

Subject: Science

Grade: 3

Hallsville R-IV Elementary

3rd Grade Science

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Curriculum Strands

- [Matter and Energy](#)
- Force and Motion
- [Living Organisms](#)
- [Ecology/Environments](#)
- [Earth Systems](#)
- Universe
- [Scientific Inquiry](#)
- [Impact of Science, Technology and Human Activity](#)

3rd Grade Science Rationale:

The rationale for teaching science in the third grade is to provide experiences that will enable students to be scientifically literate, to understand key concepts and principles of science, to be familiar with the natural world and to recognize both its diversity and unity, to use scientific knowledge and scientific ways of thinking for individual and social purposes, and to integrate science, technology, and other content areas.

3rd Grade Science Course Description:

Science investigation and technology is stressed in third grade. Students study the environment through plants and animals in ecology, matter and energy, and the study of the earth. They learn about their physical world through an investigation of the states of matter. Through all these units, the impact of science on their life is discussed.

Concept: Matter and Energy

[top](#)**Topic Objective:**

Strand 1: Matter and Energy - All students will demonstrate proficiency in the knowledge that changes in properties and states of matter provide evidence of the atomic theory of matter and that energy has a source, can be transferred, and can be transformed into various forms but is conserved between and within systems.

Measurable Learner Objectives	Process	Content	GLE's	Integrated Skills	Suggested Activities	Suggested Assessments/Tools
<p>1A. Compare the observable physical properties of solids, liquids, or gases (air) (i.e., visible vs. invisible, changes in shape, changes in the amount of space occupied)</p> <p>1B. Identify everyday objects/substances as solid, liquid or gas (e.g., air, water)</p> <p>1C. Recognize water evaporates (liquid water changes into a gas as it moves into the air).</p> <p>1D. Measure and compare the temperature of water when it exists as a solid to its temperature when it exists as a liquid</p> <p>1E. Investigate and recognize water can change from a liquid to a solid (freeze) and back again to a liquid (melt) as the result of temperature changes.</p>	<p>1.3</p> <p>1.6</p>	<p>SC 1</p>			<p>1A, B Conduct experiments to test different forms of matter and non-matter to see if they have weight and take up space.</p> <p>1C, G Changing States Sheet: Experiment with watching an ice cube melt.</p> <p>1D, E Simulate how the molecules move when temperature changes water. Students are the molecules and move as the temperature changes.</p> <p>1F Observe water in different states in different containers.</p> <p>1H Groups brainstorm a list of thermal energy sources.</p> <p>1I Groups walk around classroom/school to see which sources of light we use in our building.</p>	<p>1A, B (PE) Matter/Non-Matter Experiments: (Scoring Guide)</p> <p>1C (PE) Drawing of the ice cube at different stages/ recorded information from the experiment sheet (predictions and results) (Scoring Guide)</p> <p>1D, E (PE) Dots: Students draw with dots how the molecules look in a solid, liquid and gas (Scoring Guide)</p> <p>1F (CR) Water Observation: Drawings and written observations describing changes in the physical properties (Scoring Guide)</p> <p>1H Written list of thermal energy sources (Scoring Guide)</p>

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Measurable Learner Objectives	Process	Content	GLE's	Integrated Skills	Suggested Activities	Suggested Assessments/Tools
<p>1F. Describe the changes in the physical properties of water (i.e., shape, volume) when frozen or melted.</p> <p>1G. Predict and investigate the effects of heat energy (i.e., change in temperature, melting, evaporation) on objects and materials.</p> <p>1H. Identify sources of thermal energy (e.g., Sun, stove, fire, body) that can cause solids to change to liquids and liquids to change to gas.</p> <p>1I. Identify sources of light energy (e.g., Sun, bulbs, flames).</p> <p>1J. Recognize light can be transferred from the source to the receiver (eye) through space.</p> <p>1K. Identify the three things (light source, object, and surface) necessary to produce a shadow.</p> <p>1L. Recognize the Sun is the primary source of light and food energy on Earth.</p>					<p>1K Students check shadows at different times during the day.</p> <p>1L CR - "How is the sun helping the man peddle the bike?"</p>	<p>1I (PE) Chart: Create a chart of sources of light energy found in the building (Scoring Guide)</p> <p>1K (PE) Response sheet with shadow drawings (Scoring Guide)</p> <p>1L (CR) Bike: (Scoring Guide)</p>

