



**Zula Exploration Mission Modules  
Alignment with Louisiana K-2 Standards**

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

All = All current and future Zula activities and lesson plans

FK = Future Mission Exploration Modules

**Kindergarten**

**Language Arts**

Reading and Responding

- ELA-1-E1 Recognize and understand words found in environmental print (All)
- ELA-1-E1 Read books with predictable, repetitive text and simple illustrations (All)
- ELA-1-E4 Identify basic story elements, including simple plot sequences, setting, and simple character descriptions, in a favorite story using pictures and/or oral responses (All)
- ELA-1-E5 Orally retell ideas and important facts in grade-appropriate texts read aloud by the teacher or read by the individual student (All)
- ELA-1-E5 Answer questions about the important characters, setting, and events of a story (All)
- ELA-1-E6 Describe the connections between life experiences and texts (All)
- ELA-7-E1 Demonstrate understanding of information in texts read aloud using a variety of strategies including: making predictions using prior knowledge and pictures, drawing conclusions from text, using pictures to resolve questions (All)

- ELA-7-E2 Identify problems in texts and offer possible solutions (All)
- ELA-7-E3 Identify different emotions and feelings of authors by participating in activities such as role-playing, illustrating, and answering questions (All)
- ELA-7-E4 Ask questions that demonstrate knowledge of character, setting, plot, and text type about texts read aloud (e.g., what, why, how) (All)

#### Writing

- ELA-2-E1 Write using developmental/inventive spelling, supported by drawing or dictation to the teacher to express ideas (All)
- ELA-2-E2 Use illustrations, developmental/inventive spelling, and appropriate vocabulary to write for a specific purpose and/or audience (All)
- ELA-2-E3 Create simple text using prior knowledge by drawing, dictating to the teacher, and/or writing using developmental/inventive spelling (All)
- ELA-2-E6 Use developmental/inventive spelling, supported by pictures, to represent a word or idea or to respond to a life experience or a text read aloud (All)

#### Speaking and Listening

- ELA-4-E1 Initiate and sustain normal conversation on a specific topic with the teacher (All)
- ELA-4-E2 Give and follow one- and two-step verbal and nonverbal directions without interrupting (All)
- ELA-4-E3 Relate an experience or creative story in a logical sequence (All)
- ELA-4-E3 Describe people, places, things (e.g., size, color, shape), locations, and actions from a story read aloud (All)
- ELA-4-E6 Respond to video/film versions of a story read aloud through activities such as role-playing, illustrating, and discussing without interruption (All)

#### Science

##### Science as Inquiry

- SI-E-A1 Ask questions about objects and events in the environment (All)
- SI-E-A1 Pose questions that can be answered by using students' own observations and scientific knowledge (All)
- SI-E-A2 Predict and anticipate possible outcomes (All)
- SI-E-A3 Use the five senses to describe observations (All)
- SI-E-A4 Measure and record length and temperature in both metric system and U.S. system units (SM, FK)
- SI-E-A4 Select and use developmentally appropriate equipment and tools and units of measurement to observe and collect data (All)
- SI-E-A5 Express data in a variety of ways by constructing illustrations, graphs, charts, tables, concept maps, and oral and written explanations as appropriate (All)
- SI-E-A6 Use a variety of appropriate formats to describe procedures and to express ideas about demonstrations or experiments (e.g., drawings, journals, reports, presentations, exhibitions, portfolios) (All)
- SI-E-A7 Identify and use appropriate safety procedures and equipment when conducting investigations (All)

## Physical Science

### Properties of Objects and Materials

- PS-E-A1 Identify objects by using the senses (All)
- PS-E-A1 Construct patterns by using color, size, and shape of objects (SM, FK)
- PS-E-A1 Sort objects based on their properties (e.g., size, weight, texture) (SM, FK)
- PS-E-A5 Create and separate mixtures (e.g., oil/water, rice/beans) (FK)

### Position and Motion of Objects

- PS-E-B1 Follow directions using vocabulary such as *front/back*, *above/below*, *right/left*, and *next to* (SM, FK)
- PS-E-B3 Trace the motion of an object, such as a ball or toy car, as it rolls (SM, FK)
- PS-E-B3 Sequence the relative order of the speed of various objects (e.g., snails, turtles, tricycles, bicycles, cars, airplanes) (SM, FK)

