Cross-Curricular Activities Connected to Earth Science, Grade 1

The following activities from ***Sky Watchers,*** integrate math, social studies, English Language Arts (ELA), art, and more into earth science topics. These cross-curricular connections help students see how science is related to their lives, and the world they live in. These activities reinforce and extend ideas about patterns in the daytime and nighttime skies and are perfect for learning-from-home lesson plans. Permission is granted to incorporate these activities into teacher and parent lesson plans.

Students' Observations of the Day and Night Skies (Art)

Divide a bulletin board in half. You may wish to use a light-colored background for the day sky and a darker-colored background for the night sky. Invite students to draw, color, and cut out pictures of objects they observed in the day and night skies. Ask students to share their drawings with the class and discuss the objects they included. Post students' illustrations and pictures on the bulletin board in a collage format.

Interactive Sky Maps (Astronomy)

Explore interactive sky maps with your class. Sites such as In the Sky or Neave Interactive allow you to explore the night sky in your location. You will want to spend time getting familiar with the sky chart you wish to use before sharing it with the class. Show students seasonal and hourly changes in your location by adjusting the sky map or explore locations around the world.

Sundial Shadows (Art and Science)

To extend the investigation on shadows and the Sun's position in the sky, have students make their own sundial. Flip a paper plate upside down and write numbers around the plate, similar to the numbers on a clock. Put a sharpened pencil through the center of the plate. Take your sundial outside on a sunny day (not during Daylight Saving Time). Place the plate on the ground with the 12 facing north. Have students visit the sundial several times throughout the day to evaluate its accuracy.

Picnic Night with Parents (Community Connections)

Invite your students' parents to school for a nighttime sky-viewing picnic. Have parents bring in light snacks and drinks for the class to share. Gather on the school playground and view the night sky together!

Careers in Space (Social Studies)

Encourage students to find out about careers in space science. They may be interested in learning more about astronomers, astronauts, engineers, mathematicians, and computer experts who have contributed to our knowledge of the universe.

Researching Objects in Space (Social Studies and Science)

Students may wonder how we know what we know about objects in space and how those objects relate to one another. Help them research the tools of space science, such as telescopes, space probes, satellites, and manned spacecraft. NASA and NASA for Kids are great websites for students to explore.

Connecting to Literacy (Literacy)

Read What Makes Day and Night by Franklyn Branley to the class. This book helps students understand that the rotation of Earth on its axis causes day and night. After reading, discuss why the cycle of day and night takes place.

Repeating Patterns in the Sky (Art and Math)

Extend the idea of repeating patterns by having students illustrate the four main times of day (sunrise, noon, sunset, night) and create a headband. Have students cut out their drawings and glue them in the correct order to sentence strips. Staple the strips together to form a sky patterns headband that each student can wear around the school for a day. Ask students what would come next in their pattern if it were repeated.

International Space Station (Social Studies)

Encourage students and their families to view the International Space Station from their homes. On a whiteboard, project NASA's Spot the Station website (SpotTheStation.nasa.gov). You may also want to send the weblink home with students. The site has many great resources to help you learn more about the International Space Station and when is best to view it.

Seasons Through Song (Music and Movement Education)

Teach the following song and movements to the class. The song is sung to the tune of “The Hokey Pokey”:

In summer, Earth tilts in (students lean in toward you, the “Sun”)

In winter, Earth tilts out (students lean out away from you, the “Sun”)

Seasons repeat when you orbit all about (students rotate counterclockwise with their arms spread wide)

Do the revolution while you orbit all around (students hold hands in a circle and walk counterclockwise to the beat of the song)

Tilt’s what it’s all about! (students clap their hands to the syllabic pattern)

Use this opportunity to reinforce that Earth does not travel closer to the Sun in the summer. Instead, Earth’s axis has a permanent tilt, and the hemisphere that is closer to the Sun will experience summer.

Observing Daylight Throughout the Year (ELA and Science)

Collect sunrise and sunlight data throughout the year by tracking the patterns on a classroom calendar. Invite students to be Sun reporters and assign a different student to get the sunrise and sunset data each week during a month. At the end of the month, discuss patterns and predictions for the next month.

Reading About Seasons (ELA)

Read Goodbye Summer, Hello Autumn and Goodbye Autumn, Hello Winter by Kenard Pak. Discuss patterns that students notice in the books, and then invite students to come up with a story to continue the timeline from winter to spring and spring to summer.

Cause and Effect with Seasons and Animals and Plants (Science)

Ask students to list ways that plants and animals behave differently during the changing seasons. Take time to focus on the cause-and-effect relationships and how all things depend on the amount of sunlight and heat that Earth receives during each season. Ask questions such as:

- What happens to trees in the fall? In the spring?
- What do bears do during winter?
- What do birds and insects do when the weather begins to cool?
- During what season(s) do you see plants sprouting and flowers blooming?

Provide examples of local plants and animals and examples of plants and animals from a different area of the world.

Lesson 4

Footprints on the Moon (Literacy)

Read the award-winning picture book Footprints on the Moon by Alexandra Siy aloud to the class. Discuss the following question with the class:

- Do footprints on the Moon ever go away? Why do you think that?

NASA Earth's Moon (ELA)

To explore more about our Moon, visit moon.nasa.gov as a class or with small groups of students. Get information about missions to the Moon, images, videos and trackers, and tips on how to observe the Moon. Invite students to create a class display on a topic of interest.

Moon Phase Flipbook (Art and Science)

On small, equal-size squares of paper, have students illustrate the phases of the Moon. Include both waxing and waning phases. Staple the squares together in sequential order. Students can flip the pages to see the pattern of the Moon's phases from start to finish.

Moon Journal (ELA)

To continue studying the phases of the Moon, encourage students to make nightly observations of the Moon's appearance over the course of the month. Provide students with a blank 30-day calendar and have them record their observations in words or pictures. Encourage students to make observations at the same time each night. Have students bring their completed Moon journals to class after 30 days. Compare students' observations and create a bulletin board to display the completed Moon journals.

Observing Moon Phases with Sandwich Cookies (Art)

Re-create the Moon phases using chocolate sandwich cookies. Have students open the cookie carefully so the cream is on only one side of the cookie. Have each student pick a Moon phase to make with the cream of their cookie, and then encourage students to put the Moon phases in order.

Owl Moon (ELA)

Read Owl Moon by Jane Yolen with the class. Have students write a story about what animals they might observe late at night by the light of the Moon.

NASA Kids' Club (Social Studies)

Encourage students to learn more about space and NASA by visiting NASA Kids' Club. Students can play games, see who's currently on the space station, and view NASA photos.

Papier Mâché Solar System (Art)

Collaborate with the art teacher to provide students the opportunity to use papier mâché and balloons to design and create models of the elements in the solar system. Once painted and decorated, students can display their artwork.

Learning with NASA (Social Studies)

For additional exploration and the most up- to-date information on space, visit www.nasa.gov. Visit the NASA Audiences tab to discover activities for educators and students. Visit the Galleries tab for videos and images, including an image of the day.