Cross-Curricular Activities Connected to Earth Science, Grade 3

The following activities from ***Weather and Climate Patterns,*** 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 how weather and climate are connected and are perfect for learning-from-home lesson plans. Permission is granted to incorporate these activities into teacher and parent lesson plans.

Nature's Thermometer (Math)

Crickets can help tell the temperature! Crickets chirp to communicate by rubbing the edges of their wings together. Use the number of cricket chirps to get the temperature in Celsius or Fahrenheit.

To find out Celsius temperature, count the number of chirps in 25 seconds, divide by 3, and then add 4.

- For example: 30 chirps in 25 seconds ÷ 3 = 10 + 4 = 14°C

To find out Fahrenheit, count the number of chirps in 14 seconds, and then add 40.

- For example: 20 chirps in 14 seconds + 40 = 54°F

The Old Farmer's Almanac (Social Studies)

The Old Farmer's Almanac was first published in 1792 and continues to be published today. An almanac records and predicts tides, weather, and other astronomical events and is said to be at least 80 percent accurate. Get a copy of The Old Farmer's Almanac to explore with your class or access it online.

Weather Around the World (ELA and Social Studies)

Read on the Same Day in March: A Tour of the World's Weather by Marilyn Singer with your class. Then connect students with other classrooms globally to learn about weather patterns. WorldVuze and ePals are two online communities where students can interact with other students around the world. Have students come up with questions about weather patterns. Use the inflatable globe or Google Earth to locate countries that students would like to know more about, and then contact your global pen pals to get answers.

National Weather Service for Kids (Science)

Visit the Education page at the National Weather Service website to access games, activities, and lessons to explore weather. The site has a great link to information on careers that are related to meteorology.

Hot Formula (Math)

Provide students with additional practice with Fahrenheit and Celsius temperature scales. Present the following scenario: The average summer temperature at the North Pole is about 30°F, and the average summer temperature at the equator is about 30°C.

Explain that in the United States, temperatures are typically reported in Fahrenheit, while other countries use Celsius. Using conversion formulas makes it easier to compare temperatures on the two scales. Use the scenario above as an example of how to use the conversion formulas. Show all the steps, talk through the process aloud, and encourage students to assist you. Then challenge students to use the formulas to convert additional temperatures.

Conversion Formulas:

- °F to °C: $C = (F - 32) \div 1.8$
- °C to °F: $F = (C \times 1.8) + 32$

Turn Up the Volume (Science)

In this investigation, precipitation is measured in inches. Liquid can also be measured in liters, a unit of volume. Use a graduated cylinder or other device to measure the amount of water in the rain gauge. The next time it rains, challenge students to determine how many liters of rain fell.

Cloud Types (ELA)

Visit the National Weather Service's website to get information about the different cloud types to show your students. Challenge students to draw or take a picture of as many different cloud types as they can identify in their local area. For some extra creativity, encourage students to write a few sentences about interesting shapes or figures they saw in their clouds.

Satellites (Geography and Science)

Research the Landsat Program, which is co-managed by the U.S. Geological Survey and NASA and share information about satellites with your students. Visit USGS EarthNow! And share the imagery from the satellite as it makes its journey around Earth. Encourage students to identify clouds, bodies of water, and vegetation in the images.

EarthCam (Geography)

Take your students on a virtual field trip anywhere in the world using EarthCam. These global webcams allow you to view numerous locations around the world in real time. Use the webcams to challenge students to think about weather patterns in areas outside of their local community.

Biomes (Geography)

Have students learn more about climate zones by researching the world's biomes and the different organisms that call them home. Your class can focus on one biome, or you can divide the class into small groups and assign each group a different biome. Encourage students to create a visual that showcases the plants and animals that are found there and the environmental factors such as temperature and rainfall that make each biome unique. You may also have students research what problems may be facing the biomes they researched.

Books on Extremes (ELA)

Read Sophie Scott Goes South by Alison Lester to follow along with the travels of a young Sophie to Antarctica. Then take a trip to the Sonoran Desert and read Desert Giant: The World of the Saguro Cactus by Barbara Bash. Encourage students to compare and contrast the different climates in the books and the organisms that call them home.

Citizen Science (Science and Community Connections)

Have your students collect data and contribute to research on climate systems in your community. A great place to start is Project Bud Burst, which encourages students to monitor plants as the seasons change. Other great citizen science projects can be found through SciStarter, the Cornell Lab of Ornithology, and Journey North.

Climate Change (Science)

Allow students to visit the NASA for Kids website to learn more about climate change and its effects. They can explore the interactive activities about global warming, planet health, and our changing climate.

National Weather Service Safety (Social Studies)

Visit the National Weather Service's Safety page for detailed information on weather hazards and preparing year-round for dangerous weather. Have students research each season's weather safety tips. You might create a class display of the information, or perhaps make a short video advertisement to be shown to the greater school community.

Owlie Skywarn™ (Science and Social Studies)

The Owlie Skywarn™ website has numerous games, activities, and lessons related to weather and weather safety. This site has links for students, parents, and teachers to extend learning about weather. Allow time for students to explore the site during class time or select activities for them to do at home.

Ready (Social Studies)

Ready is a public safety campaign that was launched in the United States in 2003. Visit the site to gather information to share with the class about natural disasters, how to prepare an emergency plan, and how to build an emergency kit. Invite an emergency responder or public official to your class to discuss how they prepare and notify people in the event of an emergency.

Extreme Weather in the Solar System (Art and Science)

Have students explore the NASA SpacePlace to find out about the weather events of other planets. Create a display to showcase the extreme weather found on other planets and compare that extreme weather to that here on Earth.

Design Challenge (ELA and Engineering)

Challenge students to take their weather knowledge to the next level. The October 2013 issue of NSTA's Science and Children includes an article titled "Wacky Weather," which has ideas on how to incorporate STEM principles into a design challenge to create a house to withstand the impacts of a simulated severe weather event. For more information, read the article, and then develop a challenge for your classroom.

Weather Safety Drills (Social Studies)

Review procedures for inclement and hazardous weather, and have students practice different types of safety drills in your classroom or the gym. Even if you live in a state that does not typically have tornadoes or earthquakes, it is important for students to know what to do in case they travel to these areas.

Emergency Hazards and Preparedness Kit (ELA and Social Studies)

Have students prepare a poster or public service announcement about their weather hazard to communicate to the greater school community. Discuss with students how to prepare for severe weather and what to include in an emergency preparedness kit.

U.S. Army Corps of Engineers (Social Studies)

Have students research and respond to the following question: What role does the U.S. Army play in the building and maintenance of levees in our nation?