LITTLE ROCK SCHOOL DISTRICT
Curriculum Map

1st Grade Science

Science in black
Literacy connections in green
Health connections in blue

Table of Contents

1st grade Science

The adopted series has many extra resources in the Teacher Edition under References and Resources and in the other resource materials provided. Be sure to use the **Harcourt Science** Support for Arkansas Student Learning Expectations for Science.

- *Teaching Notes for the Leveled Readers* are found in the Teacher Editions on pages R58-R69 as well as in a resources guide.
  NOTE: Advanced students should read both the On-Level Readers and the Advanced-Level Reader.
- Assessments: The adopted series has assessments in the Assessment Guide and The Preparation for Arkansas Science Assessment that are not all referenced in this map.
- The **Nature of Science SLEs** are listed together as a reference. They should be taught and reviewed ongoing and used as frequently as possible as students are investigating and completing other science activities. These are core foundations for understanding science and building knowledge. The Teacher Edition has more info on Inquiry Skills. (T8)

Strand 1: Nature of Science Standard 1: Characteristics and Processes of Science: Students shall demonstrate and apply knowledge of the characteristics and processes of science using appropriate safety procedures, equipment, and technology.

Inquiry and Process Skills:

NS.1.1.1 Communicate observations orally, in writing, and in graphic organizers: T-charts pictographs
NS.1.1.2 Ask questions based on observations
NS.1.1.3 Conduct *scientific investigations* as a class and in teams: *lab activities* *field studies*
NS.1.1.4 Estimate and measure length and *temperature* using International System of Units (SI) as a class
NS.1.1.5 Collect measurable *empirical evidence* as a class and in teams
NS.1.1.6 Make predictions as a class and in teams based upon *empirical evidence* (e.g., predict which object is heavier)

Scientific Equipment and Technology:

NS.1.1.7 Use age appropriate equipment and tools in *scientific investigations* (e.g., balances, hand lenses, rulers, and *thermometers*)
NS.1.1.8 Apply appropriate rules of safety related to daily activities
NS.1.1.9 Apply lab safety rules as they relate to specific science *lab activities* (see Arkansas Lab Safety Guide)

Science Process Skills

- Observe
- Classify
- Estimate and Measure
- Infer & predict
- Make and Use Models
- Make Operational Definitions
- Form Questions and Hypotheses
- Collect Data
- Interpret Data
- Investigate and Experiment
- Identify and Control Variables
- Communicate
- Health Safety by washing hands after all lab activities

The student edition is available on line after registering here: http://www.eharcourtschool.com/ . You will need the IBSN of Volume 1. These pages, as well as activities from links below, may be used on a SmartBoard.

http://www.harcourtschool.com/menus/science2009/grade1_nl.html
http://www.harcourtschool.com/menus/science/scilinks_teachers.html
http://www.harcourtschool.com/teacher_resources/webliography/index7.html
http://www.harcourtschool.com/menus/science/activities_index_nl.html

1st Grade Nature of Science SLEs

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1st Grade Science

Month/SLEs	Content/Skills	Essential Questions	Assessments	Lab Activities	Strategies/Resources
August SLEs=Student Learning Expectations ESS.8.1.3 Chart weather conditions everyday ESS.8.1.4 Identify the sequence of seasons. Summer PEL.2.1.1 Distinguish between upper, lower, left, and right body parts LS.2.1.3 (HW.6.1.1) Locate the following human body parts: heart, lungs, brain, stomach, muscles, bones PEL.3.1.2 Understand that the heart is a muscle that pumps blood throughout the body NS.1.1.9 (HW.11.1.9)Apply lab safety rules as they relate to specific science *lab activities* (see Arkansas Lab Safety Guide)and lifetime activities NS.1.1.8 Apply rules of safety to daily activities. NS.1.1.1 Communicate observations orally NS.1.1.2 Ask questions based on observations	**Inquiry Focus**: • *Identify* • Record • Describe • Observe *Vocabulary:* • *Weather* • *Summer* • *human body parts* • pupil • iris • eardrum • muscles • brain • stomach • intestines • lungs • heart	*How can we measure weather?* *Describe the characteristics of summer.* *Differentiate among different body parts.* Where are the basic internal body parts located?	"Label the Parts of the Body" *Draw a picture of a human body. Illustrate and label the heart, lungs, brain, stomach, muscles, and bones. Record a function of one of the parts listed.* *Describe how summer weather affects living things*	**Harcourt Science** T.E. pp. PEL.3.1.1 Show where the heart is and describe its approximate size and shape "Those Bones!" (Activities R4-R5) Materials needed – x ray film or pictures HW.11.1.7 Identify primary and permanent teeth HW.6.1.2 Describe changes of the body that occurs as a result of growth and development. "Name That Part," (Activities R6-R7) no materials needed	***Harcourt Leveled Readers*** *Seasons – Below Level* *The Four Seasons – On Level* *Four Seasons on a Farm – Advanced Level* **Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 2 p1-4 Harcourt School Publishers – Life Science: Units A and B (R1 – R13) Introduction to the Unit: Me and My Amazing Body by Joan Sweeney, Crown Publishers, 1999 "Your Senses," R1 – R3; "Your Skeletal System," R4; "Your Muscular System," R5; "Your Nervous System," R6; "Your Digestive System," R7; "Your Respiratory System," R8; "Your Circulatory System," R9

