

Second Grade Science Tasks

Earth Science

S2E1.

- A. Make chalk drawings on dark paper showing stars of different sizes, brightness, and patterns of stars (constellations such as the Big Dipper). A brighter star is drawn with a bigger dot than a dim star.
- B. The sun is our closest star. Find out more about the sun and write an illustrated story.
- C. Read poems and song lyrics about stars, such as “Twinkle, Twinkle Little Star” and “Star Light, Star Bright.” Compose a song or poem about a star.
- D. A common pattern is the Big Dipper. It is located in the northern sky. Locate the Big Dipper in the night sky just before bedtime and relate where you see it at different times of the night. For example, you may observe the Big Dipper through a window. Sketch what you see and what the surroundings were like. For example, “I saw the Big Dipper in the sky one fist over my neighbor’s house.” Compare how the Big Dipper’s location in the sky changes as well as how the position of the stars in the pattern rotates around the North Star. This is because of the Earth’s path around the sun. Read the legends and stories about the Big Dipper and the stories of why it changes throughout the year. Compare the stories to what you observe. Other names for Big Dipper are Big Bear and Ursa Major. Make a class mural about the North Star and illustrating the Big Dipper and the position of the stars at different times during the year.

Suggested Resource: NASA’s website for Kids. Type Big Dipper in the Search box.

<http://www.nasa.gov/audience/forkids/home/index.html>

S2E2.

- A. Go outside at a specific time in the morning. Do not stare at the sun. Record the location of the sun and the time you went to observe. (For example, at 9:00 a.m. on September 14, the sun was just to the top of the small tree on the corner of the playground where the swings are located.) Go out periodically during the day to record when and where the sun was located. Use this information to give evidence of the earth’s motion. Do this again on a winter day and a spring day. Compare the records of observations to see how the earth’s motion changes throughout the year.
- B. Study the shadow you cast when you are in sunlight. Find a place on the school ground and have a partner outline around your shoes with sidewalk chalk. Put your initials inside the drawing. Then have your partner trace around your shadow with sidewalk chalk. Record the time you made the drawing. Standing in the same outline of your shoes, do the same thing every couple of hours during the day recording the time of each outing. Describe how your shadow changed during the day.
- C. You learned about making shadows in the first grade. Use what you learned about shadows to see how they change through the day and year. Make a shadow stick or use a sundial. Sketch and measure the shadows in the morning, midday, and afternoon. Describe the changes and explain what causes the changes in the shadows (such as movement of the Earth around the Sun). Explain how people could tell time by reading shadows.
- D. Keep a calendar of the length of the day and night once a month throughout the school year. Media sources such as television, newspapers, and Internet have this information. Conclude when the longest days of the year occur and when the shortest days of the year occur. Challenge: Find out when the days are equal in length to the nights.

- E. Keep a periodic record (a few times seasonally) of celestial objects students view in the night sky and record location and appearance (size and brightness) relative to a fixed object on earth. A record could include the times when the moon was so bright that you cast a shadow at night or when you were out away from other lights and saw more stars than when you were in your house looking out the window.
- F. Keep a calendar chart of the shape of the moon throughout the year. Record the pattern you observe, the location of the moon, and its brightness. Identify when there was a full moon and when there was a new moon during the month. Write about any changes in appearance you observe during the year. (Reference: AIMS, Cycles of Knowing and Growing, “Look at the Moon.”)
- G. Write an illustrated story or poem about the moon and its changing pattern using your observations and records. Use the words new moon or full moon correctly in your writing.

S2E3.

- A. Use a large map of the school grounds or playground. If one is not available, have the class work together to draw one on butcher paper. Do not spend time making sure the map is to scale. The map is used to identify areas on the school grounds that will change throughout the year.
- B. Observe the changes in the school grounds periodically during the year and mark on the map where changes occur. Tell if they occur on the ground, above the ground, or below the ground. For example, you see an ant mound next to the sidewalk. You notice the ants on the ground next to the sidewalk. The soil has been moved by the ants to make a little hill above the ground surface, but the little hill is probably formed because of the activity of the ants below the ground. You may wish to study an ant mound during the year to notice changes in the activity of the ants during the year. Another good time to observe the area for changes is after a weather event such as a storm.
- C. Keep a class journal or bulletin board display of the date you noticed the changes and what the changes were. For example, on Monday we had a rain. There was a puddle under the swings on the playground. On Wednesday the puddle was not there, but the soil under the swings looked different.
- D. Tell what you think caused the changes (weather, plants, animals, people, other) and explain your thinking to a classmate.