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Resources:

Matter and Energy - Evans-Moor Company Science Series

Instructional Methods:

1. Observations during experiments
2. Modeling activities

Enrichment:

What further items could be tested in the states of matter? (besides water)

Special Needs:

+Key to Integrated Skills

DS = Disability Equity
C = Character Education
E = Gender Equity
D = Cultural Diversity

R = Research Skills
W = Workplace Skills
T = Technology Skills

Concept: Living Organisms

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Topic Objective:
Strand 3: Characteristics and Interactions of Living Organisms - All students will demonstrate proficiency in the knowledge that there is a fundamental unity underlying the diversity of all living organisms and that there is a genetic basis for the transfer of biological characteristics from one generation to the next through reproductive processes.

Measurable Learner Objectives	Process	Content	GLE's	Integrated Skills	Suggested Activities	Suggested Assessments/Tools
<p>3A. Describe the basic needs of most plants (i.e., air, water, light, nutrients and temperature).</p> <p>3B. Recognize plants progress through life cycles of seed germination, growth and development, reproduction, and death.</p> <p>3C. Sequence and describe the stages in the life cycle of a flowering plant.</p> <p>3D. Identify the major organs (roots, stems, flowers and leaves) and their functions in vascular plants (e.g., absorption, transport, reproduction) (Do NOT assess the term vascular)</p> <p>3E. Illustrate and trace the path of water and nutrients take as they move through the transport system of a plant.</p>	<p>1.3</p> <p>1.6</p>	<p>SC 3</p>			<p>3A - F "Room To Grow": Plant project from Earthworks book</p>	<p>3A - F (PE) Plant Project: Graphs and charts/steps in the scientific process (Scoring Guide)</p>

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Measurable Learner Objectives	Process	Content	GLE's	Integrated Skills	Suggested Activities	Suggested Assessments/Tools
3F. Identify and relate the similarities and differences between plants and their offspring (i.e., seedlings).						
Resources: Earthworks - A Teacher's Journey Through Earthworks - The Learning Exchange revised 2001				Instructional Methods: 1. Partner/group experiments 2. Teacher modeling 3. Observations		
Enrichment/ Special Needs:						

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Concept: Ecosystems/Environments

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Topic Objective:
Strand 4: Changes in Ecosystems and Interactions of Organisms within their Environments - All students will demonstrate proficiency in the knowledge that organisms are interdependent with one another and with their environment.

Measurable Learner Objectives	Process	Content	GLE's	Integrated Skills	Suggested Activities	Suggested Assessments/Tools
4A. Identify sunlight as the primary source of energy plants use to produce their own food. 4B. Classify populations of organisms as producers or consumers by the role they serve in the ecosystem. 4C. Sequence the flow of energy through a food chain beginning with the Sun. 4D. Predict the possible effects of removing an organism from a food chain.		SC 4			4A "Room To Grow": Plant project from Earthworks book (continued) 4B, C, D "Energy Detectives" 4B, C, D "Building a Food Web"	3A (CR) : (Scoring Guide) 3B, C, D Food Chains/Webs: (Scoring Guide)
Resources: Earthworks - A Teacher's Journey Through Earthworks The Learning Exchange revised 2001				Instructional Methods: 1. Teacher guided activities 2. Group activities		

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Enrichment/ Special Needs:

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Concept: Earth Systems

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Topic Objective:
Strand 5: Processes and Interactions of the Earth's Systems - All students will demonstrate proficiency in the knowledge that Earth's systems (Geosphere, Atmosphere, and Hydrosphere) have common components and unique structures; and interact with one another as they undergo change by common processes.

