or experiences in a read-aloud and/or make connections among several read-alouds. (ALL)

### **Integrating Information and Evaluating Evidence**

- Prior to listening to a read-aloud, identify what they know and have learned that may be related to the specific story or topic to be read aloud. (ALL)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud. (ALL)

### **D. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—FICTION, DRAMA, AND POETRY**

- Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence. (ALL)
- Distinguish fantasy from realistic text in a story. (ALL)
- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories. text heard thus far and then compare the actual outcomes to predictions. (ALL)
- Answer questions that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing cause/effect relationships. (ALL)
- Identify who is telling a story or providing information in a text. (ALL)

### **E. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—NONFICTION AND INFORMATIONAL TEXT**

- Retell important facts and information from a nonfiction read-aloud. (ALL)
- With assistance, categorize and organize facts and information within a given topic. (ALL)

## **II. Reading**

### **A. PRINT AWARENESS**

- Demonstrate understanding of directionality (left to right, return sweep, top to bottom, front to back). (ALL)
- Identify the parts of books and function of each part (front cover, back cover, title page, table of contents). (ALL)
- Demonstrate correct book orientation by holding book correctly and turning pages. (ALL)
- Demonstrate understanding of basic print conventions by tracking and following print word for word when listening to text read aloud. (ALL)

### **D. ORAL READING AND FLUENCY**

- Read aloud, alone, or with a partner at least 15 minutes each day. (ALL)

### **E. READING COMPREHENSION—ALL TEXTS**

- Demonstrate understanding of simple decodable text after reading independently. (ALL)

### **Grasping Specific Details and Key Ideas**

- Answer questions requiring literal recall and understanding of the details and/or facts (i.e., who, what, where, when, etc.) about a text that has been read independently. (ALL)
- Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence. (ALL)
- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts from a text that has been read independently. (ALL)

### **Observing Craft and Structure**

- Understand and use words and phrases from a text that has been read independently. (ALL)

### **Integrating Information and Evaluating Evidence**

- Prior to reading, identify what they know and have learned that may be related to the specific story or topic to be read. (ALL)
- Use pictures accompanying the written text to check and support understanding. (ALL)
- Make predictions prior to and while reading, based on the title, pictures, and/or text read thus far and then compare the actual outcomes to predictions. (ALL)
- Identify who is telling a story or providing information in a text. (ALL)

## **III. Writing**

### **Writing to Reflect Audience, Purpose and Task**

- Draw pictures to represent a preference or opinion. (ALL)
- Write narratives, informative and explanatory texts, and offer an opinion through shared writing exercises. (ALL)
- With assistance, add details to writing. (ALL)
- Create a title or caption to accompany a picture and/or shared writing. (ALL)

## **IV. Language Conventions**

- Form letters, words, phrases and sentences to communicate thoughts and ideas. (ALL)

### **A. HANDWRITING AND SPELLING**

- Hold a pencil with a pincer grasp and make marks on paper. (ALL)
- Write from left to right, leaving spaces between words, and top to bottom using return sweep. (ALL)
- Write words, phrases, and sentences from dictation, applying phonics knowledge. (ALL)

### **B. PARTS OF SPEECH AND SENTENCE STRUCTURE**

- Use and understand question words, i.e., what, where, when, who, how. (ALL)

## **Mathematics**

### **I. Patterns and Classification**

- Establish concepts of likeness and difference by sorting and classifying objects according to various attributes: size, shape, color, amount, function, etc. (SM, RS, HB, PALC, LT, FR, MSCR, H2O, FK)
- Define a set by the common property of its elements. (MA, RS, HB, PALC, FR, MSCR, H2O, SM, FK)
- In a collection of objects that includes a given set and an item that does not belong, indicate which item does not belong. (HB, SM, FK)
- Moving from concrete objects to pictorial representations, recognize patterns and predict the extension of a pattern. (FR, FK)
- Extend a sequence of ordered concrete objects. (FR, FK)

### **II. Numbers and Number Sense**

- Using concrete objects and pictorial representations, compare sets: same as (equal to), more than, less than, most, least (RS, HB, MSCR, SM, FK)
- Count and write the number of objects in a set. (RS, HB, FK)
- Given a number, identify one more, one less. (HB, SM, FK)
- Identify ordinal position, first (1st) through sixth (6th). (PALC, FR, MSCR, SM, FK)
- Identify pairs. (PALC, LT, FR, SM, FK)
- Interpret simple pictorial graphs (WE, MA, RS, HB, PALC, LT, FR, FK)
- Identify  $\frac{1}{2}$  as one of two equal parts of a region or object; find  $\frac{1}{2}$  of a set of concrete objects. (MSCR, FK)

