



VALWOOD

GO BEYOND

First Grade Science Curriculum

1st Grade Overview-Science

Course Description		Topics at a Glance
<p>In first grade science, students will be practicing scientific skills such as observing, asking questions, and making predictions. Students will record observations using science notebooks. Science content in first grade will include solids and liquids, similarities between adult plants and their offspring, and describing and sorting Earth's materials based on properties.</p>		<ul style="list-style-type: none"> • How scientists work • The Five Senses • Living and Non Living Things • Solids, Liquids, and Gases • Objects in the Sky • Animals and Their Habitats
Assessments		Notes for First Grade
<ul style="list-style-type: none"> • Teacher-created assessments • Science notebooks • Teacher observations 		<ol style="list-style-type: none"> 1. Science in first grade is built upon what the children already know which enables them to connect to new concepts and skills. 2. Students in first grade are given the opportunity to inquire, investigate and experiment using science tools. They learn that there is a certain method that scientist use to make valid conclusions. 3. Physical Science teaches students how to describe objects and sort them by their physical properties. 4. Life Science activities gives students the opportunities to observe and investigate plants and animals and their habitats. 5. Students use their five senses and science tools to make observations of various earth systems. 6. Earth Science teaches students how materials can be classified based on their properties. This includes objects in the sky.
Grade Level Expectations		
Standard	Big Ideas for First Grade	
1. Physical Science	1. Solids, liquids and gases have unique properties that distinguish them.	
2. Life Science	<ol style="list-style-type: none"> 1. An organism is a living thing that has physical characteristics to help it survive. 2. Animals live in certain habitats that help them meet their basic needs. 3. Humans have five senses and each sense has a purpose 	
3. Earth Systems Science	<ol style="list-style-type: none"> 1. Earth's materials can be compared and classified based on their properties. 2. There are many different objects in the sky. 	
4. General Science	<ol style="list-style-type: none"> 1. Scientists use certain tools. 2. Scientists use certain procedures that make the scientific method. 	

1. Physical Science

Students know and understand common properties, forms and changes in matter and energy.

Prepared Graduates

The preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system must master to ensure their success in a postsecondary and workforce setting.

Prepared Graduate Competencies in the Physical Science standard:

- Observe, explain, and predict natural phenomena governed by Newton's laws of motion, acknowledging the limitations of their application to very small or very fast objects
- Apply an understanding of atomic and molecular structure to explain the properties of matter, and predict outcomes of chemical and nuclear reactions
- Apply an understanding that energy exists in various forms, and its transformation and conservation occur in processes that are predictable and measurable
- *Engage in scientific inquiry by asking or responding to scientifically oriented questions, collecting and analyzing data, giving priority to evidence, formulating explanations based on evidence, connecting explanations to scientific knowledge, and communicating and justifying explanations.*

Content Area: Science - First Grade	
Standard: 1. Physical Science	
Prepared Graduates: Apply an understanding of atomic and molecular structure to explain the properties of matter, and predict outcomes of chemical and nuclear reactions	
GRADE LEVEL EXPECTATION	
Concepts and skills students master: 1. Solids and liquids have unique properties that distinguish them	
Evidence Outcomes	21st Century Skills and Readiness Competencies
Students can: <ol style="list-style-type: none"> a. Analyze and interpret observations about solids and liquids and their unique properties b. Identify the similarities and differences of two or more groups of solids or liquids c. Classify solids and liquids based on their properties, and justify their choice based on evidence d. <i>Ask questions related to their investigation and observations of liquids and solids</i> 	Inquiry Questions: <ol style="list-style-type: none"> 1. What do all liquids have in common? What are some differences they can have and still be considered liquids? 2. What do all solids have in common? What are some differences they can have and still be considered solids? 3. What properties of liquids can be used to sort them? 4. What properties of solids can be used to sort them? 5. <i>How are the different states of a given substance similar? How are they different?</i>
	Relevance and Application: <ol style="list-style-type: none"> 1. The properties of solids and liquids do help us understand how to use matter. For example, we not build a bridge out of tissue because it is not strong enough. 2. There are practical reasons for sorting liquids or solids.
	Nature of Discipline: <ol style="list-style-type: none"> 1. Share results of experiments with others, <i>(oral, pictorial, written or digital)</i>. 2. Recognize that observations are an important part of science and <i>record data by making entries in simple tales or graphs using words and pictures.</i> 3. Conduct collaborative experiments, <i>(using responsible and safe procedures)</i>. 4. <i>Use simple devices to measure and collect data (eg. balances, vials).</i>

2. Life Science

Students know and understand the characteristics and structure of living things, the processes of life and how living things interact with each other and their environment.