### Forms of Energy

- PS-E-C1 Demonstrate and identify sounds as *soft* or *loud* (FK)
- PS-E-C3 Identify objects that give off heat, such as people, animals, and the Sun (FK)

## Life Science

### Characteristics of Organisms

- LS-E-A1 Record observations on the growth of plant seeds (FK)
- LS-E-A2 Classify objects in a variety of settings as *living (biotic)* or *nonliving (abiotic)* (FK)
- LS-E-A4 Identify easily observable variations within types of plants and animals (e.g., features of classmates, varieties of trees, breeds of dogs) (FK)

### Life Cycles and Organisms

- LS-E-B1 Observe life cycles and describe changes (e.g., humans, dogs, insects) (FK)

## Earth and Space Science

### Properties of Earth Materials

- ESS-E-A2 Distinguish between areas of Earth covered by land and water (FK)
- ESS-E-A4 Identify the patterns in information recorded on a weather calendar (FK)

### Objects in the Sky

- ESS-E-B1 Discuss and differentiate objects seen in the day and/or night sky (e.g., clouds, Sun, stars, Moon) (LPFL, FK)

## **Mathematics**

### Number and Number Relations

- N-1-E Count a set of 20 or fewer objects by establishing a 1-to-1 correspondence between number names and objects (All)
- N-1-E Use the ordinal numerals 1<sup>st</sup> through 10<sup>th</sup> to discuss positions in ordered lists (SM, FK)
- N-3-E Compare sets containing 20 or fewer objects using the words *same/different* and *more/less/greater/fewer* (SM, FK)

### Algebra

- A-1-E Use the words *same, different, equal, not equal, greater than, and less than* while using concrete objects for comparative models (SM, FK)

### Measurement

- M-2-E Measure and estimate length and capacity using non-standard units (e.g., sticks, paper clips, blocks, beans) (SM, FK)
- M-3-E Use comparative and superlative vocabulary in measurement settings (e.g., *longest, shortest, most, hottest, heaviest, biggest*) (SM, FK)

### Geometry

- G-1-E Name and identify basic shapes using concrete models (e.g., circles, squares, triangles, rectangles, rhombuses, balls, boxes, cans, cones) (SM, FK)
- G-2-E Compare, contrast, and sort objects or shapes according to two attributes (e.g., shape and size, shape and color, thickness and color)
- G-3-E Use words that indicate direction and position of objects and arrange an object in a specified position and orientation (e.g., *between, behind, above*) (SM, FK)
- G-4-E Draw circles, squares, rectangles, and triangles (SM, FK)

### Data Analysis, Probability, and Discrete Math

- D-1-E Collect and organize data in a simple bar graph using pictures or objects (FK)
- D-2-E Sort, represent, and use information in simple tables and bar/picture graphs (FK)

## **First Grade**

### **Language Arts**

#### Reading and Responding

- ELA-1-E3 Demonstrate ability to read and follow two-step written directions (All)
- ELA-1-E4 Identify story elements, including: speaker or narrator, setting, characters, plot, problems and solutions (All)
- ELA-1-E5 Retell important facts from informational text (All)
- ELA-1-E6 Identify themes in texts and relate themes to personal prior experience or experience of others (All)

- ELA-7-E1 Demonstrate understanding of information in texts using a variety of strategies, including: identifying the main idea and some details in a text, after finishing a story, discuss predictions made during reading to determine whether they were reasonable, making simple inferences about characters and events, resolving questions about meaning by using prior knowledge, basic reasoning skills, context clues, and pictures during read-alouds (All)
- ELA-7-E2 Identify alternative solutions and consequences to a problem in texts (All)

### Speaking and Listening

- ELA-4-E2 Follow classroom procedures (e.g., organizing materials) according to teacher directions (All)
- ELA-4-E2 Give or explain directions for simple processes (e.g., explaining an assignment) to classmates (All)
- ELA-4-E2 Ask questions to clarify directions and/or classroom routines. (All)
- ELA-4-E5 Use active listening strategies (e.g., making eye contact, asking questions, restating acquired information and procedures) to acquire information and understand procedures (All)
- ELA-4-E6 Listen and orally respond to information presented in a variety of media, such as audio and video recordings (All)