Month/SLEs	Content/Skills	Essential Questions	Assessments	Lab Activities	Strategies/Resources
September ESS.8.1.3 Chart weather conditions everyday NS.1.1.4 Estimate and measure length and temperature using International System of Units (SI) as a class PS.5.1.1 Compare and contrast objects according to the simple properties of size, color, shape, texture, magnetism. PS.5.1.2 Identify characteristics of solids and liquids PS.6.11 List orally the various ways that objects can more, including but not limited to straight, zig-zag, back and forth, round and round, fast and slow PS.6.1.2 Investigate the relationship between mass and weight STC Kit – Solids and Liquids	**Inquiry Focus**: • *Investigate* • Record • Describe • Observe Vocabulary: • *Matter* • *Properties* • Volume • *Solid* • *Liquid* • Mixture • Length • Mass • Dissolve • Float • Sink	*Classify solids and liquids* *How can objects be compared and contrasted according to their properties?*	Is it a Solid or a Liquid? *Given a box of solids (from the STC kit) categorize the objects in groups and explain your reason for the groups chosen.* PEL.1.1.2 Move in various directions through various pathways in regard to other students and objects.	**Harcourt Science** T.E. pp. Δ STC Teacher's Guide, Solids and Liquids "Matter Matters" Δ "Observing Properties" p. 25 Δ "Observing and Describing Two Solids" p. 17 Δ "Comparing Solids that Roll with Solids that Stack" p. 33 Δ "Investigating Solids in Water" p. 61 Δ "Testing Solids with a Magnet" p. 69 Δ "Investigating Liquids" p. 101 Δ "Comparing Solids and Liquids" p. 145 "What Can We Observe About Liquids? P. 326 "Liquid Race"	**Harcourt Leveled Readers** *All about Matter – Below Level* *What is Matter – On Level* *Fantastic Fruit – Advanced Level* Harcourt School Publishers – Physical Science: Unit E "What is Matter?" p. 312 "What Can We Observe About Solids?" p. 318 "How Do Magnets Make Things Move," Harcourt Science, pp. 400-408 **Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 8 p34-36 Mass and Weight Optional Extension Activities: • www.unitedstreaming.com Properties of Matter, Part 2: Solids, Liquids, and Gases Scholastic Science Place, ScienceMats Solids, Liquids, and Gases (States of Matter and How They Change) – Lesson 2-5, 8-9, 13

Month/SLEs	Content/Skills	Essential Questions	Assessments	Lab Activities	Strategies/Resources
October ESS.8.1.4 Identify the sequence of the seasons ESS.8.1.5 Demonstrate safety procedures related to severe weather ESS.8.1.6 Read a Celsius thermometer in class PEL.5.1.2 Share equipment safely and properly with a partner or group PS.7.1.4 Chart temperature over time using a Celsius thermometer NS.1.1.4 Estimate and measure length and temperature using International System of Units (SI) as a class PEL.5.1.1 Recognize acceptable behavior while participating in activities.	**Inquiry Focus**: • *Chart* • *Record* Vocabulary: • Weather • *Temperature* • *Thermometer* • Water cycle • Evaporate • Water vapor • Condense • Season • Spring • Summer • Fall • Migrate • Winter	*Describe the characteristics of fall.* *List safety precautions for severe weather.*	Harcourt School Publishers – Earth Science (p.281 TE) "A Book About Seasons" *Chart temperature for a week and put it into a graph.* *Go outside to observe the weather and use what you have observed to draw a picture that shows today's weather and predict what the weather will be tomorrow.*	**Harcourt Science** "Measure Temperature" p. 231 materials needed – thermometer, red crayon; "Weather Safety" p. 245 TE, Extend the Activity materials needed – poster, markers HW.11.1.10 Discuss procedures for obtaining emergency assistance and information HW.11.1.3 Identify trusted adults to ask for help "How to Stay Warm" p. 271 materials needed – plastic bag, ice water, mitten "Cool Colors" p. 279 materials needed – thermometers, t-shirts **Optional:** "Make Clouds" p. 237 materials needed – jar with lid, hot water, ice cubes	***Harcourt Leveled Readers*** *Measuring Weather – Below Level* *The Water Cycle – On Level* *Weather Safety – Advanced Level* **Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 6 p25-28 Harcourt School Publishers – Earth Science: Unit D Ch. 7 & 8 "What is Weather? p 224; "How Can We Measure Weather?" p 230 "What Makes Clouds and Rain?" p236 "What is Spring?" p. 250; "What is Summer?" p. 258 "What is Fall?" p. 264; "What is Winter?" p. 270 Introduction to Unit Trade Books: The Puddle by David McPhail, Farrar Straus Giroux, 1998 It's Winter by Linda Glaser, Millbrook Press, 2002

