Classroom Teacher Preparation

Earth Science 3: World Weather Report

Please use the following to prepare for the next SfS lesson.

Description:

Students will "visit" different locations in the western hemisphere—one in the North, one near the equator, and one in the South—and compile data on the average precipitation and temperature over the course of a year. They will then summarize what the weather is like in January in each location, and identify when it is summer and when it is winter.

Lesson Objectives – SWBAT ("Students Will Be Able To…"):

3rd-4th

- Obtain and interpret relevant data from graphs to summarize the climate in different geographical locations
- Use the data to predict what the temperature will be like in a specific geographical area during January

Disciplinary Core Idea (DCI)

ESS2.D Weather and Climate

- (3rd-5th) Climate describes patterns of typical weather conditions over different scales and variations. Historical weather patterns can be analyzed.

Science & Engineering Practice (SEP)

Analyzing and Interpreting Data

- (3rd-5th) Represent data in tables and/or various graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships.

Crosscutting Concept (CCC)

Patterns

- (3rd-5th) Patterns of change can be used to make predictions.

Preparation:

This lesson is intended for students learning about climate and weather. Students should know how to read bar graphs. It is also helpful if students understand what the equator is, and where the North and South Poles are in relation to the equator and to each other.

Room Set Up for Activities:

The lesson is designed for students to move around the room to gather data. One end of the room should be designated as the North Pole, and the other end should be the South Pole. Data Sheets for different geographical locations in the western hemisphere should be placed around the room in the "north" in the "south" and near the "equator". In a pinch, the data sheets can be passed out and students can work at their desks.

Safety:

There are no safety concerns with this lesson.

Related Modules

This lesson may be taught as part of a sequence or group of related modules on weather and climate. Modules include:

Earth Science 4: The Rain Shadow Effect – Students work in groups to build a model of a rain shadow phenomenon. They identify the ingredients required for a rain shadow to occur and explain how the geosphere, hydrosphere, biosphere, and atmosphere are involved.

Earth Science 12: Water Cycle – This module presents a game (where students act as water molecules) that explains how water cycles through different forms and storage types on Earth and in Earth's atmosphere.

Earth Science 16: Weather Basics – Rising Air and Falling Rain – Using a series of demonstrations and activities, students will learn about how clouds form and the role that air temperature and moisture have in this phenomenon. They will also see how these factors allow clouds to ultimately produce rain or other forms of precipitation.

For other module sequences and groups, look here: www.sciencefromscientists.org/sequences

Standards Covered:

Please click the following link to our website to review the standards covered by this lesson, listed by state: www.sciencefromscientists.org/standards/

Lessons are matched to both national NGSS and local state standards.

After Our Visit:

Extend this lesson with the WGBH interactive lesson on interpreting seasonal temperature and precipitation variations.

Access this Extension activity by visiting the Classroom Post found on our website at sciencefromscientists.org/cohorts. Use the name of your school/cohort and password to log in.

To help Evaluate, check out our Open Response questions online at sciencefromscientists.org/open-response-questions. They are freely available for all of our lessons for current teachers. Use the password supplied by your instructor to log in.

Additional Resources:

- Explanation of the Hadley cell: https://www.britannica.com/science/Hadley-cell
- WGBH activity on monthly temperatures and precipitation: https://mass.pbslearningmedia.org/resource/buac17-35-sci-ess-lpinvestigatetempprecip/investigating-monthly-temperatures-and-precipitation/
- Lesson plans on polar climates: https://beyondpenguins.ehe.osu.edu/