### Information Resources

- ELA-5-E2 Use various sources, including print materials and observations, to gather information to explain a topic (All)
- ELA-5-E3 Record data through pictures or words (All)
- ELA-5-E6 Locate and read information on simple charts and graphs (FK)

### Science

#### Science as Inquiry

- SI-E-A1 Ask questions about objects and events in the environment (All)
- SI-E-A1 Pose questions that can be answered by using students' own observations and scientific knowledge (All)
- SI-E-A2 Predict and anticipate possible outcomes (All)
- SI-E-A3 Use the five senses to describe observations (All)
- SI-E-A2 Use a variety of methods and materials and multiple trials to investigate ideas (All)
- SI-E-A4 Measure and record length and temperature in both metric system and U.S. system units (SM, FK)
- SI-E-A4 Select and use developmentally appropriate equipment and tools and units of measurement to observe and collect data (All)
- SI-E-A5 Express data in a variety of ways by constructing illustrations, graphs, charts, tables, concept maps, and oral and written explanations as appropriate (All)
- SI-E-A6 Use a variety of appropriate formats to describe procedures and to express ideas about demonstrations or experiments (e.g., drawings, journals, reports, presentations, exhibitions, portfolios) (All)

- SI-E-A7 Identify and use appropriate safety procedures and equipment when conducting investigations (All)

## Physical Science

### Properties of Objects and Materials

- PS-E-A1 Sort a group of objects by using multiple characteristics (SM, FK)
- PS-E-A1 Order objects by weight/mass (FK)
- PS-E-A2 Measure length and width of a variety of objects and materials by using nonstandard tools, such as a paper clip, cube, shoe, and hands (SM, FK)
- PS-E-A4 Observe and describe common properties of solids, liquids, and gases (FK)
- PS-E-A4 Sort and classify objects by their state of matter (FK)

### Forms of Energy

- PS-E-C1 Demonstrate how sound is made in a variety of ways (e.g., singing, whispering, striking an object) (FK)
- PS-E-C1 Describe and demonstrate the volume of sound (e.g., soft, loud) (FK)
- PS-E-C2 Use a flashlight and various objects and materials to determine if light is transmitted or reflected (FK)
- PS-E-C2 Demonstrate that light can be reflected onto another object by using a mirror (FK)
- PS-E-C3 Identify some examples where heat is released (e.g., burning candles, rubbing hands, running) (FK)
- PS-E-C6 Discuss what type of energy makes objects work (e.g., car/gasoline, waterwheel/water, lamp/electricity) (FK)

## Life Science

### Characteristics of Organisms

- LS-E-A1 Describe the differences between plants and animals (FK)
- LS-E-A1 Identify what animals and plants need to grow and develop (FK)
- LS-E-A2 Describe the characteristics of *living (biotic)* and *nonliving (abiotic)* things (FK)

### Life Cycles of Organisms

- LS-E-B1 Record and share observations of changes in developing plants (FK)

### Organisms and Their Environments

- LS-E-C1 Describe features of some animals that benefit them in their environments (FK)
- LS-E-C2 Record evidence of plants and animals in the schoolyard or other environments (FK)

## Earth and Space Science

### Properties of Earth Materials

- ESS-E-A1 Examine soils to determine that they are often found in layers (FK)

- ESS-E-A2 Locate and compare the relative proportions of land and water found on Earth (FK)
- ESS-E-A3 Illustrate how water changes from one form to another (e.g., freezing, melting, evaporating) (FK)
- ESS-E-A4 Compare weather patterns as they relate to seasonal changes in students' immediate environment (LPFL, FK)
- ESS-E-A6 Identify the characteristics of soil, according to color, texture, and components, including *living (biotic)* and *nonliving (abiotic)* substances (FK)

## **Mathematics**

### Number and Number Relations

- N-2-E Apply estimation strategies to estimate the size of groups up to 20 (SM, FK)