Month/SLEs	Content/Skills	Essential Questions	Assessments	Lab Activities	Strategies/Resources
November ESS.8.1.1 Identify the features of major landforms (mountain, hill, valley, plain, beach) ESS.8.1.2 Identify common uses of Earth's resources HW.8.1.2 Identify types of pollution. PS.7.1.3 Compare natural sources of heat (e.g., sun, fire, lightning) to artificial sources of heat (e.g., stove, toaster) NS.1.1.1Communicate observations orally, in writing, and in graphic organizers: charts pictographs NS.1.1.3 Conduct scientific investigations as a class and in teams PEL.5.1.2 Share equipment safely and properly with a partner or group	**Inquiry Focus**: • *Compare* • Describe • Observe • Communicate Vocabulary: • *Landforms* • *Resources* • Mountain • Hill • Valley • Plain • Beach • Stream • River • Lake • Ocean • Flood • Drought • Erosion • Natural resource • Rock • Soil • Humus • Heat	*Describe similarities and differences among different landforms.* *How do we compare different sources of heat energy?*	*Explain the difference between a beach and a mountain.* *Illustrate different types of landforms. Illustrate sources of heat and label each.* Forms of Energy	**Harcourt Science** "Model Land" p. 169 materials needed – clay, tray, index cards, crayons, tape "Model Erosion" p. 179 materials needed – damp soil, tray, water "What Happens to Trash?" p. 207 materials needed – lettuce, napkin, piece of foam cup, pan of soil (observe after 2 weeks) "Making Water Clean" p. 217TE , Extend the Activity materials needed – salt, 2 cups, water, spoon, tub of sand, plastic wrap, rubber band, 3 marbles Optional: "Explore Salt Water" p. 187 materials needed – water, carrot, salt **Harcourt Science** "Insta-Lab Light and Dark" TE 355 Materials: two thermometers, black and white sheets of construction paper, a lamp, and a timer.	**Harcourt Leveled Readers** *Our Earth – Below* *My Earth – On* *Land and Water – Advanced* Introduction to Unit Trade Books: This is Our Earth by Laura Lee Benson, 1994 Harcourt School Publishers – Earth Science: Unit C (Ch. 5 and 6) pp 162-206 Landforms **Harcourt Science** T.E. pp. 352 – 357 Lesson 1 What is Heat? **Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 9 p37-39 Heat Les 2 p5 T-charts, pictographs ***Harcourt Leveled Readers*** *Heat, Light, and Sound –Below level* *Heat, Light, and Sound – On level* *Red, White, Boom - Advanced level* Trade Book- Mr. Putter and Tabby Row the Boat by Cynthia Rylant. Harcourt, 1997. Optional Extension Activities: www.unitedstreaming.com Keyword seasons, weather AIMS Primarily Earth

Month/SLEs	Content/Skills	Essential Questions	Assessments	Lab Activities	Strategies/Resources
December PS.7.1.5 Demonstrate methods of producing static electricity (e.g., balloons, shuffling across carpet) HW.9.1.4 Discuss methods of communication with friends and family HW.9.1.1 Understand the consequences of choices	**Inquiry Focus**: • *Demonstrate* Vocabulary: • *Static electricity*	*How do we produce static electricity?* How do holidays affect families?	*Observe and record what happens when a balloon is rubbed on different surfaces.*	**Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 11 p45 Static Electricity Static Electricity Class discussion on communication	**Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 11 p43-45 Static Electricity **Static Electricity** www.unitedstreaming.com Check out keyword Static electricity Optional: where available