## **V. Measurement**

- Identify familiar instruments of measurement, such as ruler, scale, thermometer. (WE, MA, SM, FR, LT, H2O, FK)
- Compare objects according to:
  - Linear measure (HB, LT, FR, MSCR, SM)
  - Weight (SM, H2O, FK)
  - Capacity (volume) (WE, MA, MSCR, FK)
  - Temperature: hotter and colder (WE, MA, FK)
- Time (ALL)

## **VI. Geometry**

- Identify top, bottom, middle. (SM, MSCR, FR, FK)
- Know and use terms of orientation and relative position, such as: closed, open, on, under, over, in front, in back (behind), between, in the middle of, next to, beside, inside, outside, around, far from, near, above, below, to the right of, to the left of here, there (SM, LT, MSCR, FR, FK)
- Identify and sort basic plane figures: square, rectangle, triangle, circle. (SM, FR, FK)
- Recognize shapes as the same or different. (SM, FR, FK)

## **Science**

### **I. Plants and Growth**

- What plants need to grow: sufficient warmth, light, and water (PALC, HB, FK)
- Basic parts of plants: seed, root, stem, branch, leaf (PALC, HB, FK)
- Plants make their own food. (PALC, FK)
- Flowers and seeds: seeds as food for plants and animals (for example, rice, nuts, wheat, corn) (HB, FK)
- Two kinds of plants: deciduous and evergreen (FK)
- Farming (FK)

### **II. Animals and Their Needs**

- Animals, like plants, need food, water, and space to live and grow. (HB, PALC, FK)
- Plants make their own food, but animals get food from eating plants or other living things. (PALC, FK)
- Offspring are very much (but not exactly) like their parents. (PALC, FK)

### **III. The Human Body**

- The five senses and associated body parts (FK)
- Taking care of your body: exercise, cleanliness, healthy foods, rest (FK)

### **IV. Introduction to Magnetism**

- Identify familiar everyday uses of magnets (for example, in toys, in cabinet locks, in “refrigerator magnets,” etc.). (FK)
- Classify materials according to whether they are or are not attracted by a magnet. (FK)

### **V. Seasons and Weather**

- The four seasons (WE, FK)
- Characteristic local weather patterns during the different seasons (WE, PALC, FK)
- The sun: source of light and warmth (WE, LT, HB, PALC, FK)
- Daily weather changes. (WE, FK)

### **VI. Taking Care of the Earth**

- Conservation: Some natural resources are limited, so people must be careful not to use too much of them (example: logging and reforestation). (FK)
- Practical measures for conserving energy and resources (for example, turning off unnecessary lights, tightly turning off faucets, etc.) (FK)

- Some materials can be recycled (for example, aluminum, glass, paper). (FK)
- Pollution (for example, littering, smog, water pollution) can be harmful, but if people are careful they can help reduce pollution. (FK)

## **First Grade**

### **Language Arts**

#### **I. Listening and Speaking**

##### **A. CLASSROOM DISCUSSION**

- Participate in age appropriate activities involving listening and speaking. (ALL)
- Speak clearly with volume appropriate to the setting. (ALL)
- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc. (ALL)
- Ask questions to clarify conversations, directions, exercises, and/or classroom routines. (ALL)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age. (ALL)
- Identify and express physical sensations, mental states, and emotions of self and others. (ALL)
- Understand and use language to express spatial and temporal relationships (*up, down, first, last, before, after*, etc.). (ALL)
- Understand and use narrative language to describe people, places, things, locations, events, actions. (ALL)

##### **B. PRESENTATION OF IDEAS AND INFORMATION**

- Follow multi-step, oral directions. (ALL)
- Give simple directions. (ALL)
- Provide simple explanations. (ALL)
- Give oral presentations about personal experiences, topics of interest, and/or stories, using appropriate eye contact, volume and clear enunciation. (ALL)

##### **C. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—ALL TEXTS**

- Listen to and understand a variety of texts read aloud, including fictional stories, fairy tales, fables, historical narratives, drama, informational text, and poems. (ALL)
- Distinguish the following genres of literature: fiction, nonfiction and drama. (ALL)

##### **Grasping Specific Details and Key Ideas**

- Describe illustrations. (ALL)
- Answer questions requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (ALL)
- Retell key details. (ALL)
- Ask questions to clarify information in a read-aloud. (ALL)
- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts in a read-aloud. (ALL)

##### **Observing Craft and Structure**

- Understand and use words and phrases heard in read-alouds. (ALL)
- Compare and contrast similarities and differences within a single read-aloud or between two or more read-alouds. (ALL)
- Make personal connections to events or experiences in a read-aloud and/or make connections among several read-alouds. (ALL)