### Measurement

- M-1-E Measure length to the nearest inch and centimeter using appropriate tools (SM, FK)
- M-2-E Select appropriate non-standard units for linear measurement situations (e.g., sticks, blocks, paper clips) (SM, FK)
- M-2-E Identify the thermometer as a tool for measuring temperature (FK)

### Geometry

- G-1-E Compare, contrast, name, and describe attributes (e.g., corner, side, straight, curved, number of sides) of shapes using concrete models [circle, rectangle (including square), rhombus, triangle] (SM, FK)
- G-3-E Identify congruent shapes (i.e., same size and shape) in a variety of positions and orientations (SM, FK)

### Data Analysis, Probability, and Discrete Math

- D-1-E Determine whether an object satisfies a simple logical classification rule (e.g., belongs and does not belong) (SM, FK)
- D-5-E Appropriately use basic probability vocabulary (e.g., *more likely to happen/less likely to happen, always/never, same as*) (SM, FK)

## **Second Grade**

### **Language Arts**

#### Reading and Responding

- ELA-1-E4 Identify story elements, including effects of setting on events and characters (All)
- ELA-1-E6 Make statements about how previous reading and life experiences relate to information read in texts (All)
- ELA-7-E1 Demonstrate understanding of information in texts using a variety of strategies, including: comparing and contrasting story elements (e.g., character, setting, events), predicting what will happen next in a story or a text, making

simple inferences about information in texts, self-monitoring consistently for comprehension using multiple strategies and self-correcting as appropriate (All)

- ELA-7-E2 Discuss and choose the most appropriate solution to a problem in texts (All)
- ELA-7-E4 Apply basic reasoning skills, including: discussing the relationship between cause-effect, asking questions about texts read independently including why and how (All)

#### Speaking and Listening

- ELA-4-E2 Give/relate multi-step directions to classmates (All)
- ELA-4-E5 Use active listening strategies, including asking for clarification and explanations (All)
- ELA-4-E5 Give oral responses, including: telling stories and personal experiences, giving explanations and reports (All)
- ELA-4-E6 Compare ideas from a wide variety of media (All)

#### Information Resources

- ELA-5-E2 Locate information about a topic from a variety of sources, including children's magazines, children's encyclopedias, and electronic references (All)
- ELA-5-E5 Tell and write about the sources of learned information (All)
- ELA-5-E6 Locate and read information on a chart, graph, diagram, map, and simple timeline (FK)

### Science

#### Science as Inquiry

- SI-E-A1 Ask questions about objects and events in the environment (All)
- SI-E-A1 Pose questions that can be answered by using students' own observations, scientific knowledge, and testable scientific investigations (All)
- SI-E-A2 Use observations to design and conduct simple investigations or experiments to answer testable questions (All)
- SI-E-A2 Predict and anticipate possible outcomes (All)
- SI-E-A3 Use the five senses to describe observations (All)
- SI-E-A2 Use a variety of methods and materials and multiple trials to investigate ideas (All)
- SI-E-A4 Measure and record length and temperature in both metric system and U.S. system units (SM, FK)
- SI-E-A4 Select and use developmentally appropriate equipment and tools and units of measurement to observe and collect data (All)
- SI-E-A5 Express data in a variety of ways by constructing illustrations, graphs, charts, tables, concept maps, and oral and written explanations as appropriate (All)
- SI-E-A6 Use a variety of appropriate formats to describe procedures and to express ideas about demonstrations or experiments (e.g., drawings, journals, reports, presentations, exhibitions, portfolios) (All)
- SI-E-A7 Identify and use appropriate safety procedures and equipment when conducting investigations (All)

## Physical Science

### Properties of Objects and Materials

- PS-E-A1 Classify objects as *bendable* or *rigid* (SM, FK)
- PS-E-A1 Record the temperature of objects (Celsius and Fahrenheit) (LPFL, FK)
- PS-E-A2 Use standard tools to measure objects or materials (e.g., ruler, meter stick, measuring tape, pan balance, thermometer, graduated cylinder) (SM, FK)
- PS-E-A3 Observe, describe, and record the characteristics of materials that make up different objects (e.g., metal, nonmetal, plastic, rock, wood, paper) (All)
- PS-E-A5 Describe and illustrate what remains after water evaporates from a salt or sugar solution (FK)

