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ABSTRACT

This document presents a sample of the Arkansas science curriculum and identifies the content standards for physical science systems, life science systems, and Earth science/space science systems for third grade students. Each content standard is explained and includes student learning expectations, third grade benchmarks, assessments, and strategies and activities. (YDS)

Third Grade Level Science Sample Curriculum

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Third Grade Level Science

STRAND 1: PHYSICAL SYSTEMS
CONTENT STANDARD 1
Students will demonstrate an understanding of physical systems as a process of inquiry.

Student Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
PS.1.1. Examine the techniques of *scientific inquiry*, problem solving, questioning, reasoning, and creative decision making by utilizing the *scientific method*.	Students use inquiry methods to form written hypotheses. Students will participate in simple experiments and observe the experiment. Students understand the importance of accuracy and repetition in conducting experiments. Students will make predictions and test them.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Teacher places a common object in a small sealed cardboard box for students to identify without opening the box. Have students measure the temperature of 20 glasses of water left in the sun light in the same spot for the same time. They will then average and compare temperatures.
PS.1.2. Use simple equipment (microscopes), age-appropriate tools (rulers, thermometers), skills (describing and writing), technology (computers) and mathematics in scientific investigations.	Students are aware of safety rules and can identify these rules on exams. Students will use scientific tools and computers, appropriate for their age, to study or learn about the natural world. Student will use mathematics (calculators) and writing to examine and describe the world. Students can measure length and weight in English and metric systems.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Students can cite teacher's safety rules. Have students use science equipment and calculators to investigate their world and then write about their experiences. Have students use both English and metric systems.
PS 1.3. Communicate designs, procedures, and results of scientific investigations (graphs, charts, and writings).	Students can make simple graphs and charts of their results from their observations.	Statewide Test Teacher-made Test Teacher Observation Checklist Performance-based Test Demonstration Log/Journal Essay Writing	Have students create simple graphs and charts to show the results of observations.

STRAND 1: PHYSICAL SYSTEMS CONTENT STANDARD 2 Students will explore, demonstrate, communicate, apply, and evaluate the knowledge of physical systems.			
Student Learning Expectations	**Third Grade Benchmarks**	**Assessments**	**Strategies/Activities**
PS.2.1. Recognize the differences and similarities of *solids*, *liquids* and *gases*.	Students can name the observable properties of solids, liquids, and gases. Students can recognize the effects of heating and cooling on solids, liquids, and gases.	Statewide Test Teacher-made Test Teacher Observation Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students name the properties of the three states of matter. Have students predict and test what will happen when a substance is heated or cooled.
PS.2.2. Understand the physical properties of objects.	Students can describe how heating and cooling of matter will speed up or slow down the motion of the small particles within matter.	Statewide Test Teacher-made Test Teacher Observation Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students describe that heating or cooling of matter speeds up or slows down the small particles of matter.
PS.2.3. Learn about the physical world by observing, data collecting, using age-appropriate tools, describing, and hypothesizing.	Students are aware of safety rules and can identify these rules on exams. Students can make accurate observations using microscopes and hand lenses. Students know that everything is composed of small particles that cannot be seen using scientific tools available in an elementary classroom.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Students can identify teacher safety rules on exams. Have students view under a microscope and identify flower or insect parts that cannot be seen with the naked eye. Have students view salt and iron filings under the microscope.
PS.2.4. Revise *hypothesis* by sharing and communicating observations through writing.	Students distinguish between a guess and a hypothesis.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students define the words guess and hypothesis, give examples of each, and identify them in examples.

Student Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
PS.2.5. Explore energy changes.	Students observe energy changes in teacher-led experiments where light is used to heat an object or where heating of an object can cause it to glow.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Teacher shines strong light on dark paper. Teacher heats a paper clip in a flame held by pliers until it glows.
PS.2.6. Identify *chemical* and *physical changes*.			
PS.2.7. Classify simple machines and relate them to inventions and discoveries.	Students can identify examples of simple machines from drawings. Students can use wooden blocks to construct simple levers and wedges.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students use pictures to identify simple machines. Have students experiment with wood sticks, blocks, and wedges to construct levers and wedges.
PS.2.8. Explore the effects of applying various types of *forces* to an object (push/pull).	Students know that a force is any push or pull on an object. Students can describe the motion of objects (forward, backward, circular, wave, etc.).	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students apply different forces on toy cars, airplanes, Slinkys, or a ball attached to a string, and describe the results.