### **Integrating Information and Evaluating Evidence**

- Prior to listening to a read-aloud, identify what they know and have learned that may be related to the specific story or topic to be read aloud. (ALL)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud. (ALL)
- Make predictions prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far and then compare the actual outcomes to predictions. (ALL)
- Answer questions that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing cause/effect relationships. (ALL)
- Interpret information that is presented orally and then ask additional questions to clarify information or the topic in the read-aloud. (ALL)
- Identify who is telling a story or providing information in a text. (ALL)

### **D. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—FICTION, DRAMA, AND POETRY**

- Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence. (ALL)
- Compare and contrast characters from different stories. (ALL)
- Distinguish fantasy from realistic text in a story. (ALL)
- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories. (ALL)
- Identify sensory language and how it is used to describe people, objects, places and events. (ALL)

### **E. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—NONFICTION AND INFORMATIONAL TEXT**

- Generate questions and seek information from multiple sources to answer questions. (ALL)
- Answer questions about the details of a nonfiction text, indicating which part of the text provided the information needed to answer specific questions. (ALL)
- With assistance, categorize and organize facts and information within a given topic. (ALL)
- Distinguish read-alouds that describe events that happened long ago from those that describe contemporary or current events. (ALL)

## **II. Reading**

### **A. PRINT AWARENESS**

- Demonstrate understanding that what is said can be written and that the writing system is a way of writing down sounds. (ALL)
- Demonstrate understanding of directionality (left to right, return sweep, top to bottom, front to back). (ALL)
- Identify the parts of books and function of each part (front cover, back cover, title page, table of contents). (ALL)
- Demonstrate correct book orientation by holding book correctly and turning pages. (ALL)
- Demonstrate understanding of basic print conventions by tracking and following print word for word when listening to text read aloud. (ALL)

### **E. READING COMPREHENSION—ALL TEXTS**

- Demonstrate understanding of completely decodable text after reading independently. (ALL)

### **Grasping Specific Details and Key Ideas**

- Answer questions requiring literal recall and understanding of the details and/or facts (ALL) (i.e., who, what, where, when, etc.) about a text that has been read independently.
- Retell key details from a text that has been read independently. (ALL)
- Ask questions to clarify information about a text that has been read independently. (ALL)

- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts from a text that has been read independently. (ALL)

#### **Observing Craft and Structure**

- Identify basic text features and what they mean, including title, table of contents, and chapters. (ALL)
- Understand and use words and phrases from a text that has been read independently. (ALL)
- Compare and contrast similarities and differences within a single text or between multiple texts read independently. (ALL)
- Make personal connections to events or experiences in a text that has been read independently and/or make connections among several texts that have been read independently. (ALL)

#### **Integrating Information and Evaluating Evidence**

- Prior to reading, identify what they know and have learned that may be related to the specific story or topic to be read. (ALL)
- Use pictures accompanying the written text to check and support understanding. (ALL)
- Make predictions prior to and while reading, based on the title, pictures, and/or text read thus far and then compare the actual outcomes to predictions. (ALL)
- Answer questions that require making interpretations, judgments, or giving opinions about what is read independently, including answering “why” questions that require recognizing cause/effect relationships. (ALL)
- Identify who is telling a story or providing information in a text. (ALL)
- Identify temporal words that link and sequence events, i.e., *first*, *next*, *then*, etc. (ALL)

#### **F. READING COMPREHENSION—FICTION, DRAMA, AND POETRY**

- Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence. (ALL)
- Compare and contrast characters from different stories. (ALL)
- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories. (ALL)
- Identify sensory language and how it is used to describe people, objects, places and events. (ALL)

#### **G. READING COMPREHENSION—NONFICTION AND INFORMATIONAL TEXT**

- Distinguish text that describes events that happened long ago from text that describes contemporary or current events. (ALL)

### **III. Writing**

#### **Writing to Reflect Audience, Purpose and Task**

- Add details to writing. (ALL)
- Begin to use tools, including technology, to plan, draft, and edit writing. (ALL)

#### **Conducting Research**

- Gather information from experiences or provided text sources. (ALL)

#### **A. NARRATIVE WRITING**

- Write or retell a story that includes characters, setting(s), and a beginning, a middle and an end to events of the story in proper sequence. (ALL)
- Write a descriptive paragraph using sensory language. (ALL)
- Create a title and an ending that are relevant to the narrative. (ALL)

#### **B. INFORMATIVE/EXPLANATORY WRITING**

- Write about a topic, including a beginning and ending sentence, facts and examples relevant to the topic, and specific steps (if writing explanatory text). (ALL)

### **C. PERSUASIVE WRITING (OPINION)**

- Express an opinion or point of view in writing, providing reasons and supporting details for preference or opinion using the linking word *because*. (ALL)
- Create a title that is relevant to the topic or subject of the text. (ALL)
- If writing about a specific book or read-aloud, refer to the content of the text. (ALL)

