

Grade 2 Science Curriculum Guide: Life Science Cluster

<p>Big Understandings</p> <ul style="list-style-type: none"> • Most living things need water, food and air. • All living things have predictable life cycles. • All living things change over time. • All living things have similar needs to survive. 		
<p>Content Standards Students will understand:</p> <p>A. Classifying Life Forms Students will understand that there are similarities within the diversity of all living things.</p>	<p>B. Ecology Students will understand how living things depend on one another and on non-living aspects of the environment.</p>	<p>C. Cells Students will understand that cells are the basic units of life.</p>
<p>Performance Indicators Students will be able to:</p> <p>1. Identify the differences between living and non-living things (MAP: Life Cycle Book).</p> <p>2. Describe characteristics of different living things.</p> <p>3. Explain, draw, or otherwise demonstrate the life cycle of an organism (MAP: Life Cycle Book).</p> <p>4. Design and describe a classification system for objects.</p>	<p>Note: Bold and highlighted indicators will be assessed at this grade level</p> <p>1. Identify ways that organisms depend upon their environment.</p> <p>2. Describe how almost all animals' food can be traced back to plants.</p> <p>3. Give examples of how one change in a system affects other parts of the system.</p> <p>4. Describe a familiar local environment.</p>	<p><i>Note: Indicators in italics are not specific for this grade level</i></p> <p>1. Demonstrate that living things are made up of different parts.</p> <p>2. Demonstrate an understanding that plants and animals need food, water, and gases to survive.</p> <p>3. <i>Explore magnifying devices and how they allow one to see in more detail.</i></p> <p>4. Provide examples of causes of diseases.</p>
<p>Knowledge / Skills</p> <ul style="list-style-type: none"> • All living things have predictable life cycles. • Observe the life cycle of an organism. • Categorize animals and plants based on similarities and differences. 	<ul style="list-style-type: none"> • Most living things need water, food, and air. • Describe a food chain. • Describe characteristics of plants and animals that allow them to live in different kinds of places. • Alter a plant's growing conditions and observe effects. 	<ul style="list-style-type: none"> • All living things have similar needs to survive. • Identify what animals and plants need to survive.
<p>Assessment</p> <ul style="list-style-type: none"> • MAP: Life Cycle Book 		
<p>Resources</p> <ul style="list-style-type: none"> • Foss Kit: New Plants 	<ul style="list-style-type: none"> • Foss Kit: New Plants 	<ul style="list-style-type: none"> • Foss Kit: New Plants
<p>Instructional Strategies</p> <ul style="list-style-type: none"> • Provide opportunities for students to observe life cycles of organisms. • Provide opportunities to sort objects from nature into groups and describe the rule for each group. 	<ul style="list-style-type: none"> • Provide opportunities for students to care for an organism. • Provide opportunities for students to observe organisms in the local environment. 	<ul style="list-style-type: none"> • Provide experiments that demonstrate the basic needs of living organisms. • Model appropriate observation and recording techniques.

