

**First Grade
2016 Science Standards Resource Guide**

Physical Science				
2016 Indiana Academic Standards	Clarifying Statements	Vocabulary	Crosscutting Concept	Disciplinary Core Idea
1.PS.1 Characterize materials as solid, liquid, or gas and investigate their properties, record observations and explain the choices to others based on evidence (i.e., physical properties).			Energy and Matter Structure and Function	PS1.A: Structure and Properties of Matter
1.PS.2 Predict and experiment with methods (sieving, evaporation) to separate solids and liquids based on their physical properties.			Energy and Matter Structure and Function	PS1.A: Structure and Properties of Matter
1.PS.3 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	(1) Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. (2) Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.		Cause and Effect	PS4.A: Wave Properties

First Grade
2016 Science Standards Resource Guide

<p>1.PS.4 Make observations to collect evidence and explain that objects can be seen only when illuminated.</p>	<p>(1) Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight.</p> <p>(2) Illumination could be from an external light source or by an object giving off its own light.</p>		<p>Cause and Effect</p>	<p>PS4.B: Electromagnetic Radiation</p>
--	---	--	-------------------------	---

**First Grade
2016 Science Standards Resource Guide**

Earth and Space Science				
2016 Indiana Academic Standards	Clarifying Statements	Vocabulary	Crosscutting Concepts	Disciplinary Core Idea
1.ESS.1 Use observations of the sun, moon, and stars to describe patterns that can be predicted.	(1) Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set (2) Stars other than our sun are visible at night but not during the day.		Patterns	ESS1.A: The Universe and Its Stars
1.ESS.2 Observe and compare properties of sand, clay, silt, and organic matter. Look for evidence of sand, clay, silt, and organic matter as components of soil samples.			Structure and Function	ESS2.A: Earth Materials and Systems
1.ESS.3 Observe a variety of soil samples and describe in words and pictures the soil properties in terms of color, particle size and shape, texture, and recognizable living and nonliving items.			Structure and Function	ESS2.A: Earth Materials and Systems

**First Grade
2016 Science Standards Resource Guide**

Life Science				
2016 Indiana Academic Standards	Clarifying Statements	Vocabulary	Crosscutting Concepts	Disciplinary Core Ideas
1.LS.1 Develop representations to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	(1) Changes that organisms go through during their life form a pattern.		Patterns	LS1.B: Growth and Development of Organisms
1.LS.2 Develop a model mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. Explore how those external parts could solve a human problem.	(1) Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and detecting intruders by mimicking eyes and ears.		Structure and Function	LS1.A: Structure and Function LS1.D: Information Processing
1.LS.3 Make observations of plants and animals to compare the diversity of life in different habitats.				LS2.C: Ecosystem Dynamics, Functioning, and Resilience LS4.D: Biodiversity and Humans

First Grade
2016 Science Standards Resource Guide

1.LS.4 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.			Systems and System Models	LS4.D: Biodiversity and Humans
--	--	--	---------------------------	-----------------------------------

**First Grade
2016 Science Standards Resource Guide**

Engineering				
2016 Indiana Academic Standards	Clarifying Statements	Vocabulary	Crosscutting Concepts	Disciplinary Core Ideas
K-2.E.1 Pose questions, make observations, and obtain information about a situation people want to change. Use this data to define a simple problem that can be solved through the construction of a new or improved object or tool.	<p><i>Collaborate across K-2 grade levels to ensure that the standard is adequately instructed over the course of three years.</i></p> <p>(1) Explore situations that people would want to change through questions, observations, and information.</p> <p>(2) Use data that is age-appropriate to define a simple problem.</p> <p>(3) Construct a new or improve an object or tool.</p>	<p>observation – action or process of observing something or someone carefully or in order to gain information</p> <p>situation – a set of circumstances in which one finds oneself</p> <p>data – facts and statistics collected together for reference and analysis</p> <p>construction – to build or form by putting together parts</p>		ETS1.A: Defining and Delimiting an Engineering Problem
K-2.E.2 Develop a simple sketch, drawing, or physical model to illustrate and investigate how the shape of an object helps it function as needed to solve an identified problem.	<p><i>Collaborate across K-2 grade levels to ensure that the standard is adequately instructed over the course of three years.</i></p> <p>(1) Explore how the shape of an object helps it function to solve a problem.</p>	<p>sketch – a rough design, plan, or draft</p> <p>drawing – graphic representation</p> <p>physical model – physical copy of an object</p>	Structure and Function	ETS1.B: Developing Possible Solutions ETS1.C: Optimizing the Design Solution
K-2.E.3 Analyze data from the investigation of two objects constructed to solve the same problem to compare the strengths and weaknesses of how each performs.	<p><i>Collaborate across K-2 grade levels to ensure that the standard is adequately instructed over the course of three years.</i></p> <p>(1) Look at age-appropriate data of two objects</p> <p>(2) Compare strengths and weaknesses</p>	<p>data – facts and statistics collected together for reference and analysis</p> <p>perform – carry out, accomplish, or fulfill an action, task, or function</p>		ETS1.B: Developing Possible Solutions ETS1.C: Optimizing the Design Solution