

Indiana Kindergarten Hands-On Science Investigations

IN		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Kindergarten	State Standards	<p>K.PS.1 Plan and conduct an investigation using all senses to describe and classify different kinds of objects by their composition and physical properties. Explain these choices to others and generate questions about the objects.</p>	<p>K.ESS.1 Make observations to determine the effect of sunlight on Earth's surface and use tools and materials to design and build a structure to reduce the warming effect on Earth's surface.</p> <p>K.ESS.3 Investigate the local weather conditions to describe patterns over time.</p>	<p>K.PS.2 Identify and explain possible uses for an object based on its properties and compare these uses with other students' ideas</p> <p>K.PS.4 Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull</p>	<p>K.LS.2 Describe and compare the physical features of common living plants and animals.</p> <p>K.LS.3 Use observations to describe patterns of what plants and animals (including humans) need to survive.</p>	<p>K.ESS.1 Make observations to determine the effect of sunlight on Earth's surface and use tools and materials to design and build a structure to reduce the warming effect on Earth's surface.</p> <p>K.ESS.2 Describe and compare objects seen in the night and day sky, observing that the sun and moon move across the sky.</p>	<p>K.LS.1 Describe and compare the growth and development of common living plants and animals.</p>
	Key Concepts	<p>Think Like a Scientist Keep an Apple Healthy Apple Sink or Float (in the Word doc already)</p>	Weather/Seasons	Properties of materials PUSH PULL	Animals: Physical Traits	Daytime/Nighttime Sky	Plants: Types of Plants Plant Parts Plant Life Cycle
	Anchor Text:	<p>Anchor Text: Rookie Read-About-Scientists Ask Questions by Ginger Garrett</p>	<p>Anchor Text: The Magic School Bus Rides the Wind by Anne Capeci</p>	<p>Anchor Text: Emergent Science Readers: Make It Move by Susan Canizares , Betsey Chessen</p>	<p>Anchor Text: Who has These Feet? by Laura Hulbert, Erik Brooks</p>	<p>Anchor Text: Moonbear's Shadow by Frank Asch</p>	<p>Achor Text: Roodie Read-About Science-Life Cycles: From Seed to Plant by Lisa M. Herrington</p>
	Investigation	<p>Activity: Keep an Apple Healthy https://www.coffeecupsandcrayons.com/apple-science-experiment/</p>	<p>Activity: Make a Weather Vane https://www.stevespanglerscience.com/lab/experiments/weather-vane/</p>	<p>Activity: A Change of Direction https://betterlesson.com/lesson/635429/a-change-of-direction-exploring-the-impact-of-forces</p>	<p>Activity: Blubber Gloves https://www.stevespanglerscience.com/lab/experiments/blubber-gloves/ https://carrotsareorange.com/animal-science-experiment/</p>	<p>Activity: Shadow https://www.education.com/science-fair/article/shadow-science/ http://sciencenetlinks.com/media/filer/2011/10/07/cooler-act1.pdf</p>	<p>Activity: Growing and Observing Seeds https://www.teacherspayteachers.com/FreeDownload/Growing-a-Kindergarten-A-Unit-About-Plants-1224263</p>