Month/SLEs	Content/Skills	Essential Questions	Assessments	Lab Activities	Strategies/Resources
January ESS.8.1.4 Identify the sequence of the seasons PS.6.1.2 Investigate the relationship between mass and weight PEL.3.1.5 Understand that body mass is composed of muscles, bones, fluids, organs and fat. PS.7.1.6 Classify materials as magnetic or non-magnetic PS.7.1.7 Investigate the properties of magnets: attraction, repulsion NS.1.1.5 Collect measurable empirical evidence as a class and in teams Ns.1.1.6 Make predictions as a class and in teams on empirical evidence. STC – Kit Solids and Liquids Sept	**Inquiry Focus**: • *Classify* Vocabulary: • *Magnetic* • *Materials* • Attraction • Repulsion	*Describe the characteristics of winter.* *How can objects be compared and contrasted according to their properties?*	Harcourt School Publishers – Earth Science (p.281 TE) "A Book About Seasons" *Your teacher dropped a box of supplies from her desk. What materials could be picked up with a magnet?*	**Harcourt Science** T.E. pp. 401-411	***Harcourt Leveled Readers*** *Seasons – Below Level* *The Four Seasons – On Level* *Four Seasons on a Farm – Advanced Level* For seasons **Harcourt Science** T.E. pp. 250-270 ; R46-53 also see Oct. "How Do Magnets Make Things Move," Harcourt Science, pp. 400-408

Month/SLEs	Content/Skills	Essential Questions	Assessments	Lab Activities	Strategies/Resources
February PS.7.1.1 Compare natural sources of light (e.g., sun, fireflies, deep sea creatures, fire, lightning) to artificial sources of light (e.g., light bulbs, matches, candles) PS.7.1.2 Investigate the properties of transparent and opaque objects (e.g., plastic wrap and aluminum foil) NS.1.1.7 Use appropriate equipment and tools in scientific investigations	**Inquiry Focus**: • *Predict* • Compare **Vocabulary**: • *Light* • *Shadow* • *Transparent* • *Opaque*	*How do we compare different sources of light energy?* *Predict what objects allow light to pass through.*	Forms of Energy *Some cars have tinted window glass. What difference does this make inside the car?*	**Harcourt Science** Lesson 2 What Can Light Do? TE 358 – 363 This assessment can be adjusted to used as an inquiry activity before being used as an assessment: Forms of Energy "Look at Shadows" (Modified from TE 359) Materials: two pencils, two balls of clay, two pieces of construction paper, and two crayons. *Per student group Also, one lamp for class. Follow exact instructions of lab, but conduct one experiment outside in the sunlight, and then conduct the other experiment underneath a light source that has remained stationary.	***Harcourt Leveled Readers*** *Heat, Light, and Sound – Below level* *Heat, Light, and Sound – On level* *Red, White, Boom - Advanced level* **Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 9 p37-39 Light Les 10 p40-42 Opaque, Transparent What Makes a Shadow by Clyde Robert Bulla. HarperColllins, 1994, **NSTA Trade Book.** Mr. Putter and Tabby Row the Boat by Cynthia Rylant. Harcourt, 1997.

Month/SLEs	Content/Skills	Essential Questions	Assessments	Lab Activities	Strategies/Resources
March ESS.10.1.1 Illustrate the sequence of planets in the solar system	**Inquiry Focus**: • *Sequence* Vocabulary: • *Solar system* • *planet*	*Recognize the order of the planets in relation to the sun.*	*Illustrate and label the order of the planets in relation to the sun.*	**Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 7 p31 Solar System Be A Planet	**Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 7 p29-31 Solar System **Harcourt Science** Review pp 282-289 Read Aloud: Me and My Place in Space by Joan Sweeney, Crown Publishers, 1998
ESS.8.1.4 Identify the sequence of seasons LS.2.1.4 Locate plant parts: • leaves • stems • flowers • roots • HW.10.1.4 Name forms of tobacco products.		*Describe the characteristics of spring.* *How do the basic structures of plants help them survive?* *Are some plants harmful?*	"Label the Structures of a Plant" *Create a story about the changing seasons.* *Label the parts of a bean plant and describe their functions.*	Plant seeds after spring break. "Predict What Plants Need" TE 67;. Materials needed: Wisconsin Fast Plants, labels, spray bottles Final Observation of "Predict What Plants Need" "How Roots Help" TE 75; materials needed: clay, popsicle sticks	***Harcourt Leveled Readers*** *All About Plants – Below level* *Plants, Plants, Everywhere – On level* *What Do You Eat? – Advanced level* Harcourt School Publishers Life Science: Units A and B T.E. pp. 66-87 Les 1: What Do Plants Need? TE 66 – 71 Les 2: What Are the Parts of a Plant? TE 72 – 79 Les 3: How do Plants Grow and Change? TE 80 – 87 Intro to Unit Trade Book: The Reason for a Flower by Ruth Heller; Scholastic Inc, 1983 What's This: A Seed's Story by Caroline Mockford, Barefoot Books, 2000