## **Mathematics**

### **I. Patterns and Classification**

- Establish concepts of likeness and difference by sorting and classifying objects according to various attributes: size, shape, color, amount, function, etc. (SM, H2O, FR, HB, RS, FK)
- Define a set by the common property of its elements. (SM, H2O, FR, RS, FK)
- In a collection of objects that includes a given set and an item that does not belong, indicate which item does not belong.
- Recognize patterns and predict the extension of a pattern. (LT, FR, FK)

### **II. Numbers and Number Sense**

- Use tallies. (SM, PALC, HB, FK)
- Identify more and less; counting how many more or less. (SM, H2O, FK)
- Recognize fractions as part of a whole:  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ . (SM, FK)
- Create and interpret simple pictorial graphs and bar graphs. (SM, LT, WE, MA, PALC, HB, RS, FK)

### **IV. Computation**

#### **B. SUBTRACTION (using concrete objects, and paper and pencil)**

- Understand subtraction as “taking away.” (WE, MA, FK)
- Know the meaning of the minus sign ( - ). (WE, MA, FK)
- Know what a “difference” is. (H2O, WE, FK)

### **V. Measurement**

- Identify familiar instruments of measurement, such as ruler, scale, thermometer. (SM, H2O, WE, LT, MA, FR, HB, FK)
- Compare objects according to:
  - Linear measure (SM, LT, FR, HB, RS, FK)
  - Weight (SM, H2O, FK)
  - Capacity (volume) (H2O, MSCR, RS, FK)
  - Temperature: associate temperature in degrees Fahrenheit with weather. (H2O, WE, MA, FK)
- Time (ALL)

### **VI. Geometry**

- Know and use terms of orientation and relative position, such as: closed, open, around, on, under, over far from, near, in front, in back (behind) above, below, between, in the middle of, to the right of, to the left of, next to, beside here, there, inside, outside (SM, FK)
- Identify and draw basic plane figures: square, rectangle, triangle, circle. (SM, FK)
- Describe square, rectangle, triangle according to number of sides. (SM, FR, FK)
- Identify basic solid figures: sphere, cube, cone. (SM, FR, FK)
- Identify basic shapes in a variety of common objects and artifacts (balls, cans, windows, pictures, books, buildings, cars, etc.). (SM, LT, FK)

## Science

### I. Living Things and Their Environments

#### A. HABITATS

- Living things live in environments to which they are particularly suited. (HB, PALC, FK)
- Specific habitats and what lives there. (HB, PALC, FK)
- The food chain: a way of picturing the relationships between living things (HB, PALC, FK)

#### B. OCEANS AND UNDERSEA LIFE

- Most of the earth is covered with water. (HB, FK)
- Locate oceans: Pacific, Atlantic, Indian, Arctic. (HB, FK)
- Oceans are salt water (unlike fresh water rivers and lakes). (HB, FK)
- Coast, shore, waves, tides (high and low) (HB, FK)
- Diversity of ocean life: from organisms too small for the eye to see (plankton), to giant whales (HB, FK)
- Dangers to ocean life (for example, overfishing, pollution, oil spills) (FK)

#### C. ENVIRONMENTAL CHANGE AND HABITAT DESTRUCTION

- Environments are constantly changing, and this can sometimes pose dangers to specific habitats. (HB, FK)

#### D. SPECIAL CLASSIFICATIONS OF ANIMALS

- Herbivores: plant-eaters (for example, elephants, cows, deer) (FK)
- Carnivores: flesh-eaters (for example, lions, tigers) (FK)
- Omnivores: plant and animal-eaters (for example, bears) (FK)
- Extinct animals (for example, dinosaurs) (HB, FK)

### II. The Human Body

#### A. BODY SYSTEMS

- Skeletal system: skeleton, bones, skull (FK)
- Muscular system: muscles (FK)
- Digestive system: mouth, stomach (FK)
- Circulatory system: heart and blood (FK)
- Nervous system: brain, nerves (FK)

#### B. GERMS, DISEASES, AND PREVENTING ILLNESS

- Taking care of your body: exercise, cleanliness, healthy foods, rest (FK)
- Vaccinations (FK)

### III. Matter

- Basic concept of atoms (MA, H<sub>2</sub>O, FK)
- Names and common examples of three states of matter. (MA, H<sub>2</sub>O, FK)
- Water as an example of changing states of matter of a single substance. (MA, FK)

### IV. Properties of Matter: Measurement

- Units of measurement (SM, LT, FR, HB, RS, H<sub>2</sub>O, MSCR, FK)
- Temperature: degrees Fahrenheit (WE, MA, H<sub>2</sub>O, FK)

### V. Introduction to Electricity

- Static electricity (FK)
- Basic parts of simple electric circuits (for example, batteries, wire, bulb or buzzer, switch) (FK)
- Conductive and nonconductive materials (FK)
- Safety rules for electricity (for example, never put your finger, or anything metallic, in an electrical outlet; never touch a switch or electrical appliance when your hands are wet or when you're in the bathtub; never put your finger in a lamp socket; etc.) (FK)