STRAND 1: PHYSICAL SYSTEMS CONTENT STANDARD 2 Students will explore, demonstrate, communicate, apply, and evaluate the knowledge of physical systems.			
Learning Expectations	**Third Grade Benchmarks**	**Assessments**	**Strategies/Activities**
PS.2.9. Identify and compare the relationships between *mass/weight, force,* and *motion.*	Students know that the weight of an object is equal to the sum of its parts. Students know that an object may move in a straight line at a constant, faster, or slower speed, or change direction dependent on a force acting on the object.. Students can identify, but may not understand, the concepts of mass/weight, force, and motion.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students build something with Lego's and weigh it and the weigh the parts. Have students chart the path of a marble across the classroom floor as it bumps into other objects. Show students regular weight scales and compare to mass-balance scales.
PS.2.10. Examine properties, types, and uses of magnets.	Students examine how different shaped magnets work and what is attracted to them.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students experiment with how different shaped magnets (horseshoe, bar, round, etc.) work and what is attracted to them.
PS.2.11. Analyze and compare the relationship between magnets and electricity.	Students understand the relationship between magnetism and electricity.	Statewide Test Teacher-made Test Teacher Observation Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students observe the teacher making an electromagnet by wrapping a nail with wire and connecting it to a "D" battery. (When current is applied, electromagnet can pick up another nail.)
PS.2.12. Experiment with *static* and *current electricity.*	Students know that moving electrical charges in a closed circuit can run motors, light bulbs, produce heat, etc. Students can name several conductors and insulators of electricity.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Demonstration Log/Journal Essay Writing	Set up a demonstration of a simple circuit using a small Christmas tree light bulb and some copper wire attached to the positive and negative ends of an "D" size battery.

Student Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
PS.2.13. Determine the relationship between vibration and sound.	Students can produce musical instruments with rubber bands or strings of various lengths to determine the relationship between length and the sounds produced.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students stretch rubber bands or strings across boxes to produce sound.
PS.2.14. Explore the properties of light (e.g., *reflection, refraction, absorption, translucent, transparent,* and opaque).	Students will experiment with light passing through a prism. Students will experiment with different colored light sources projected onto different colored objects to test absorption of colors.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students let light pass through a prism and describe what happens. Have students experiment with different colored light to see how different colored objects appear.

STRAND 1: PHYSICAL SYSTEMS CONTENT STANDARD 3 Students will demonstrate an understanding of the connections and applications of physical science.			
Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
PS.3.1. Understand that physical science is interwoven into the structure of all disciplines.	Students can write about how history has changed because of inventions based on the physical sciences.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students research important inventions. Have them write an essay on "A World Without _____" or rank the ten most important inventions of the century or decade.
PS.3.2. Recognize that mathematics is the basis of communication in physical science.	Students can add and subtract numbers in science experiments. Students give estimates of numerical answers to problems before calculating. Students can use both basic English and metric systems in answers to problems.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Students use numerical data and make estimates about correct answers and use either English or the metric system in working with data.

Student Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
PS.3.3. Understand that tools allow tasks to be done more easily.	Students can name various kinds of instruments used in science (measuring sticks, timing devices, microscopes, balances, collecting nets, magnets, hot plates, etc.).	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students identify science equipment by name and purpose in a lab test.
PS.3.4. Explore physical science related careers.	Students can name professions in their community that use knowledge about light and sound.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students brainstorm professions that use knowledge of light and sound in their everyday work.

STRAND 2: LIFE SCIENCE SYSTEMS
CONTENT STANDARD 1
Students will demonstrate an understanding of life science as a process of inquiry.

Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
LS.1.1. Utilize the *scientific method* to investigate life sciences.	Students use inquiry methods to form written hypotheses about common objects placed in a sealed box. Students will participate in simple experiments and observe the experiment. Students understand the importance of accuracy and repetition in conducting experiments. Students will make predictions and test them.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Teacher collect 10 or so common objects and seal each in a shoebox or a large matchbox so the objects cannot be seen. Have students use experimentation, without opening the boxes, to predict what the objects are. Have students grow plants in shade and full sun and compare results.

Student Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
LS.1.2. Select age-appropriate equipment and utilize technology and mathematics in the inquiry of life science.	Students are aware of lab safety rules and can identify these rules on exams. Students will use scientific tools and computers appropriate for their age to study or learn about the nature world. Students will use mathematics (calculators) and writing to examine and describe the natural world. Students can measure length and weight in English and metric systems.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Test students on safety rules. Have students use science tools in the classroom. Have students use mathematics and writing skills in science activities. Have use of both English and metric measurements. Have eight teams of students measure the same length of an object in metric and compare results.
LS.1.3. Generate graphs, writings, and charts to communicate life science investigations.	Students can make simple graphs and charts of their results from their observations.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students gather data on several classrooms of students to see how many boys and how many girls have attached earlobes. Graph the results.

STRAND 2: LIFE SCIENCE SYSTEMS CONTENT STANDARD 2 Students will explore, demonstrate, communicate, apply and evaluate the knowledge of life systems.			
Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
LS.2.1. Identify and compare characteristics of living and nonliving things.	Students understand that living things can reproduce, and nonliving things cannot reproduce.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Demonstration Log/Journal Essay Writing	Name reproduction as one thing that distinguishes living from nonliving. For example, why can't Beanie Babies have babies?

Student Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
LS.2.2. Explore cells in *organisms*.	Students know that processes needed for life are carried out by cells.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Demonstration Log/Journal Essay Writing	Have students view pictures of plant and animal cells.
LS.2.3. Identify and investigate the functions of body systems in *organisms*.	Students can describe the functions of four body systems (nervous, respiratory, digestive, and circulatory) in animals. Students can name the functions of leaves, stems, and roots in plants.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Play Concentration with pictures of the body systems on one card and the function on the matching card. Have students use an anatomy apron to locate body parts. Have students construct a plant factory with different areas having different functions.
LS.2.4. Recognize patterns and characteristics of *organisms*.	Students recognize that living things need food, water, space, and shelter. Students can tell the difference between plants and animals.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students draw pictures of their favorite animal and draw all the things that animal will need to survive. Do the same with a favorite plant.
LS.2.5. Explore the life cycles of *organisms*.	Students can describe the life stages of animals from birth, young learning from adults, becoming independent, reproducing and dying. Students can describe the life stages in some plants from seed growth, developing leaves, making food, developing seeds, and dying.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students use tongue depressor or Popsicle stick puppets to put on a play that describes the life stages of an animal they choose. Gather pictures of stages of a plant's development and have students sort the order correctly.

Student Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
LS.2.6. Name some common animals that no longer exist (e.g., dinosaurs and mammoths)	Students understand that some animal species have died out because changes in the climate caused depletion of food sources and loss of habitat.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students identify changes in the climate, food sources depletion, and loss of habitat that have caused some species to die and become extinct.
LS.2.7. Understand that offspring are similar to their parents.	Students can recognize how they are similar to their biological parents and siblings.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	With parents' permission, select six students who can supply pictures of the entire family. Compare student, parents, and siblings. Have students list similarities and differences.
LS.2.8. Identify the features of plants and animals that enable them to live in different environments.	Students can name special features (e.g., gills, wings, fur, size, leaf shape, thorns, etc.) that enable organisms to live in different environments.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Show a habitat picture and have students design an animal to fit the environment. They must be able to explain how the special feature helps the animal fit the environment.
LS.2.9. Define and describe a *food chain* and a *food web*.	Students can describe in writing the roles of producers, consumers, and decomposers in food chains and webs.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Visit a rotting log and have students identify the role of each organism that is found in the log.

