

Colorado Science Standards (2009)	ESS Presentations
Kindergarten	
Standard: 1. Physical Science	
1. Objects can move in a variety of ways that can be described by speed and direction	
a. Observe, investigate, and describe how different objects move	Feel the Force
b. Describe the motion of a child who is playing	
2. Objects can be sorted by physical properties, which can be observed and measured	
a. Observe, investigate, and describe how objects can be sorted using their physical properties	Marvellous Materials
b. Explain why objects are sorted into categories	Marvellous Materials Materials Matter
c. Sort a set of objects based on their physical characteristics, and then explain how the objects are sorted	Marvellous Materials
Standard: 2. Life Science	
1. Organisms can be described and sorted by their physical characteristics	
a. Sort a group of items based on observable characteristics	Animals and Plants
b. Communicate and justify an evidence based scientific rationale for sorting organisms into categories	Animals and Plants
Standard: 3. Earth Systems Science	
1. The Sun provides heat and light to Earth	
a. Investigate, explain, and describe that the Sun provides heat and light to Earth	Weather Light and Dark
b. Analyze and interpret temperature data between day (when the Sun shines on our area) and night (when the Sun does not shine on our area)	Weather
c. Investigate and communicate findings about what happens when the Sun's light is blocked	Light and Dark
d. Investigate and communicate the effect of varying heat and light on the growth of plants through a scientific study	Growing Plants
First Grade	
Standard: 1. Physical Science	
1. Solids and liquids have unique properties that distinguish them	
a. Analyze and interpret observations about solids and liquids and their unique properties	Hot and Cold
b. Identify the similarities and differences of two or more groups of solids or liquids	

K-2 Product

3-5 Product

c. Classify solids and liquids based on their properties, and justify your choice based on evidence	Hot and Cold
Standard: 2. Life Science	
1. Offspring have characteristics that are similar to but not exactly like their parents' characteristics	
a. Use evidence to analyze similarities and differences between parents and offspring in a variety of organisms including both plants and animals	Growing Up
b. Analyze and interpret data regarding the similarities and differences between parents and offspring	Growing Up
c. Question peers about evidence used in developing ideas about similarities and differences between parents and offspring	Growing Up
	Growing Up Growing Up Senses Changing Materials Living Things Light and Dark Weather Hot and Cold Animals and Plants
d. Interpret information represented in pictures, illustrations, and simple charts	
2. An organism is a living thing that has physical characteristics to help it survive	
a. Identify organisms and use evidence based scientific explanations for classifying them into groups	Animals and Plants Living Things
b. Analyze and interpret data about the needs of plants and animals	Living Things
c. Use direct observations and other evidence to support ideas concerning physical characteristics that help plants and animals survive	Living Things Growing Plants
Standard: 3. Earth Systems Science	
1. Earth's materials can be compared and classified based on their properties	
a. Identify and represent similarities and differences such as the texture, size, color, and shape of various materials on Earth	Rocks Soil
	Rocks Soil
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	Rocks
d. Communicate ideas about the differences between soils from different places	Soil
	Rocks Soil
e. Use a variety of tools to observe, analyze, record, and compare Earth's materials	
f. Analyze the impact of reducing, reusing, and recycling various materials	Pollution

Second Grade	
Standard: 1. Physical Science	
1. Changes in speed or direction of motion are caused by forces such as pushes and pulls	
a. Identify and predict how the direction or speed of an object may change due to an outside force	Feel the Force
b. Analyze and interpret observable data about the impact of forces on the motion of objects	Feel the Force
Standard: 2. Life Science	
1. Organisms depend on their habitat's nonliving parts to satisfy their needs	
a. Use evidence to develop a scientific explanation about how organisms depend on their habitat.	Living Things Habitats
b. Analyze and interpret data about nonliving components of a habitat	Weather Living Things Habitats
c. Assess and provide feedback on other scientific explanations regarding why an organism can survive in its habitat	Habitats
d. Use instruments to make observations about habitat components – for example, data can be collected from a fish tank to assess the environmental health (dissolved oxygen, pH, Nitrogen content).	Weather
2. Each plant or animal has different structures or behaviors that serve different functions	
a. Use evidence to develop an explanation as to why a habitat is or is not suitable for a specific organism	Living Things Habitats
b. Analyze and interpret data about structures or behaviors of a population that help that population survive	Living Things Habitats
Standard: 3. Earth Systems Science	
1. Weather and the changing seasons impact the environment and organisms such as humans, plants, and other animals	
a. Use evidence to develop a scientific explanation for how the weather and changing seasons impacts the organisms such as humans, plants, and other animals – and the environment	Weather
b. Analyze and interpret data such as temperatures in different locations (Sun or shade) at different times and seasons as evidence of how organisms and the environment are influenced by the weather and changing seasons	Weather
c. Analyze ways in which severe weather contributes to catastrophic events such as floods and forest fires	