Physical Science

S2P1.

- A. Investigate changes in objects by tearing, dissolving, melting, squeezing, etc.
Teacher Note: Some ideas of change include but are not limited to:
 - Water evaporates, but chalk doesn't.
 - An iron nail rusts, but a wooden stick doesn't.
 - Ice melts, but books don't.
 - Sugar and salt dissolve when stirred in a glass of water, but sand doesn't.
 - Dark construction paper will turn lighter in the sunlight.
 - A slice of apple or banana will change color when exposed to air.
 - Chocolate will soften in warm temperatures.
 - Paper towels tear in one direction more easily than in the other direction. (horizontally or vertically)

- B. Observe different materials left in an open container, do a 'before' sketch of the materials, and date the sketch. Periodically compare the beginning sketch to the current appearance of the materials. Sketch any changes and record the date. Write about differences you observe in a story about how physical attributes can change.

S2P2.

- A. Push and pull common objects and measure distances objects travel. Keep a list of objects that keep going even after you stop doing work to push or pull. Sort the list of objects into a chart according to the distances they traveled after you stopped using energy to cause them to move. Use your chart to explain why you think different objects continue to move or not move. (Wheels, heavy objects, floor surface, etc.)
- B. Look around the school and draw pictures of objects that show they possess energy by moving but not in a straight line other than pushes and pulls to move (i.e. fan, car, pinwheel, flag, etc.). Tell what the energy source is.
- C. An object that is emitting heat or light is emitting some of the energy it possesses. Find other objects around the school that emit heat and light. Use what you have learned about sources of energy to create a collage of objects that possess energy. Group your collage into three categories: things that have energy of motion, things that have heat energy, and things that have light energy.
- D. Rub objects and observe how the energy of motion is transferred into heat energy.

S2P3.

- A. Demonstrate how pushes and pulls can change the speed and direction of a box with a few books inside, of different balls, of student and teacher chairs, of rolling carts, etc. For example, investigate to find out if you can push a box of books faster than you can pull it.
- B. Push the box, balls, chairs, and/or rolling carts and then pull them. Explain to a partner if pushing or pulling was easier for each one and give a reason for your explanation. Use position words like backward and forward.
- C. Create a graphic organizer such as a Venn diagram of things you push, things you pull, and things that you push or pull and explain why you made your choices based on your experiences.

| Push | Both push or pull | Pull |
|----------------------------|-------------------|--------|
| Your chair under your desk | a grocery cart | a rope |

Life Science

Teacher note: Instruct students not to touch wild plants and animals when they observe them. Always wash hands after handling any plants or animals. Caution students not to eat wild plants they find.

S2L1.

- A. Observe some green plants, fungi (mushrooms), and animals around the school or at home. Notice the changes the organisms go through. Find out about the life cycles of some of the common plants and animals.
- B. Animals have interesting life cycles with very different stages. Correctly sequence and label pictures or drawings of the life cycle of
- A mammal (such as a kitten to adult cat or puppy to adult dog)

- A bird (such as egg, chick, chicken)
 - An amphibian (such as a frog egg to tadpole to adult frog)
 - A reptile (such as a snake egg to adult snake)
 - A fish (egg to adult)
 - An insect (such as a butterfly from egg to larva to pupa to adult).
- C. Observe an insect such as a butterfly or another animal such as a hamster, a chicken or a frog to see how it changes as it grows into an adult. Go on a trip around the school grounds or your home to find examples of animals in different stages of their life cycles. Write a story about what you observe.
- D. Find a spider web and watch the spider to observe how it lives. Find out how a spider is similar to and different from an insect such as a butterfly or grasshopper.
- E. Make a list of seasonal changes plants go through in their life cycles. For example, maple trees lose all of their leaves in the winter, but pine trees do not. Different plants grow and flower during different times of the year. Planting seasons differ for different crops. Have the class keep a list of names or drawings of flowering plants they see as they appear in the spring.