NATIONAL GEOGRAPHIC

RESOURCE LIBRARY
ACTIVITY : 30 MINS

Extreme Weather on Our Planet

Students use prior knowledge, a photo gallery, and a video to discuss what they already know about extreme weather on Earth and brainstorm a list of weather-related words. Then they organize the information they learned about weather events and conditions present for each type of weather event, and compare and contrast weather events and conditions.

GRADES

2 - 5

SUBJECTS

Earth Science, Meteorology

CONTENTS

8 Images, 1 Video, 1 PDF, 1 Link

OVERVIEW

Students use prior knowledge, a photo gallery, and a video to discuss what they already know about extreme weather on Earth and brainstorm a list of weather-related words. Then they organize the information they learned about weather events and conditions present for each type of weather event, and compare and contrast weather events and conditions.

For the complete activity with media resources, visit:
http://www.nationalgeographic.org/activity/extreme-weather-on-our-planet/

Program

WILDEST WEATHER IN THE SOLAR SYSTEM

DIRECTIONS

1. Activate students' prior knowledge about extreme weather on Earth.

Ask: *What do you know about extreme weather on Earth?* Encourage students to think about weather they have experienced, read about, or seen on TV or in the movies. Have students brainstorm a list of weather-related words and phrases as they "pass the marker." Start the process by writing one weather-related word on the board. Distribute three dry-erase markers to volunteers with ideas. Have each student holding a marker approach the board and write one extreme weather word, then pass it to another student raising his or her hand. Continue until no one has ideas to add to the list. Encourage students to include words such as lightning, hail, sleet, rain, wind, gust, flood, snow, blizzard, storm, hurricane, tornado, cyclone, thunder, dust storm, and temperature.

2. View a photo gallery and video of extreme weather.

Show students images from the photo gallery Extreme Weather. Read aloud the captions as you scroll through the images. Then, show the National Geographic video "Weather 101." Pass out the three dry-erase markers again. Have students add words related to the photos or video to the list on the board. Assist them, as needed. Then explain to students that some words from the list are weather events, and some words are part of those weather events; call the latter "ingredients." For example, a lightning storm is a weather event. Ask: *What words from our list can be part of a lightning storm?* Elicit responses such as lightning, clouds, rain, wind, and thunder.

3. Have students complete the worksheet Weather Investigation.

Distribute a copy of the worksheet Weather Investigation to each student. Read aloud the directions and go over the provided answer. Allow students to gather and organize the information they have learned about weather and conditions present for each type of weather. Have students work in pairs or as a whole class to identify other weather events and the ingredients for each from their list. Help students to find answers to any questions they have, including definitions of words that are new to them. Their answers should include the following:

- Thunderstorm: rain, clouds, lightning, thunder, wind
- Tornado: clouds, strong wind, rain, hail
- Hurricane or cyclone: strong wind, heavy rain
- Blizzard: heavy snow, ice, cold temperatures
- Dust storm: strong winds, arid conditions
- Flood: heavy rainfall
- Hail storm: cold or warm temperatures, rain, ice
- Ice storm: freezing rain

4. Discuss the ingredients of extreme weather events.
Ask: *How are the ingredients for each weather event the same? How are they different?* Help students to identify that many weather events have certain ingredients in common, including wind, clouds, and high or low temperatures.

Modification

In Step 1, have students create a visual glossary of weather-related terms using pictures cut out of magazines or their own drawings.

Informal Assessment

Have students orally describe examples of extreme weather on Earth and the ingredients present for each.

Extending the Learning

Have students play NASA's Weather Word Cross game.

OBJECTIVES

Subjects & Disciplines

Earth Science

- Meteorology

Learning Objectives

Students will:

- list the criteria and conditions required for weather events to occur
- describe climate, or weather patterns

Teaching Approach

- Learning-for-use

Teaching Methods

- Brainstorming
- Discussions
- Multimedia instruction
- Visual instruction

Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
  - Analyzing
  - Understanding

National Standards, Principles, and Practices

NATIONAL SCIENCE EDUCATION STANDARDS

• **(K-4) Standard D-3:**
Changes in earth and sky

Preparation

What You'll Need

MATERIALS YOU PROVIDE

- Dry erase markers
- Pencils
- Pens

REQUIRED TECHNOLOGY

- Internet Access: Required
- Tech Setup: 1 computer per classroom, Projector, Speakers

- Plug-Ins: Flash

PHYSICAL SPACE

- Classroom

GROUPING

- Large-group instruction

BACKGROUND & VOCABULARY

Background Information

The term *weather* describes conditions in the atmosphere over a short period of time. *Climate* describes weather patterns of a particular region over a longer period, usually 30 years or more. Climate is an average pattern of weather for a particular region. Identifying patterns in the atmospheric conditions of extreme weather events can help you understand Earth's weather system.

Prior Knowledge

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Recommended Prior Activities

- Design Your Own Space Probe
- Discover Space Probes
- Extreme Weather on Other Planets
- Jupiter's Great Red Spot
- Measuring Weather with Tools

Vocabulary

Term	Part of Speech	Definition
atmosphere	*noun*	layers of gases surrounding a planet or other celestial body.
blizzard	*noun*	storm with high winds, intense cold, heavy snow, and little rain.

Term	Part of Speech	Definition
dust storm	*noun*	weather pattern of wind blowing dust over large regions of land.
extreme weather	*noun*	rare and severe events in the Earth's atmosphere, such as heat waves or powerful cyclones.
flood	*noun*	overflow of a body of water onto land.
hail	*noun*	precipitation that falls as ice.
hurricane	*noun*	tropical storm with wind speeds of at least 119 kilometers (74 miles) per hour. Hurricanes are the same thing as typhoons, but usually located in the Atlantic Ocean region.
temperature	*noun*	degree of hotness or coldness measured by a thermometer with a numerical scale.
thunderstorm	*noun*	cloud that produces thunder and lightning, often accompanied by heavy rains.
tornado	*noun*	a violently rotating column of air that forms at the bottom of a cloud and touches the ground.
weather	*noun*	state of the atmosphere, including temperature, atmospheric pressure, wind, humidity, precipitation, and cloudiness.

For Further Exploration

Articles & Profiles

- National Geographic Education: Article—Meteorological Sleuth
- National Geographic Education: Profile—Real-World Geography: Dr. Randall Cerveny

Websites

- Weather Wiz Kids
- Web Weather for Kids

FUNDER

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