## **VI. Astronomy: Introduction to the Solar System**

- Sun: source of energy, light, heat (WE, LT, PALC, FK)
- Moon: phases of the moon (full, half, crescent, new) (FK)
- The eight planets (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune) (FK)
- Stars (FK)
- Earth and its place in the solar system (FK)

## **VII. The Earth**

### **A. GEOGRAPHICAL FEATURES OF THE EARTH'S SURFACE**

- The shape of the earth, the horizon (FK)
- Oceans and continents (FK)
- North Pole and South Pole, Equator (HB, FK)

### **B. WHAT'S INSIDE THE EARTH**

- Inside the earth (FK)
- Volcanoes and geysers (FK)
- Rocks and minerals (RS, FK)

## **Second Grade**

### **Language Arts**

#### **I. Listening and Speaking**

##### **A. CLASSROOM DISCUSSION**

- Maintain attention and actively participate in discussions about a variety of topics, ideas, and texts in both small and large group settings. (ALL)
- Speak clearly with volume appropriate to the setting. (ALL)
- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc. (ALL)
- Ask questions to clarify conversations, directions, exercises, and/or classroom routines. (ALL)
- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age. (ALL)
- Participate in a conversation or group discussion by making reference to, or building upon, a comment made by another person. (ALL)
- Identify and express physical sensations, mental states, and emotions of self and others. (ALL)
- Understand and use language to express spatial and temporal relationships (*up, down, first, last, before, after, etc.*). (ALL)
- Understand and use narrative language to describe people, places, things, locations, events, actions. (ALL)

##### **B. PRESENTATION OF IDEAS AND INFORMATION**

- Follow multi-step, oral directions. (ALL)
- Give simple directions. (ALL)
- Provide simple explanations. (ALL)
- Give oral presentations about personal experiences, topics of interest, stories, and summaries of factual information that have been presented orally, visually or through multimedia, using appropriate eye contact, volume and clear enunciation. (ALL)

##### **C. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—ALL TEXTS**

- Listen to and understand a variety of texts read aloud, including fictional stories, fairy tales, fables, historical narratives, drama, informational text, and poems. (ALL)
- Distinguish the following genres of literature: fiction, nonfiction and drama. (ALL)

### **Grasping Specific Details and Key Ideas**

- Describe illustrations. (ALL)
- Answer questions requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc. (ALL)
- Retell key details. (ALL)
- Summarize in one's own words selected parts of a read-aloud. (ALL)
- Ask questions to clarify information in a read-aloud. (ALL)
- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts in a read-aloud. (ALL)

### **Observing Craft and Structure**

- Understand and use words and phrases heard in read-alouds. (ALL)
- Compare and contrast similarities and differences within a single read-aloud or between two or more read-alouds. (ALL)
- Make personal connections to events or experiences in a read-aloud and/or make connections among several read-alouds. (ALL)

### **Integrating Information and Evaluating Evidence**

- Prior to listening to a read-aloud, identify what they know and have learned that may be related to the specific story or topic to be read aloud. (ALL)
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud. (ALL)
- Make predictions prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far and then compare the actual outcomes to predictions. (ALL)
- Answer questions that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing cause/effect relationships. (ALL)
- Interpret information that is presented orally and then ask additional questions to clarify information or the topic in the read-aloud. (ALL)
- Identify who is telling a story or providing information in a text. (ALL)

## **D. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—FICTION, DRAMA, AND POETRY**

- Retell a story, using narrative language to describe characters, setting(s), and the plot of the story in proper sequence. (ALL)
- Compare and contrast characters from different stories. (ALL)
- Describe characters in increasing depth by referring to dialogue and/or their actions in the story. (ALL)
- Distinguish fantasy from realistic text in a story. (ALL)
- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories. (ALL)
- Identify sensory language and how it is used to describe people, objects, places and events. (ALL)

## **E. COMPREHENSION AND DISCUSSION OF READ-ALOUDS—NONFICTION AND INFORMATIONAL TEXT**

- Generate questions and seek information from multiple sources to answer questions. (ALL)
- Answer questions about the details of a nonfiction text, indicating which part of the text provided the information needed to answer specific questions. (ALL)
- With assistance, categorize and organize facts and information within a given topic. (ALL)
- Interpret information presented in diagrams, charts, graphs, etc. (ALL)
- Distinguish read-alouds that describe events that happened long ago from those that describe contemporary or current events. (ALL)

## II. Reading

### C. READING COMPREHENSION—ALL TEXTS

- Demonstrate understanding of text—the majority of which is decodable—after independent reading. (ALL)