Student Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
LS.2.10. Understand that *organisms* are interdependent.	Students can name nonliving parts of the environment that organisms are dependent upon.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Imagine a walk through a park without seeing anything living. What would the park look like in one year? Have students write about this park.

STRAND 2: LIFE SCIENCE SYSTEMS CONTENT STANDARD 3 Students will demonstrate an understanding of the connections and applications in life sciences.			
Learning Expectations	**Third Grade Benchmarks**	**Assessments**	**Strategies/Activities**
LS.3.1. Understand that life sciences are interwoven into all disciplines.	Students can write about how history has changed because of inventions from the life sciences.	Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students choose the most important inventions in the life sciences in the last 100 years.
LS.3.2. Recognize that mathematics is the basis of communication in life science.	Students can add and subtract numbers in science experiments. Students give estimates of numerical answers to problems before calculating. Students can use both basic English and metric systems in answers to problems.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have the students guess what the weight of a candy wrapper is. Weigh a candy bar in the wrapper and then weigh the candy bar without the wrapper and then subtract to get the weight of the wrapper. Students can do the above in English and metric systems.
LS.3.3. Identify that humans change environments in ways that can be beneficial or detrimental for themselves and other *organisms*.	Students can measure the amount of solid waste produced at their homes over a week's time. Students can research and write about where their drinking water comes from and where it goes after use.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students collect and weigh trash bags from home and record results. Have students research where local drinking water comes from and where it goes when it goes down the drain.

LS.3.4. Explore careers related to life sciences.	Students can identify careers in the life sciences.	Teacher-made Test Teacher Observation Portfolio Exhibition Demonstration Log/Journal Essay Writing	Have students research on the Internet careers of agri-biologists, zoologists, and botanists and compile the educational needs of these professions.

STRAND 3: EARTH/SPACE SYSTEMS

CONTENT STANDARD 1

Students will demonstrate an understanding of the inquiry process through the study of earth and space systems.

Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
ES.1.1. Utilize the *scientific method* to investigate earth/space systems.	Students will participate in simple experiments and observe experiments. Students understand the importance of accuracy and repetition in conducting experiments. Students will make predictions and test them.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students drop vinegar on limestone and describe the results. Have students stand in a large circle and whisper a phrase to one student. Pass this whisper down the line. Check what the last person hears for accuracy.
ES.1.2. Select appropriate equipment and utilize technology and mathematics in the inquiry of earth/space systems.	Students are aware of safety rules and can identify these rules on exams. Students will use scientific tools and computers, appropriate for their age, to study or learn about the natural world. Students will use mathematics (calculators) and writing to examine and describe the natural world. Students can measure length and weight in English and metric systems.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Students can identify safety rules on a teacher-made test. Students can use the tools of science, operate calculators, write about their scientific studies, and measure in both English and metric systems.
ES.1.3. Generate graphs, writings, and charts to communicate earth/space systems investigations.	Students can make simple graphs and charts of results from their observations.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students make scientific observations and graph or chart their findings.

STRAND 3: EARTH/SPACE SYSTEMS CONTENT STANDARD 2 **Students will explore, demonstrate, communicate, apply and evaluate knowledge of the properties of earth and space systems.**			
Learning Expectations	**Third Grade Benchmarks**	**Assessments**	**Strategies/Activities**
ES.2.1. Recognize and classify different types of earth materials.	Students can distinguish sandstone from limestone rocks in Arkansas.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Drop vinegar on limestone and sandstone rocks. Limestone will bubble. Look for the sand grains in sandstone. (See resource list.)
ES.2.2. Describe major features of the earth's surface and how it is affected by natural changes.	Students can demonstrate erosion of a soft dirt surface by wind or water.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students build a stream table (a wide board with thin edges with dirt placed on it) and test different soils.
ES.2.3. Identify the natural divisions of Arkansas.	Students can name the geologic features of each of the six natural divisions in Arkansas.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students name the six natural divisions of Arkansas and describe the geologic features of each division. (See resource list.)
ES.2.4. Understand that the Earth is layered (*crust, mantle, and core*).	Students understand that the Earth's crust is brittle and floats on top of a more motile mantle.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students float bread slices on a pan of jelly or Jello. Students cause the two slices of bread to push against each other to illustrate mountain building.