Month/SLEs	Content/Skills	Essential Questions	Assessments	Lab Activities	Strategies/Resources
April LS.2.1.1 Classify animals according to common characteristics (e.g., movement, body coverings, diet) HW.12.2.2 Identify factors that influence food choices. LS.2.1.2 Differentiate between herbivores and carnivores LS.3.1.1 Illustrate incomplete metamorphosis (e.g., grasshopper) LS.3.1.2 Compare and contrast complete metamorphosis (butterfly) and incomplete metamorphosis ESS.8.1.2 Identify common uses of Earth's resources (Earth Day) HW.8.1.2 Identify types of pollution. Review from November	**Inquiry Focus**: • *differentiate* Vocabulary: • *metamorphosis,* • *carnivore* • *herbivore* : living, nonliving, lungs, gills, shelter, mammal, bird, reptile, amphibian, fish, insect, life cycle, tadpole, larva, pupa http://www.agfc.com/Pages/default.aspx	*How do we classify animals?* *Match animals to different life cycles.*	*Create a poster illustrating one way to save the Earth's resources.* *Describe the one stage of metamorphosis that differentiates a grasshopper from a butterfly.*	**Harcourt Science** T.E. pp. "Living and Nonliving Things" Lab Manual pg. 24 (LM 24). Materials: objects around the room, lab worksheet, magnifying glasses "Writing Link: What Do Animals Eat?" TE 39. Materials needed: paper, old magazines, scissors, glue, crayons. *Note - connect this lesson directly to LS. 2.1.2* "Insta-lab: Be a Butterfly" TE 55. After completing the Insta-lab, follow the same instructions to 'be a Frog." Materials: sleeping bag or large pillow case for chrysalis	***Harcourt Leveled Readers*** *All About Animals – Below Level* *Animal Groups – On Level* *Move It – Advanced Level* **Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 3 p9-12 Classify Animals Les 4 p13-16 Comparing Butterflies and Grasshoppers **Harcourt Science** T.E. pp. 30-55 Les 1: What are living and nonliving things? TE 30 – 35 Les 2: What do animals need? TE 36 – 41 Les 3: How can we group animals? TE 42 – 43 Les 4: How do animals grow and change? TE 50 - 55 Introduction to Unit Trade Books: A is For…? A Photographer's Alphabet of Animals by Henry Horenstein, Harcourt, 1999; NTSA Trade Book Before and After: A Book of Nature Timescapes by Jan Thornhill, National Geographic, 1999, NTSA Trade Book A Pill Bug's Life by John Himmelman, Children's Press, 1999, NTSA Trade Book

Month/SLEs	Content/Skills	Essential Questions	Assessments	Lab Activities	Strategies/Resources
May/June Continue Animal SLEs listed in April Include with SS Arkansas Studies: LS.4.1.1 Identify some endangered species in Arkansas HW.7.1.2 Describe ways to prevent the spread of germs and illness.	**Inquiry Focus**: • *Identify* Vocabulary: • *Extinct* • *Endangered* (Note: Eagles are no longer endangered nor threatened. They are an excellent example of how people working together can help animals).	*Why are some animals endangered?*	*Name endangered animals native to Arkansas.* *http://www.agfc.com/species/Pages/SpeciesEndangeredAbout.aspx*	**Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 5 p22 Arkansas Endangered Species Discuss how this activity relates to endangering animals	***Harcourt Leveled Readers*** *All About Animals – Below Level* *Animal Groups – On Level* *Move It – Advanced Level* **Harcourt Science** Support for Arkansas Student Learning Expectations for Science: Les 5 p17-22 Arkansas Endangered Species http://www.agfc.com/species/Pages/SpeciesEndangeredAbout.aspx