Grade 2 Science Curriculum Guide: Physical Science Cluster

<p>Big Understandings</p> <ul style="list-style-type: none"> • Objects are made up of smaller pieces. • Objects can be described in terms of the materials they are made of and their physical properties. • There are different forms of energy. • The motion of an object can be changed. 		
<p>Content Standards Students will understand:</p> <p>E. Structure of Matter Students will understand the structure of matter and the changes it can undergo.</p>	<p>H. Energy Student will understand concepts of energy.</p>	<p>I. Motion Students will understand the motion of objects and how forces can change that motion.</p>
<p>Performance Indicators Students will be able to:</p> <p>1. Show that large things are made up of smaller pieces (LAD: Sneakers and Shoes).</p> <p>2. Describe some physical properties of objects (LAD: Sneakers and Shoes).</p> <p>3. Group objects based on observable characteristics (i.e. color, size, texture).</p>	<p>Note: Bold and highlighted indicators will be assessed at this grade level</p> <p>1. Demonstrate an understanding that the sun gives off light and heat energy.</p> <p>2. Explain why living things need energy.</p>	<p><i>Note: Indicators in italics are not specific for this grade level</i></p> <p><i>1. Develop a variety of ways to describe the motion of an object.</i></p> <p><i>2. Demonstrate that the motion of an object can be changed.</i></p>
<p>Knowledge / Skills</p> <ul style="list-style-type: none"> • Objects are made up of smaller pieces. • Take objects apart and put back together. • Objects can be described in terms of materials they are made of and their physical properties. 	<ul style="list-style-type: none"> • There are different forms of energy (heat, magnetic light, sound). • Investigate the importance of the sun as an energy source. 	
<p>Assessment</p> <ul style="list-style-type: none"> • LAD: Sneakers and Shoes 		
<p>Resources</p> <ul style="list-style-type: none"> • Foss Kit: Solids and Liquids 	<ul style="list-style-type: none"> • Foss Kit: New Plants • Will need to extend Air and Weather Unit 	
<p>Instructional Strategies</p> <ul style="list-style-type: none"> • Provide a variety of objects to explore different physical characteristics. • Encourage the use of descriptive vocabulary. 	<ul style="list-style-type: none"> • Provide examples of how the sun is used as energy (i.e. sun prints, growing flowers) 	

Grade 2 Science Curriculum Guide: Earth and Space Sciences Cluster

<p>Big Understandings</p> <ul style="list-style-type: none"> • Weather affects life and changes our surroundings. • Fossils show the existence of past life. • Some objects in the universe are observable and have an effect on the earth. 		
<p>Content Standards Students will understand:</p> <p>D. Continuity and Change Students will understand the basis for all life and that all living things change over time.</p>	<p>F. The Earth Students will gain knowledge about the earth and the processes that change it.</p>	<p>G. The Universe Students will gain knowledge about the universe and how humans have learned about it, and about the principles upon which it operates.</p>
<p>Performance Indicators Students will be able to:</p> <p>1. Explain how fossils show the existence of past life.</p> <p>2. Identify characteristics that help organisms live in their environment.</p> <p>3. Draw or describe ways in which an organism can change over its lifetime, sometimes in predictable ways (i.e. butterfly, frog) (MAP: Life Cycle Book).</p> <p>4. Describe ways in which individuals of the same species are alike and different.</p>	<p>Note: Bold and highlighted indicators will be assessed at this grade level</p> <p>1. Describe the way weather changes (LAD: Weather Graph).</p> <p>2. Analyze the relationships between observable weather patterns and the cycling of the seasons.</p> <p>3. Observe changes that are caused by water, snow, wind, and ice.</p>	<p><i>Note: Indicators in italics are not specific for this grade level</i></p> <p>1. Explain the cycles of day/night and of seasons.</p> <p>2. Demonstrate that shadows of objects change based on where light is coming from.</p> <p>3. Demonstrate an understanding that the sun is one of many stars in the universe and is the closest star to earth.</p>
<p>Knowledge / Skills</p> <ul style="list-style-type: none"> • All living things change over time. • All living things have similar things to survive. 	<ul style="list-style-type: none"> • Weather affects life and changes our surroundings. • Observe and record weather conditions over time noting long and short term changes. • Observe changes that are caused by water, snow, wind, and ice. • Explore effects of seasonal changes (trees, animals, people). 	
<p>Assessment</p> <ul style="list-style-type: none"> • MAP: Life Cycle Book 	<ul style="list-style-type: none"> • LAD: Weather Graph 	
<p>Resources</p> <ul style="list-style-type: none"> • Foss Kit: New Plants 	<ul style="list-style-type: none"> • Foss Kit: Air and Weather 	<ul style="list-style-type: none"> • Foss Kit: Air and Weather (Need to provide extensions)
<p>Instructional Strategies</p> <ul style="list-style-type: none"> • Provide opportunities for students to observe life cycles of organisms over a period of time. 	<ul style="list-style-type: none"> • Connect earth's weather changes to seasons. • Explain that the seasons depend upon the tilt of the earth. • Introduce the water cycle. • Explain that clouds and fog are made up of water droplets. • Make connections between weather and surroundings (pot holes, hurricanes). • Clarify the principle that air is a substance. 	<ul style="list-style-type: none"> • Provide opportunities for students to observe shadows. • Principles that might need clarification: <ol style="list-style-type: none"> 1. The earth is not the center of our solar system. 2. The seasons depend on the tilt of the earth not its distance from the sun.