Measurable Learner Objectives	Process	Content	GLE's	Integrated Skills	Suggested Activities	Suggested Assessments/Tools
<p>5A. Recognize liquid water can change into a gas (vapor) in the air.</p> <p>5B. Recognize clouds and fog are made of tiny droplets of water.</p> <p>5C. Recognize air is a substance that surrounds us, takes up space, and moves around us as wind.</p> <p>5D. Describe clouds and precipitation as forms of water.</p> <p>5E. Observe and describe the physical properties (e.g., odor, color, appearance, relative grain size, texture and absorption of water) and different types of soil components (i.e., sand, clay and humus) of soils.</p> <p>5F. Observe and describe the physical properties of rocks (e.g., size, shape, color, presence of fossils)</p>		SC 5			<p>5A, B, D Water Works: * Make a Mobius of water cycle * Demonstrate amount of Earth's drinking water * Transpiration experiment * Wind Eagle story</p> <p>5C Water Works: * Investigating the atmosphere project * Mobius of air cycle</p> <p>5E Looking at Soil Activity: 5E "The weight of It" Experiment: 5F Observing Rocks Activity: 5G Make observations around the school campus of signs of slow, natural changes in the Earth's surface 5H Make a list of soil and rock uses in daily life</p>	<p>5A, B, D (PE) Experiment data from transpiration experiment (Scoring Guide)</p> <p>5A, B, D (PE) Water mobius in correct order (Scoring Guide)</p> <p>5C (CR) Questions on Wind eagle story (Scoring Guide)</p> <p>5C (PE) Data results from air experiment/project (Scoring Guide)</p> <p>5C (PE) Air Mobius in correct order (Scoring Guide)</p> <p>5E Investigation sheets (Scoring Guide)</p> <p>5E (PE) "Weight of It": Drawing of soil samples/constructed response questions</p>

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Measurable Learner Objectives	Process	Content	GLE's	Integrated Skills	Suggested Activities	Suggested Assessments/Tools
<p>5G. Observe and recognize examples of slow changes in the Earth's surface and surface materials (e.g., rock, soil layers) due to processes such as decay (rotting), freezing, thawing, breaking, or wearing away by running water or wind.</p> <p>5H. Observe and describe ways humans use Earth's materials (soil, rocks) in daily life.</p>						<p>5F (PE) Rocks: Classification and observation of rocks (Scoring Guide)</p> <p>5G Observation from verbal discussion about findings of slow changes in the Earth's surface (Scoring Guide -anecdotal notes)</p> <p>4H Soil and Rock List: (Scoring Guide)</p>
<p>Resources:</p> <p>A Teacher's Journey through Earthworks The Learning Exchange revised 2001</p>				<p>Instructional Methods:</p> <ol style="list-style-type: none"> 1. Group/team experiments - leading 2. Teacher modeling 3. Observations 4. Teacher led discussions 		
<p>Enrichment/ Special Needs:</p>						

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Concept: Science Inquiry

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Topic Objective:
Strand 7: Science Inquiry - All students will demonstrate proficiency in the knowledge that science understanding is developed through the use of science process skills and scientific knowledge in combination with scientific investigation, reasoning, and critical thinking.

Measurable Learner Objectives	Process	Content	GLE's	Integrated Skills	Suggested Activities	Suggested Assessments/Tools
<p>7A. Pose questions about objects, materials, organisms, and events in the environment.</p> <p>7B. Plan and conduct a fair test to answer a question.</p> <p>7C. Make qualitative observations using the five senses.</p> <p>7D. Make observations using simple tools and equipment (e.g., hand lenses, magnets, thermometers, metric rulers, balances, graduated cylinders)</p> <p>7E. Measure length to the nearest centimeter, mass using grams, temperature using degrees Celsius, volume using liters.</p> <p>7F. Compare amounts/measurements.</p>		SC 7			<p>7A, B, C, D, H, J, M Conduct experiment - "What type of bird beak is best for eating certain types of foods?"</p> <p>7C Make observations about popping corn using all 5 senses.</p> <p>7D "Room to Grow" plant project (measuring plant size over a period of time)</p> <p>7E Graphing temperatures over a period of time</p> <p>7F Compare amounts of water as placed in various containers</p> <p>7G - M Investigation 1 and 2 from Earthworks Curriculum - "What Goes Up Must Come Down" - Water Cycle Experiment:</p> <p>7N Candy Bar Activity: Interpret data (MAP practice activity)</p>	<p>7A, B, C, D, H, J, M (PE) Bird Beak Experiment: Notes and results (Scoring Guide)</p> <p>7C Five Senses: Sheet complete (Scoring Guide)</p> <p>7D (PE) Measurement Results: (Scoring Guide)</p> <p>7E (PE) Temperature Graphs: (Scoring Guide)</p> <p>7F (PE) Drawings and measurements from containers (Scoring Guide)</p> <p>7G - M (PE)(CR) Water Cycle Experiment: (Scoring Guide)</p> <p>7N (CR) Candy Bar: (Scoring Guide)</p>