Indiana First Grade Hands-On Science Investigations

IN		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
First Grade	State Standards	SEPS.1 Posing questions (for science) and defining problems (for engineering practice of science is posing and refining questions that lead to descriptions and explanations of how the natural and designed world(s) work and these questions can be scientifically tested. Engineering questions clarify problems to determine criteria for possible solutions and identify constraints to solve problems about the designed world.	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.LS.4 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.	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). 1.PS.2 Predict and experiment with methods (sieving, evaporation) to separate solids and liquids based on their physical properties.	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. 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.	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.LS.4 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.
	Key Concepts	Think like a Scientist	Animal Groups Animal Adaptations	Engineering a Habitat: Animal Habitats	Properties of Matter	Earth Materials	Plants
	Anchor Text:	Anchor Text: Rookie Read-About-Scientists Ask Questions by Ginger Garrett	Anchor Text: What Do You Do With a Tail Like This? by Robin Page	Anchor Text: Animal Homes by Sally Hewitt	Anchor Text: Investigators: Materials: Melt It, Shape It: Glass by May Nelson	Anchor Text: Dirt by Steve Tomecek	Anchor Text: Seed Soil Sun by Cris Pterson
	Investigation	Science Lab 2: Apple Sink or Float https://science4superheroes.wordpress.com/2015/10/06/apple-float-or-sink/ apple sink or float (attachment) apple sink float extension (attachment) apple sink or float graph (attachment)	Activity: Animal Adaptation Stations http://eisforexplore.blogspot.com/2012/06/animal-adaptations.html Follow Up: Where the Wild Things are Animal Adaptation https://www.weareteachers.com/where-the-wild-things-are-animal-adaptations/	Activity: STEM Lab: Basic Needs and Habitats https://betterlesson.com/lesson/629786/stem-lab-basic-needs-and-habitats	Activity: Chocolate Experiment http://www.onceuponalearningadventure.com/2012/04/chocolate-lovers-lesson-on-matter-with.html	Activity: Soil Exploration http://growing-minds.org/documents/soil-exploration.pdf	https://www.education.com/science-fair/article/plants-need-sunlight-water/

Indiana Second Grade Hands-On Science Investigations

IN		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Second Grade	State Standards	<p>2.ESS.1 Record detailed weather observations, including cloud cover, cloud type, and type of precipitation on a daily basis over a period of weeks and correlate observations to the time of year. Chart and graph collected data.</p> <p>2.ESS.2 Investigate the severe weather of the region and its impact on the community, looking at forecasting to prepare for, and respond to, severe weather-related data.</p>	<p>2.ESS.3 Investigate how wind or water change the shape of the land and design solutions for prevention.</p> <p>2.ESS.4 Obtain information to identify where water is found on Earth and that it can be solid or liquid.</p>	<p>2.PS.2 Predict the result of combining solids and liquids in pairs. Mix, observe, gather, record, and discuss evidence of whether the result may have different properties than the original materials.</p> <p>2.PS.3 Construct an argument with evidence that some changes caused by heating and cooling can be reversed and some cannot.</p>	<p>2.PS.1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</p> <p>2.PS.4 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.</p>	<p>2.LS.3 Classify living organisms according to variations in specific physical features (i.e. body coverings, appendages) and describe how those features may provide an advantage for survival in different environments.</p>	<p>2.LS.3 Classify living organisms according to variations in specific physical features (i.e. body coverings, appendages) and describe how those features may provide an advantage for survival in different environments.</p>
	Key Concepts	Weather	Earth Changes	States of matter Heating and Melting	Properties of Materials	Animal Life Cycle Parent Offspring	Plants
	Anchor Text:	Anchor Text: Fly Guy Presents Weather by Tedd Arnold	Anchor Text: (on Amazon) How Do Wind and Water Change Earth? by natalie Hyde	Anchor Text: Made with Glass by Janelle Cherrington Making Glass Pens Video: (Amazon Prime) https://www.amazon.com/Making-Glass-Pens-Stereokroma/dp/B01M66V7KI/ref=sr_1_fm_r0_1?ie=UTF8&qid=1524678431&sr=8-1-fkmr0&keywords=made+with+glass+janelle+cherrington	Anchor Text: The Three Little Pigs by James Marshall	Anchor Text: Investigators: Survival: Animal Armor by Lynette Evans	Anchor Text: Desert Giant by Barbara Bash
	Investigation	Activity: Make a Weather Station http://www.ciese.org/curriculum/weatherproj2/en/lesson1.shtml	Activity: Cookie Erosion http://stephensen.mtnhomesd.org/uploads/5/4/1/7/54172957/2nd_geology_lesson_2.pdf	Activity: Heating Sugar https://www.education.com/science-fair/article/heating-sugar/	Activity: Three Little Pigs http://teachers.org/three-little-pigs-design-challenge/	Activity: Animal Adaptation for Survival https://www.vanderbilt.edu/cso/Animal_Adaptations_for_Survival_Lesson.pdf	Activity: How Cactus Store Water https://learning-center.homescience.com/article/desert-science-projects-elementary/