Prepared Graduates

The preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system must master to ensure their success in a postsecondary and workforce setting.

Prepared Graduate Competencies in the Life Science standard:

- Analyze the relationship between structure and function in living systems at a variety of organizational levels, and recognize living systems' dependence on natural selection
- Explain and illustrate with examples how living systems interact with the biotic and abiotic environment
- Analyze how various organisms grow, develop, and differentiate during their lifetimes based on an interplay between genetics and their environment
- Explain how biological evolution accounts for the unity and diversity of living organisms

Content area: Science - First Grade	
Standard: 2. Life Science	
Prepared Graduates: Analyze the relationship between structure and function in living systems at a variety of organizational levels, and recognize living systems' dependence on natural selection	
GRADE LEVEL EXPECTATION	
Concepts and skills students master: 2. An organism is a living thing that has physical characteristics to help it survive	
Evidence Outcomes	21st Century Skills and Readiness Competencies
Students can: <ol style="list-style-type: none"> a. Identify organisms (<i>plants</i>) and use evidence based scientific explanations for classifying them into groups b. Analyze and interpret data about the needs of plants and animals c. Use direct observations and other evidence to support ideas concerning physical characteristics that help plants and animals survive 	Inquiry Questions: <ol style="list-style-type: none"> 1. How do the needs of plants and animals differ? 2. What helps a specific plant or animal survive? 3. <i>What resources do plants need to survive?</i> 4. <i>What resources do plants provide to animals, including humans?</i>
	Relevance and Application: <ol style="list-style-type: none"> 1. Animals and plants have characteristics that help them survive in the local environment. For example, the thick fur of animals such as raccoons, bears, and mule deer helps them survive the cold winters in Colorado. 2. A living thing can be harmed if needed resources are lacking. 3. <i>Outdoors habitats, such as the school yard, can have a wide diversity of plants and other organisms.</i>
	Nature of Discipline: <ol style="list-style-type: none"> 1. Ask testable questions about the needs of an organism. 2. Predict the outcome for an organism if a need is removed.

3. Earth Systems Science

Students know and understand the processes and interactions of Earth's systems and the structure and dynamics of Earth and other objects in space.

Prepared Graduates:

The preschool through twelfth-grade concepts and skills that all students who complete the Colorado education system must master to ensure their success in a postsecondary and workforce setting.

Prepared Graduate Competencies in the Earth Systems Science standard:

- Describe and interpret how Earth's geologic history and place in space are relevant to our understanding of the processes that have shaped our planet
- Evaluate evidence that Earth's geosphere, atmosphere, hydrosphere, and biosphere interact as a complex system
- Describe how humans are dependent on the diversity of resources provided by Earth and Sun

Content Area: Science - First Grade	
Standard: 3. Earth Systems Science	
Prepared Graduates: Describe how humans are dependent on the diversity of resources provided by Earth and Sun	
GRADE LEVEL EXPECTATION: First Grade	
Concepts and skills students master: 1. Earth's materials can be compared and classified based on their properties	
Evidence Outcomes	21st Century Skills and Readiness Competencies
Students can: <ol style="list-style-type: none"> a. Identify and represent similarities and differences such as the texture, size, color, and shape of various materials on Earth b. Sort, group, and classify Earth's materials based on observations and explorations c. Make predictions about how a material on Earth might be useful based on its properties d. Use a variety of tools to observe, analyze, record, and compare Earth's materials e. Analyze the impact on resource sustainability of reducing, reusing, and recycling various materials f. <i>Ask questions related to observations and investigations of Earth's materials.</i> 	Inquiry Questions: <ol style="list-style-type: none"> 1. How are various materials on Earth similar and different? 2. How do the properties of various materials on Earth affect the way we can use them? 3. <i>Where do the Earth's natural materials come from?</i> 4. <i>What natural and human activities affect the sustainability of a resource?</i>
	Relevance and Application: <ol style="list-style-type: none"> 1. Humans and <i>other organisms</i> use natural resources in our daily lives and in a variety of ways. For example, wood for building and furniture, <i>branches for beaver dams, etc.</i> 2. There are limits on resources and materials extracted from the natural environment. 3. <i>Everyday items are made from natural resources.</i>
	Nature of Discipline: <ol style="list-style-type: none"> 1. The same materials can be sorted in a number of ways based on different characteristics. 2. Scientists make predictions based on what they know. 3. <i>Students record and report on findings from an investigation using words, pictures, charts, etc.</i>