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Measurable Learner Objectives	Process	Content	GLE's	Integrated Skills	Suggested Activities	Suggested Assessments/Tools
<p>7G. Judge whether measurements and computations of quantities are reasonable.</p> <p>7H. Use quantitative and qualitative data to construct reasonable explanations.</p> <p>7I. Use data as support for observed patterns and relationships, and to make predictions to be tested.</p> <p>7J. Make predictions supported by scientific knowledge/explanations.</p> <p>7K. Evaluate the reasonableness of an explanation.</p> <p>7L. Analyze whether evidence supports proposed explanations.</p> <p>7M. Communicate simple procedures and results of investigations and explanations through:</p> <ul style="list-style-type: none">* oral presentations* drawing and maps* data tables* graphs (bar, single line, pictographs)* writings						

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Resources:

A Teacher's Journey Through Earthworks
The Learning Exchange revised 2001
Candy Bar Experiment Packet

Instructional Methods:

1. Modeling and Observations
2. Teacher led discussions and experiments
3. Student observations

Enrichment/ Special Needs:

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Concept: Impact of Science

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Topic Objective:
Strand 8: Impact of Science, Technology and Human Activity - All students will demonstrate proficiency in the knowledge that the nature of technology is advanced by and can advance science as it seeks to apply scientific knowledge in ways that meet human needs and that science is a human endeavor.

Measurable Learner Objectives	Process	Content	GLE's	Integrated Skills	Suggested Activities	Suggested Assessments/Tools
8A. Recognize some objects or materials (i.e., Sun, fire, ice, snow) occur in nature (natural objects); others (e.g., stoves, refrigerators, bulbs, candles, lanterns) have been designed and made by people to solve human problems and enhance the quality of life (manmade objects). 8B. Describe how new technologies have helped scientists make better observations and measurements for investigations (e.g., telescopes, magnifiers, balances, microscopes, computers, stethoscopes, thermometers) 8C. Research biographical information about various scientists and inventors from different gender, ethnic and cultural backgrounds and describe how their work contributed to science and technology (ASSESS LOCALLY)					8A, B Compare and contrast old tools/objects to new ones that have furthered technology. 8C Hanging report/biographies on a scientist or inventor. 8D "Guuscabi and the Wind Eagle": 8E Field trip to Earthworks in Kansas City - group experiments	8A, B (CR) "Why is one better than the other?" (Scoring Guide) 8C (PE) Report/Biography: (Scoring Guide) 8D (CR) Story Questions: (Scoring Guide) 8E (PE) Earthworks: Projects and experiments (Scoring Guide)

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Measurable Learner Objectives	Process	Content	GLE's	Integrated Skills	Suggested Activities	Suggested Assessments/Tools	
<p>8D. Identify a question that was asked or could be asked or a problem that needed to be solved when given a brief scenario (fiction or nonfiction stories of people working alone or in groups solving everyday problems or learning through discovery)</p> <p>8E. Work with a group to solve a problem, giving due credit to the ideas and contributions of each group member (ASSESS LOCALLY).</p>							
<p>Resources:</p> <p>A Teacher's Journey through Earthworks The Learning Exchange revised 2001</p>				<p>Instructional Methods:</p> <ol style="list-style-type: none"> 1. Facilitating groups 2. Observations 			
<p>Enrichment/ Special Needs:</p>							

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