Third Grade	
Standard: 1. Physical Science	
1. Matter exists in different states such as solids, liquids, and gases and can change from one state to another by heating and cooling	
a. Analyze and interpret observations about matter as it freezes and melts, and boils and condenses	Changing State
b. Use evidence to develop a scientific explanation around how heating and cooling affects states of matter	Changing State
c. Identify the state of any sample of matter	Changing State
Standard: 2. Life Science	
1. The duration and timing of life cycle events such as reproduction and longevity vary across organisms and species	
a. Use evidence to develop a scientific explanation regarding the stages of how organisms develop and change over time	Growing Up Plant Reproduction
b. Analyze and interpret data to generate evidence that different organisms develop differently over time	Growing Up
c. Use a variety of media to collect and analyze data regarding how organisms develop	Growing Up Growing Plants Plant Reproduction
Standard: 3. Earth Systems Science	
1. Earth's materials can be broken down and/or combined into different materials such as rocks, minerals, rock cycle, formation of soil, and sand – some of which are usable resources for human activity	
a. Investigate and identify two or more ways that Earth's materials can be broken down and/or combined in different ways such as minerals into rocks, rock cycle, formation of soil, and sand	Rocks Soil Erosion, Transportation and Deposition
b. Use evidence to develop a scientific explanation about one or more processes that break down and/or combine Earth materials	Erosion, Transportation and Deposition
c. Utilize a variety of media sources to collect and analyze data around Earth's materials and the processes by which they are formed	Rocks Soil Erosion, Transportation and Deposition
Fourth Grade	
Standard: 1. Physical Science	

1. Energy comes in many forms such as light, heat, sound, magnetic, chemical, and electrical	
a. Identify and describe the variety of energy sources	Energy Forms
b. Show that electricity in circuits requires a complete loop through which current can pass	Circuits
c. Describe the energy transformation that takes place in electrical circuits where light, heat, sound, and magnetic effects are produced	Circuits Energy Forms Electromagnets
d. Use multiple resources – including print, electronic, and human – to locate information about different sources of renewable and nonrenewable energy	
Standard: 2. Life Science	
1. All living things share similar characteristics, but they also have differences that can be described and classified	
	Growing Plants Plant Reproduction Food Chains Habitats
a. Use evidence to develop a scientific explanation of what plants and animals need to survive	
b. Use evidence to develop a scientific explanation for similarities and/or differences among different organisms (species)	Adaptations
c. Analyze and interpret data representing variation in a trait	Adaptations
	Habitats Food Chains Body Systems Plant Reproduction Adaptations
d. Examine, evaluate, question, and ethically use information from a variety of sources and media to investigate questions about characteristics of living things	Interdependence Microorganisms
2. Comparing fossils to each other or to living organisms reveals features of prehistoric environments and provides information about organisms today	
a. Use evidence to develop a scientific explanation for: What fossils tell us about a prehistoric environment; What conclusions can be drawn from similarities between fossil evidence and living organisms	Fossils
b. Analyze and interpret data to generate evidence about the prehistoric environment	Fossils
c. Evaluate whether reasoning and conclusions about given fossils are supported by evidence	Fossils
d. Use computer simulations that model and recreate past environments for study and entertainment	

3. There is interaction and interdependence between and among living and nonliving components of ecosystems	
a. Use evidence to develop a scientific explanation on how organisms adapt to their habitat	Adaptations
b. Identify the components that make a habitat type unique	Habitats Adaptations
c. Compare and contrast different habitat types	Habitats Adaptations
d. Create and evaluate models of the flow of nonliving components or resources through an ecosystem	Food Chains Interdependence
e. Make a plan to positively impact a local ecosystem	Pollution
f. Examine, evaluate, question, and ethically use information from a variety of sources and media to investigate endangered habitats	
Standard: 3. Earth Systems Science	
1. Earth is part of the solar system, which includes the Sun, Moon, and other bodies that orbit the Sun in predictable patterns that lead to observable paths of objects in the sky as seen from Earth	
a. Gather, analyze, and interpret data about components of the solar system	Our Solar System
b. Utilize direct and indirect evidence to investigate the components of the solar system	Our Solar System
c. Gather, analyze, and interpret data about the Sunrise and Sunset, and Moon movements and phases	Days and Seasons The Moon
d. Develop a scientific explanation regarding relationships of the components of the solar system	Our Solar System Days and Seasons The Moon