### Position and Motion of Objects

- PS-E-B3 Observe and describe differences in motion between objects (e.g., toward/away, cardinal directions) (FK)

### Forms of Energy

- PS-E-C1 Use students' own voices to demonstrate pitch (e.g., low, high) (FK)
- PS-E-C1 Give examples of objects that vibrate to produce sound (e.g., drum, stringed instrument, end of a ruler, cymbal) (FK)
- PS-E-C2 Change the direction of light by using a mirror and/or lens (FK)
- PS-E-C2 Describe how light behaves when it strikes objects and materials (e.g., transparent, translucent, opaque) (FK)
- PS-E-C7 Identify and describe sources of energy used at school, home, and play (FK)

## Life Science

### Characteristics of Organisms

- LS-E-A1 Match the appropriate food source and habitat for a variety of animals (FK)
- LS-E-A3 Describe structures of plants (e.g., roots, leaves, stems, flowers, seeds) (FK)
- LS-E-A3 Compare differences and similarities among a variety of seed plants (FK)
- LS-E-A4 Identify physical characteristics of organisms (e.g., worms, amphibians, plants) (FK)

### Life Cycles of Organisms

- LS-E-B1 Compare the life cycles of selected organisms (e.g., mealworm, caterpillar, tadpole) (FK)
- LS-E-B3 Describe inherited characteristics of living things (FK)

### Organisms and Their Environments

- LS-E-C1 Identify the components of a variety of habitats and describe how organisms in those habitats depend on each other (FK)

## **Earth and Space Science**

### Properties of Earth Materials

- ESS-E-A1 Observe and record the properties of rocks, minerals, and soils gathered from their surroundings (e.g., color, texture, odor) (FK)
- ESS-E-A2 Compare bodies of water found on Earth (e.g., oceans, seas, lakes, rivers, glaciers) (FK)
- ESS-E-A4 Gather, record, and graph weather data (e.g., precipitation, wind speed, wind direction, temperature) using appropriate instruments (FK)

### Objects in the Sky

- ESS-E-B1 Describe characteristics of the Sun, stars, and Earth's moon (e.g., relative size, shape, color, production of light/heat) (LPFL, FK)
- ESS-E-B5 Give examples of how the Sun affects Earth's processes (e.g., weather, water cycle) (FK)

### Science and the Environment

- SE-E-A2 Locate and identify plants and animals within an ecosystem (FK)
- SE-E-A2 Illustrate and describe a simple food chain located within an ecosystem (FK)
- SE-E-A2 Identify the Sun as the primary energy source in a food chain (FK)
- SE-E-A5 Describe ways in which habitat loss or change can occur as a result of natural events or human impact (FK)
- SE-E-A5 Describe and give examples of threatened or endangered species (FK)

## **Mathematics**

### Number and Number Relations

- N-2-E Make reasonable estimates of the number of objects in a collection with fewer than 100 objects (SM, FK)

### Measurement

- M-1-E Measure and appropriately label measures of length and perimeter (i.e., inch, centimeter, foot), capacity (i.e., cup, quart, liter), and weight/mass (i.e., pound, kilogram) (SM, FK)
- M-1-E Read a thermometer in degrees Fahrenheit and Celsius and interpret the temperature (FK)
- M-2-E Select and use appropriate tools and units to measure length, time, capacity, and weight (e.g., scales for pounds and kilograms; rulers for inches and centimeters; measuring containers for cup, quarts, and liters) (SM, FK)
- M-3-E Estimate length in standard units (inch, foot, and centimeter) (SM, FK)

## Geometry

- G-2-E Compare and contrast 3-dimensional shapes (i.e., sphere, cube, cylinder, cone, prism, pyramid) according to their attributes (e.g., number of faces, shape of faces) (SM, FK)
- G-3-E Identify congruent 3-dimensional solids in a variety of positions and orientations (SM, FK)

## Data Analysis, Probability, and Discrete Math

- D-1-E Collect and organize data using observations, surveys, and experiments (All)
- D-3-E Generate questions that can be answered by collecting and analyzing data (All)