Grade 2 Science Curriculum Guide: Nature and Implications of Science Cluster

Big Understandings			
<p>Content Standards Students will understand:</p> <p>J. Inquiry and Problem Solving Students will apply inquiry and problem-solving approaches in science and technology.</p>	<p>K. Scientific Reasoning Students will learn to formulate and justify ideas and to make informed decisions.</p>	<p>L. Communication Students will communicate effectively in the application of science and technology.</p>	<p>M. Implications of Science and Technology Students will understand the historical, social, economic, environmental, and ethical implications of science and technology.</p>
<p>Performance Indicators Students will be able to:</p> <ol style="list-style-type: none"> 1. Make accurate observations using appropriate tools and units of measure. 2. Ask questions and propose strategies and materials to use in seeking answers to questions. 3. Use results in a purposeful way, which includes making predictions based on patterns they have observed. 4. Identify products which were invented to solve a problem (LAD: Sneakers and Shoes). 	<p>Note: Bold and highlighted indicators will be assessed at this grade level</p> <ol style="list-style-type: none"> 1. Examine strengths and weaknesses of simple arguments. 2. Distinguish between important and unimportant information in simple arguments. 3. Make observations. 4. Participate in brainstorming activities. 5. Use various forms of simple logic. 6. Discover relationships and patterns (MAP: Life Cycle Book). 	<p><i>Note: Indicators in italics are not specific for this grade level</i></p> <ol style="list-style-type: none"> 1. Describe and compare things in terms of number, shape, texture, size, weight, color, and behavior. 2. Read and write instructions to be followed or instructions which explain procedures. 3. Ask clarifying questions. 4. Explain problem-solving processes using verbal, pictorial, and written methods. 5. Make and read simple graphs. 6. Use objects and pictures to represent scientific and technological ideas (MAP: Life Cycle Book). 	<ol style="list-style-type: none"> 1. Describe how legends, stories, and scientific explanations are different ways in which people attempt to explain the world. 2. Describe at least two inventions, what they do, how they work, and how they have made life easier. 3. Identify commonly used resources, their sources, and where waste products go. 4. Demonstrate some practices for recycling and care of resources. 5. Explain how their lives would be different without specific inventions or scientific knowledge.
<p>Knowledge / Skills</p> <ul style="list-style-type: none"> • Experimental Inquiry <ul style="list-style-type: none"> *Collect Data *Explain *Observe *Predict *Verify 	<ul style="list-style-type: none"> • Abstracting • Classifying • Deductive Reasoning • Inductive Reasoning • Investigation 	<ul style="list-style-type: none"> • Comparing • Constructing Support • Analyzing Errors 	<ul style="list-style-type: none"> • Analyzing Perspectives • Decision Making • Investigation • Systems Analysis
<p>Assessment</p> <ul style="list-style-type: none"> • LAD: Sneakers and Shoes 	<ul style="list-style-type: none"> • MAP: Life Cycle Book 	<ul style="list-style-type: none"> • MAP: Life Cycle Book 	
<p>Resources</p> <ul style="list-style-type: none"> • All Foss Kits 	<ul style="list-style-type: none"> • All Foss Kits 	<ul style="list-style-type: none"> • All Foss Kits 	<ul style="list-style-type: none"> • All Foss Kits
<p>Instructional Strategies</p>			