#### Grasping Specific Details and Key Ideas

- Answer questions requiring literal recall and understanding of the details and/or facts (i.e., who, what, where, when, etc.) about a text that has been read independently. (ALL)
- Retell key details from a text that has been read independently. (ALL)
- Summarize in one's own words selected parts of a text. (ALL)
- Ask questions to clarify information about a text that has been read independently. (ALL)
- Use narrative language to describe people, places, things, locations, events, actions, a scene or facts from a text that has been read independently. (ALL)

#### Observing Craft and Structure

- Identify basic text features and what they mean, including title, table of contents, chapter headings and captions. (ALL)
- Understand and use words and phrases from a text that has been read independently. (ALL)
- Compare and contrast similarities and differences within a single text or between multiple texts read independently. (ALL)
- Make personal connections to events or experiences in a text that has been read independently and/or make connections among several texts that have been read independently. (ALL)

#### Integrating Information and Evaluating Evidence

- Prior to reading, identify what they know and have learned that may be related to the specific story or topic to be read. (ALL)
- Use pictures accompanying the written text to check and support understanding. (ALL)
- Make predictions prior to and while reading, based on the title, pictures, and/or text read thus far and then compare the actual outcomes to predictions. (ALL)
- Answer questions that require making interpretations, judgments, or giving opinions about what is read independently, including answering “why” questions that require recognizing cause/effect relationships. (ALL)
- Interpret information that is read independently and then ask questions to clarify this information. (ALL)
- Identify who is telling a story or providing information in a text. (ALL)
- Identify temporal words that link and sequence events, i.e., *first*, *next*, *then*, etc. (ALL)

### D. READING COMPREHENSION—FICTION, DRAMA, AND POETRY

- Retell a story, using narrative language to describe characters, setting(s), and the plot of the story in proper sequence. (ALL)
- Compare and contrast characters from different stories. (ALL)
- Describe characters in increasing depth by referring to dialogue and/or their actions in the story. (ALL)
- Distinguish fantasy from realistic text in a story. (ALL)
- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories. (ALL)
- Identify sensory language and how it is used to describe people, objects, places, and events. (ALL)

### E. READING COMPREHENSION—NONFICTION AND INFORMATIONAL TEXT

- Generate questions and seek information from multiple sources to answer questions. (ALL)
- Answer questions about the details of a nonfiction text, indicating which part of the text provided the information needed to answer specific questions. (ALL)
- Interpret information presented in diagrams, charts, graphs, etc. (ALL)

- With assistance, categorize and organize facts and information for a given topic. (ALL)
- Distinguish text that describes events that happened long ago from text that describes contemporary or current events. (ALL)

### III. Writing

#### Writing to Reflect Audience, Purpose and Task

- Add details to writing. (ALL)
- Begin to use tools, including technology, to plan, draft, and edit writing. (ALL)

#### Conducting Research

- Gather information from experiences or provided text sources. (ALL)

#### A. NARRATIVE WRITING

- Write a familiar story that includes setting(s), character(s), dialogue, and if appropriate, several events, using temporal words and phrases to indicate the chronology of events. (ALL)

#### B. INFORMATIVE/EXPLANATORY WRITING

- Write about a topic, including a beginning and ending sentence, facts and examples relevant to the topic, and specific steps (if writing explanatory text). (ALL)

#### C. PERSUASIVE WRITING (OPINION)

- Express an opinion or point of view in writing, providing reasons and supporting details for preference or opinion. (ALL)
- Create a title that is relevant to the topic or subject of the text. (ALL)
- If writing about a specific book or read-aloud, refer to the content of the text. (ALL)

### Mathematics

#### I. Numbers and Number Sense

- Use tallies. (SM, PALC, HB, FK)
- Given a number, identify one more and one less; ten more and ten less. (SM, H2O, FK)
- Create and interpret simple bar graphs. (SM, LT, WE, MA, PALC, HB, RS, FK)
- Identify and extend numerical and symbolic patterns. (FR, FK)
- Record numeric data systematically and find the lowest and highest values in a data set. (SM, WE, H2O, LT, FK)

#### II. Fractions

- Recognize these fractions as part of a whole set or region and write the corresponding numerical symbols:  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{1}{5}$ ,  $\frac{1}{8}$ ,  $\frac{1}{10}$ . (SM, FK)

### IV. Computation

#### B. SUBTRACTION

- Estimate the difference. (H2O, WE, FK)

### V. Measurement

#### A. LINEAR MEASURE

- Make linear measurements in feet and inches, and in centimeters. (SM, LT, FR, HB, RS, FK)
- Measure and draw line segments in inches to  $\frac{1}{2}$  inch, and in centimeters. (SM, FR, FK)
- Estimate linear measurements, then measure to check estimates. (SM, FR, FK)

#### B. WEIGHT

- Compare weights of objects using a balance scale. (SM, FK)

