

GRADE 2 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.

2.ESS.1 The atmosphere is primarily made up of air.

Outside option: Use household items to design a device that can measure/indicate the speed of the wind. Your device needs to be safe to use and sturdy enough to stand up to the wind. What shape will you use? Think about how the device will move or change to show different wind speeds. Think about what materials are best for your design. Set up your device in an open area. Record the wind speed each day and your observations of the weather each day. Do you see any patterns? When it is windy, is there a certain type of weather? Does the wind change before or after storms? Compare the wind speed in different areas. What patterns do you see? Which areas have the fastest winds? Open areas? Hilly areas? Near buildings? Why do you think these areas are windier?

Inside option: Prove to your parents that air takes up space. Use balloons, baggies, straws or other household items to design a way to show that air takes up space. Show your family. Were they convinced? Write about your best proof. Tell what you did and explain why your demonstration proves that air takes up space.

2.ESS.2 Water is present in the atmosphere.

Outside option: Go outside right after a rain. Look for all the places water can be found. Be sure to look on the ground, on plants and on man-made objects. Make a list. Observe the water over the next several hours. Is it still there? Does it flow away? Disappear without flowing? Try your own investigations with water you pour in various locations? Make predictions about what happened to the water that disappeared. Share your ideas with a family member. Do they agree? Do they have other ideas?

Inside option: Explore why we need coasters under our drinks. What happens when you leave an icy drink sitting out in a warm room? Does the same thing happen with a warm drink? Set up an investigation with different temperatures of water (ice water, cool water, room temperature water, warm water). Which glass has the most changes? If there is water on the outside of the glass, where did it come from? Try a cold sealed beverage. Does it collect water? Describe your thoughts about where the water came from and how it got on your drink. Try to find a way to prove the water is not coming from inside the drink.

2.ESS.3 Long- and short-term weather changes occur due to changes in energy.

Outside option: On a windy day, explore wind chill. Stand in a windy location and in a sheltered location. Does one feel cooler? Hang a wet cloth in a windy and a sheltered location. Be sure they are the same material, size and dampness so you will have a fair test. Compare the drying times. What are other ways you can compare the windy location to the sheltered location?

Inside option: Watch and listen closely during a thunderstorm. Look for evidence of energy in the storm. Talk to a family member about how these things involve energy. Energy could include sound, light and movement. Some sights to look for include falling rain, blowing leaves, lightning and thunder. Write a thunderstorm book or make a poster showing the energy evidence you observed.

2.PS.1 Forces change the motion of an object.

Outside option: Try kicking a ball with different forces (small kick, medium kick, hard kick). What are your results? What happens if you kick two different balls with the same force. Do they travel the same distance? What determines how far a ball travels when you kick it? Is it the size of the ball? The weight of the ball? See if you can find a combination that makes a ball travel the furthest. Describe the type of ball used and the amount of force from the kick. What combination makes the ball travel the shortest distance? Throwing or batting a ball also would work for these tests.

Inside option: Use refrigerator magnets to investigate the types of materials that are attracted. List the things that are attracted to the magnet and the things that are not. Is there a general rule for the things on each list? Compare the strength of two magnets by seeing how close each needs to be to attract a paper clip or other small object. Find which one can hold the heaviest paper to the refrigerator.

Rub an inflated balloon on your hair and use it to explore static electricity. Does it stick to a wall? What objects can the balloon stick to? For how long? Try shuffling your feet along carpet to get a static charge on your body. Does the weather make a difference in how easy it is to make static electricity? Try your tests on a dry day and a rainy day. Is there a difference?

2.LS.1 Living things cause changes on Earth.

Outside option: Become a change detective. Go on a walk around your yard, park or neighborhood looking for changes that plants and animals have made to the area. Look for changes caused by trees, weeds, humans, ants, moles, beavers, farm animals, woodpeckers, dogs and other living things. When you get home, make a map of the area. Mark the changes you found on your map.

Inside option: Search your book collection for pictures or descriptions of living things affecting their environments. Make a list of the changes you found. Next, make a list of the ways you, your family, your pets and your livestock affect the environment.

2.LS.2 All organisms alive today result from their ancestors, some of which may be extinct. Not all kinds of organisms that lived in the past are represented by living organisms today.

Outside option: Choose a living thing in your outdoor area. Observe it carefully, listing all the things the plant or animal requires to stay alive. What changes to the environment would cause the organism to need to adapt, migrate or die? Think about changes in temperature, sunlight, water supply, food sources, predators, nesting sites, etc.

Inside option: Choose an extinct animal. Look at a picture of it or think about the characteristics you know about the animal. List all the characteristics the extinct animal has that are similar animals you know today. Think about the structures (body parts) of the animal. Are the legs and feet similar to anything today? The head? What about teeth? Did it move like anything that is alive today? Are there any characteristics the extinct animal had that animals no longer have?