

GRADE 1 SCIENCE EXPLORATIONS TO DO AT HOME

One of the three core principals of [Each Child, Our Future](#), Ohio's strategic plan for education, is partnerships. The plan recognizes the collaboration between teachers and parents as the most important partnership. This document provides activities for students to complete in a home environment, allowing parents to be more closely involved in each child's mastery of science concepts. The investigations are written for a home setting using limited resources and are specifically targeted to each of [Ohio's Learning Standards for Science](#).

The resources listed in this document are provided to enhance planning, instruction and learning about science. They are not mandatory. Local districts are responsible for establishing the local curriculum and identifying appropriate instructional resources. The at-home projects are intended to provide activities that can be used by teachers to assign as homework or share with parents to supplement classroom instruction. Teachers should feel free to adapt the activities to align with the local curriculum. The projects are designed with the intent that technology is not necessary; although in many cases, the activities could be extended with additional components. When possible, data can be shared in small groups or with the entire class, analyzed and discussed to deepen understandings that students uncover during these activities.

It is important to build a strong foundation in science in the early elementary years so students are prepared for understanding more complex material in the intermediate and middle grades. It is equally important to continue students' science instruction by offering more advanced courses at the high school level. This allows students to be better prepared to compete for admission to college or other postsecondary programs, as well as for increasingly technical jobs. Advanced science courses in high schools also help produce a more scientifically literate public.

1.ESS.1 The sun is the principal source of energy

Outside option: On a sunny day, place containers of water in several outdoor locations, some in the sun, some shaded, some partially shaded. Try placing some on blacktop or concrete, some on grassy areas and some on bare soil or rocks. Make sure they have equal amounts of water. After several hours, check the temperature. No thermometer? Don't worry! Just touch the water with your finger to find the containers in which the water is warmer. Is there a pattern for which ones warmed up the most? Why do you think those containers of water got the warmest? Set them all together in the shade. Which cooled down the fastest? What do you think would happen if you used one with twice as much water? Would it heat slower? Faster? The same? Try it and see.

Inside option: Design a safe shelter for an ice cube. You will be protecting it from melting under a light bulb. Use supplies you find around the house (craft supplies, pantry items, toys). Put an ice cube under a lamp or other light source. Time how long until it melts. Next, place an ice cube (same size) in your shelter. Time to see if your shelter slows the melting. Try to improve your shelter so that it keeps the ice even longer. Draw a diagram of your best design and label the parts.

1.ESS.2 Water on Earth is present in many forms

Outside option: Visit a nearby water location (pond, river, puddle, wetland, lake). Make observations of the water. What color is it? Is it moving? What direction? Does it make noise? Are there things living in the water? Is the water making any changes to the land around it, such as washing away the bank, moving rocks or soil?

Another idea is to watch water during a rain storm. Where does the water go after it rains in your neighborhood? Look for water running off houses and driveways. Where does that go? Write a story about the journey of a raindrop as it falls from a cloud and travels to the ocean. Draw illustrations for your story.

Inside option: Compare solid water (ice) to liquid water. Look at shape, color, temperature. What is the same? What is different? Look at an ice cube before and after crushing. What do you notice? Explore freezing and melting water using your freezer. Do different amounts of water freeze in the same amount of time? Try placing ice cubes in different locations and compare the time it takes them to melt. Why does ice melt faster in some places?

1.PS.1 Properties of objects and materials can change

Outside option: Investigate which solid materials melt when left in the sunshine. Some ideas to try: metal, brick, crayons, ice, candles, chocolate, plastic, clay, marshmallows, hard candy, etc. For anything that melts, describe how the substance changed. Was there a color change? Shape change? Texture change? Record your observations with drawings or words. Get a parent or older sibling to help. Be sure to melt objects in safe locations where they will not damage outdoor objects. **Caution: Handle hot objects with care.**

Inside option: Think of as many ways as you can to change an object such as a piece of paper, ice cube or lump of clay. What are ways to change its shape, color, size or temperature? When you make your changes, notice whether the amount changes (do you still have all the clay, water or paper). If some is missing, where do you think it went? Count how many ways you found to change the object. Call a friend and challenge them to find more.

1.PS.2 Objects can be moved in a variety of ways, such as straight, zigzag, circular and back and forth.

Outside option: Explore how outdoor toys move. Use backyard toys such as bikes, wagons, swings, slides, balls, cars, jump ropes and hoops to investigate motion. What makes the toy or the user speed up? Slow down? Change direction? What sort of push or pull starts or stops the toy? Think of other motions to test such as, "Do all things go down a sliding board (ramp) at the same speed?"

Inside option: Design a maze for a marble or ping pong ball to roll through. You can use paper, cardboard or any materials you have at home. Try to make a place in the maze where the ball goes straight, a place where it moves in a circle and a place where it zigzags. Explain your maze to a family member. Tell him or her what makes the ball do each type of motion.

1.LS.1 Living things have basic needs that are met by obtaining materials from the physical environment.

Outside option: Make observations of how animals get supplies from the environment. Quietly watch animals to see what they eat, where they get water and where they rest/sleep. How are they using their surroundings to help them stay safe? Set up a feeding station. It could be for birds, squirrels, ants, bees or butterflies. Try different foods to see which foods attract which animals.

Inside option: Grow an indoor plant and observe it as it grows. Try starting with food such as a piece of a potato (be sure it has an "eye"), an avocado pit suspended in a cup of water (stick some toothpicks in it to hold it up), a fresh bean or the seed from a fruit. What does your plant need to survive? Find the best location to grow a healthy plant. Keep records of how you care for your plant. Record the date and how much water you give it. Measure its height. Add pictures or drawings to show what the plant looks like each time you care for it.

1.LS.2 Living things survive only in environments that meet their needs

Outside option: Be a spring detective. Watch your yard, a field or a forest during spring. Look for changes that are happening as the weather gets warmer. What plants are growing that were not there in the winter? How are trees changing? Do all trees have the same changes? What animals, including insects, can you now find that were not around during the winter? Be sure to check in the soil too. Have animals changed their behaviors? Look for bird nests. Where are birds nesting? What are they using to make their nests? Think of other signs of spring.

Inside option: Make a picture book of the four seasons. Draw pictures of each season. In your pictures, include plants and animals that are out during that season. What are they doing? How do they look? Is fur thicker, leaves missing or have they changed color? Are they hibernating? Put a person in each picture. How is the person dressed? Have a family member help you write a story to go along with your pictures. Read your story to someone at home. Be sure to explain how the plants and animals are changing with the seasons.