### **C. CAPACITY (VOLUME)**

- Estimate and measure capacity in cups. (H2O, MSCR, RS, FK)
- Measure liquid volumes: cups, pints, quarts, gallons. (H2O, MSCR, RS, FK)

### **D. TEMPERATURE**

- Measure and record temperature in degrees Fahrenheit to the nearest 2 degrees. (H2O, WE, MA, FK)
- Know the degree sign: ° (H2O, WE, MA, FK)

### **E. TIME**

- Understand noon and midnight. (LT, FK)
- Solve problems on elapsed time (how much time has passed?). (MSCR, WE, MA, LT, H2O, FK)
- Using a calendar, identify the date, day of the week, month, and year. (PALC, FK)

## **VI. Geometry**

- Identify and draw basic plane figures: square, rectangle, triangle, circle. (SM, FK)
- Describe square, rectangle, triangle according to number of sides; distinguish between square and rectangle as regards length of sides (a square has sides of equal length). (SM, FK)
- Identify solid figures—sphere, cube, pyramid, cone, cylinder—and associate solid figures with planar shapes: sphere (circle), cube (square), pyramid (triangle). (SM, FK)

## **Science**

### **I. Cycles In Nature**

#### **A. SEASONAL CYCLES**

- The four seasons and earth's orbit around the sun (one year) (WE, FK)
- Seasons and life processes (WE, HB, PALC, FK)

#### **B. LIFE CYCLES**

- The life cycle: birth, growth, reproduction, death (PALC, FK)
- Reproduction in plants and animals (PALC, HB, FK)

#### **C. THE WATER CYCLE**

- Most of the earth's surface is covered by water. (H2O, FK)
- The water cycle (FK)

### **II. Insects**

- Insects can be helpful and harmful to people. (FK)
- Distinguishing characteristics (PALC, FK)
- Life cycles: metamorphosis (PALC, FK)
- Social insects (FK)

### **III. The Human Body**

#### **A. CELLS**

- All living things are made up of cells, too small to be seen without a microscope. (PALC, FK)

#### **B. THE DIGESTIVE AND EXCRETORY SYSTEMS**

- Salivary glands, taste buds (FK)
- Teeth: incisors, bicuspid, molars (FK)
- Esophagus, stomach, liver, small intestine, large intestine (FK)
- Kidneys, urine, bladder, urethra, anus, appendix (FK)

#### **C. TAKING CARE OF YOUR BODY: A HEALTHY DIET**

- The "food pyramid" (FK)

- Vitamins and minerals (FK)

#### **IV. Magnetism**

- Magnetism demonstrates that there are forces we cannot see that act upon objects. (FK)
- Most magnets contain iron. (FK)
- Lodestones: naturally occurring magnets (FK)
- Magnetic poles: north-seeking and south-seeking poles (FK)
- Magnetic field (strongest at the poles) (FK)
- Law of magnetic attraction: unlike poles attract, like poles repel (FK)
- The earth behaves as if it were a huge magnet: north and south magnetic poles (near, but not the same as, geographic North Pole and South Pole) (FK)
- Orienteering: use of a magnetized needle in a compass, which will always point to the north (FK)

#### **V. Simple Machines**

- Simple machines (SM, FK)
- Friction, and ways to reduce friction (lubricants, rollers, etc.) (SM, FR, FK)

### **Third Grade**

#### **Language Arts**

##### **I. Reading and Writing**

###### **A. READING COMPREHENSION AND RESPONSE**

- Independently read and comprehend longer works of fiction (“chapter books”) and nonfiction appropriately written for third grade or beyond. (ALL)
- Orally summarize main points from fiction and nonfiction readings. (ALL)
- Ask and pose plausible answers to how, why, and what-if questions in interpreting texts, both fiction and nonfiction. (ALL)
- Use a dictionary to answer questions regarding meaning and usage of words with which he or she is unfamiliar. (ALL)
- Know how to use a table of contents and index to locate information. (ALL)

###### **B. WRITING**

- Produce a variety of types of writing—such as stories, reports, poems, letters, descriptions—and make reasonable judgments about what to include in his or her own written works based on the purpose and type of composition. (ALL)
- Know how to gather information from basic print sources (such as a children’s encyclopedia), and write a short report presenting the information in his or her own words. (ALL)
- Produce written work with a beginning, middle, and end. (ALL)
- In some writings, proceed with guidance through a process of gathering information, organizing thoughts, composing a draft, revising to clarify and refine his or her meaning, and proofreading with attention to spelling, mechanics, and presentation of a final draft. (ALL)

#### **Mathematics**

##### **I. Numbers and Number Sense**

- Create and interpret bar graphs and line graphs. (SM, LT, WE, MA, PALC, HB, RS, FK)
- Record outcomes for a simple event (for example, tossing a die) and display the results graphically. (SM, LT, WE, MA, PALC, HB, RS, FK)