Student Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
ES.2.5. Investigate seasonal changes in weather and factors that affect weather conditions.	Students can discern seasonal changes in the weather.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students identify weather conditions (fair weather, rain, storm clouds, etc.) as shown in pictures or experienced in the environment.
ES.2.6. Describe the *water cycle.*	Students can name the stages in the water cycle (evaporation, condensation, and precipitation). Students can explain the water cycle.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students create and label a water cycle model that includes run-off water.
ES.2.7. Discuss land forms in the ocean and how they change.	Students can identify ocean floor landforms such as spreading zones, trenches, volcanoes, etc.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have the class construct an ocean-bottom relief map using clay.
ES.2.8. Analyze the features and motions of the sun, moon, earth and other celestial bodies (e.g., *solar system*, moon phases, earth's *rotation* and *revolution*).	Students know that each time the Earth completes on rotation, one day has passed, and this takes 24 hours. Students know that the moon rotates around the Earth every 28 days. Students know that stars and planets are always in the sky. Students can name the planets around our sun.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Set up flashlight models to illustrate the Earth's rotation around the sum. Demonstrate the passage of one day with this model. Add the moon to the model. Discuss why we cannot see the stars during the daylight. Use the mnemonic "My very elegant mother just served us nine pizzas" to name the planets.

STRAND 3: EARTH/SPACE SYSTEMS CONTENT STANDARD 3 Students will demonstrate an understanding of the connections and applications of earth and space systems.			
Learning Expectations	**Third Grade Benchmarks**	**Assessments**	**Strategies/Activities**
ES.3.1. Understand and appreciate the uses of water.	Students know about our water source, use, and/or treatment.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students research and prepare a report or project about where drinking water comes from and where it goes after use.
ES.3.2. Describe uses and conservation of materials taken from the earth.	Students know about collecting and using natural resources found in the earth.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Invite guest speakers to discuss mining resources. Have students research (print and nonprint resources) for information and prepare a report or project about natural resources found in the soil, how they are mined, and how they affect the environment.
ES.3.3. Identify the effect humans have on the environment (e.g., use and misuse).	Students can measure the amount of solid waste produced at their homes over a week's time.	Statewide Test Teacher-made Test Teacher Observation Portfolio Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students collect dry, solid waste (not wet waste) at home and weigh it for a week. Bring the weight numbers to school (not the waste).
ES.3.4. Understand how earth/space systems connect to other disciplines.	Student can write about how space exploration affects their daily lives.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students write about how space exploration affects our lives.

Student Learning Expectations	Third Grade Benchmarks	Assessments	Strategies/Activities
ES.3.5. Recognize the importance of mathematics as the basis of communication in earth/space systems.	Students can add and subtract numbers in science experiments. Students give rough estimates of numerical answers to problems before calculating.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students add and subtract data in science experiments. Have students guess answers before solving mathematics-science problems.
ES.3.6. Use age-appropriate equipment, tools, techniques, technology, and mathematics in *scientific investigation* of earth/space systems.	Students are aware of safety rules and can identify these rules on exams. Students will use scientific tools and computers, appropriate for their age, to study or learn about the natural world. Students will use mathematics (calculators) and writing to examine and describe the natural world. Students can measure length and weight in English and metric systems.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Students can identify safety rules on exams. Have students use appropriate science tools in their classroom. Have students use math to solve science problems. Have students and teacher use English and metric systems in the classroom.
ES.3.7. Explore careers related to earth/space science.	Students know about professions that use knowledge about weather and climate.	Statewide Test Teacher-made Test Teacher Observation Portfolio Checklist Performance-based Test Exhibition Demonstration Log/Journal Essay Writing	Have students research the professions that use knowledge of weather and climate.

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