##### **IV. Computation**

###### **B. SUBTRACTION**

- Mentally estimate the difference. (H2O, WE, FK)

## **V. Measurement**

### **A. LINEAR MEASURE**

- Make linear measurements in yards, feet, and inches; and, in centimeters and meters. (SM, LT, FR, HB, RS, FK)
- Measure and draw line segments in inches (to 1/4 inch), and in centimeters. (SM, FR, FK)
- Estimate linear measurements, then measure to check estimates. (SM, FR, FK)

### **B. WEIGHT**

- Compare weights of objects using a balance scale. (SM, FK)
- Estimate and measure weight in pounds and ounces; grams and kilograms. (SM, H2O, FK)

### **C. CAPACITY (VOLUME)**

- Estimate and measure liquid capacity in cups, pints, quarts, gallons, and liters. (H2O, MSCR, RS, FK)

### **D. TEMPERATURE**

- Measure and record temperature in degrees Fahrenheit and Celsius. (H2O, WE, MA, FK)
- Know the degree sign: ° (H2O, WE, MA, FK)
- Identify freezing point of water as 32° F = 0° C. (WE, FK)

### **E. TIME**

- Solve problems on elapsed time (how much time has passed?). (MSCR, WE, MA, LT, H2O, FK)
- Using a calendar, identify the date, day of the week, month, and year. (PALC, FK)

## **VI. Geometry**

- Identify solid figures: sphere, cube, rectangular solid, pyramid, cone, cylinder. (SM, FK)

## **Science**

### **I. Introduction to Classification of Animals**

- Scientists classify animals according to the characteristics they share. (FK)
- Different classes of vertebrates. (FK)

### **II. The Human Body**

#### **A. THE MUSCULAR SYSTEM**

- Muscles (FK)

#### **B. THE SKELETAL SYSTEM**

- Skeleton, bones, marrow (FK)
- Musculo-skeletal connections (FK)
- Skull, cranium (FK)
- Spinal column, vertebrae (FK)
- Joints (FK)
- Ribs, rib cage, sternum (FK)
- Scapula (shoulder blades), pelvis, tibia, fibula (FK)
- Broken bones, x-rays (FK)

#### **C. THE NERVOUS SYSTEM**

- Brain: medulla, cerebellum, cerebrum, cerebral cortex (FK)
- Spinal cord (FK)
- Nerves (FK)
- Reflexes (FK)

#### **D. VISION: HOW THE EYE WORKS**

- Parts of the eye: cornea, iris and pupil, lens, retina (FK)
- Optic nerve (FK)
- Farsighted and nearsighted (FK)

#### **E. HEARING: HOW THE EAR WORKS**

- Sound as vibration (FK)
- Outer ear, ear canal (FK)
- Eardrum (FK)
- Three tiny bones (hammer, anvil, and stirrup) pass vibrations to the cochlea (FK)
- Auditory nerve (FK)

### **III. Light and Optics**

- The speed of light: light travels at an amazingly high speed. (LT, FK)
- Light travels in straight lines (as can be demonstrated by forming shadows). (LT, FK)
- Transparent and opaque objects (LT, FK)
- Reflection (LT, FK)
- The spectrum: use a prism to demonstrate that white light is made up of a spectrum of colors. (LT, FK)
- Lenses can be used for magnifying and bending light (as in magnifying glass, microscope, camera, telescope, binoculars). (LT, FK)

### **IV. Sound**

- Sound is caused by an object vibrating rapidly. (FK)
- Sounds travel through solids, liquids, and gases. (FK)
- Sound waves are much slower than light waves. (FK)
- Qualities of sound (FK)
- Human voice (FK)
- Sound and how the human ear works (FK)
- Protecting your hearing (FK)

### **V. Ecology**

- Habitats, interdependence of organisms and their environment (HB, FK)
- The concept of a “balance of nature” (constantly changing, not a static condition) (HB, FK)
- The food chain: producers, consumers, decomposers (FK)
- Ecosystems: how they can be affected by changes in environment (for example, rainfall, food supply, etc.), and by man-made changes (HB, FK)
- Man-made threats to the environment (HB, FK)
- Measures we can take to protect the environment (for example, conservation, recycling) (FK)

### **VI. Astronomy**

- The “Big Bang” as one theory (FK)
- The universe: an extent almost beyond imagining (FK)
- Galaxies: Milky Way and Andromeda (FK)
- Our solar system (FK)
- Planetary motion: orbit and rotation (LT, FK)
- Gravity, gravitational pull (FR, FK)
- Asteroids, meteors (“shooting stars”), comets, Halley’s Comet (FK)
- How an eclipse happens (FK)
- Stars and constellations (FK)
- Orienteering (finding your way) by using North Star, Big Dipper (FK)
- Exploration of space (FK)