

Rainy Days



Upper Primary

Weather

Rainy Days



Teacher Notes

Key Concepts

Earth's weather changes from day to day and from season to season.

National Science Education Content Standards (1996)

Unifying Concepts and Processes

- Evidence, models, and explanation
- Systems, order, and organization
- Constancy, change, and measurement

Science as Inquiry

- Abilities necessary to do scientific inquiry
- Understanding about scientific inquiry

Earth and Space Science

- Changes in earth and sky

Process Skill Objectives

Collecting data, communicating, experimenting, formulating hypotheses, inferring, interpreting data, observing, predicting

Family Science Packet Summary

During this activity, students will observe weather conditions. They will also make a rain gauge out of a cup and dowel to measure daily rainfall. This packet should be used in the fall or mid-spring. Consider weather forecasts to improve activity results.

Activity Duration

Allow 4–5 days to complete this activity.

Materials Needed

From School:

Per student — 1 clear plastic cup marked with inch measurements, 1 dowel, duct tape, 1-gallon plastic bag, 1 Observation Record

To send home duct tape, wrap a portion of tape around a craft stick or old pencil stub so that each child can unwind and use what he or she needs.

Note: Cups should be as cylindrical as possible. You may choose to send home a plastic ruler instead of marking the cup.



Background Information

- Weather is the state of the atmosphere at a specific time. *Weather* is different from *climate*, which is the meteorological conditions (including temperature, precipitation, and wind) that prevail in a region.
- Temperature varies according to latitude, longitude, elevation, season, and time of day.
- Clouds and all forms of precipitation are produced by the cooling of the air as it rises.
- The water cycle ensures that there is always the same amount of water on earth, but the water is in different states of matter at different times.
- Rain, sleet, snow, and hail are produced when droplets and crystals in the clouds grow large enough to fall to the ground.
- Wind is the horizontal movement of air.

Pre-Activities

- Introduce this activity to the students by discussing the following questions, “What is the weather like today? Yesterday? What different types of weather are there in our local town/city? Why does it rain when it’s cloudy and usually not when it is sunny? When it rains, how much rain actually falls?” Review the basic steps of the activity, including formulating hypotheses and data collection.
- Create initial experiences where students can explore weather, rain, and the water cycle. Maintain a weather log and chart throughout the year. Investigate weather locally and in other parts of the world and look for similarities and differences among weather patterns. Use a variety of information sources and structure activities to involve analyzing and recording observations in a variety of ways.
- Collect rainwater in the classroom and school. Use rain barrels or buckets and place in different locations for the remainder of the school year. Discuss and investigate uses for the water. Have students implement their ideas. Some ideas include using the rain water to paint, to nourish the plants and animals, and to clean tables.
- Discuss different ways we get rain (thunderstorms, hurricanes, etc.) Investigate recent major storms. Compile an ongoing chart of the effects of rain on our daily lives.

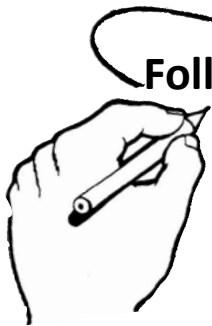
- Create a water cycle in the classroom. Demonstrate “making rain” by holding a pan with a bag of ice over a boiling pot of water on a hot plate. Within a short amount of time, the water will change from liquid to gas to liquid again. Evaporation, condensation, and precipitation will be evident on the bottom of the pan.
- Provide opportunities for students to research specific interests, curiosities and basic information about weather, rain and the water cycle. Provide and encourage the use of multiple sources of information. Have students share their learning in a variety of ways.
- Integrate literacy with science learning. Read the following books and discuss the effects of rain, water, and seasons on earth: *On the Same Day in March* (Singer, 2000); *Rain Drop Splash* (Tresselt, 1990); *Drop of Water* (Wick, 1997); *Rain* (Kalan & Crews, 1991); *The Rain Came Down* (Shannon, 2000); and *The Sun, the Wind and the Rain* (Peters, 1988).

U-STAR~PLUS Science & Literature Connections

Bringing the Rain to Kapiti Plain – Verna Aardema
Cloudy With a Chance of Meatballs – Judi Barrett
Come on, Rain! – Karen Hesse
What Will the Weather Be Like Today? – Paul Rogers
Milo and the Magical Stones – Marcus Pfister
Someday a Tree – Eve Bunting
The Tiny Seed – Eric Carle



Follow-Up Activities



- Compile, analyze, synthesize, and share the data returned from home in a variety of ways. Discuss and interpret student hypotheses and data. Look at total class daily rain amounts, individual daily rain amounts, total class weekly rain amounts, and individual weekly rain amounts. Also investigate averages, range, and medians of the data. Generalize the data to determine student findings and discoveries. Ask related questions to understand and expand students’ thinking. Provide opportunities to investigate further questions and related topics.



- While students are collecting data at home, prepare an in-class group chart for the students to share data. Have students plot their homes on a local map with pins and paper strips. This map will allow students to identify data collection locations and compare data in various locations around the local area.
- Research and chart predicted and actual daily rainfall amounts in your local area; compare and contrast the data. Further research and chart rainfall in areas around the world; compare and contrast global data with local data.
- Do a library and web search to look at local, national, and global weather radars. Compare and contrast the weather data collected from the different radars. Intentionally choose geographically different locations.



Family Science Activity

Due Date: _____

This activity helps you learn about...

Earth changes: Weather

- water cycle

This activity involves...

Collecting data, communicating, experimenting, formulating hypotheses, inferring, interpreting data, observing, predicting

Packet Duration

Allow 4–5 days to complete this activity.

What do we need?

From School: 1 clear plastic cup marked with inch measurement, 1 dowel, duct tape, 1-gallon plastic bag, 1 Observation Record

What are we doing?

In this activity, your scientist will gather data on the amount of rainfall over one week by using a home-made rain gauge. Your scientist will also observe weather changes over the week.

How are we going to do this?

During this activity, you will make a rain gauge out of the cup and dowel to measure daily rainfall and observe different weather patterns.

Day 1 

1. Find a spot outside to put your rain gauge. Make sure the spot is where the rain gauge could catch rain (not under a shelter or cover). Your rain gauge will be outside for 4 days.
2. Push the dowel into the ground a few inches and then tape the cup to it using the duct tape. Make sure the bottom of the cup is at ground level. The dowel will help to make your rain gauge sturdy and to keep it from blowing away.
3. Look at today's weather. How much rain do you think will fall in the next 4 days? How much total rain will you collect in your rain gauge? Record your predictions on the Observation Record.

 **Days 2–4**

1. Each day, record on the Observation Record the amount of rain that falls into the rain gauge. Use the ruler on your rain gauge to measure the amount.
2. Empty the rain gauge each day and start again! Make sure the rain gauge is sturdy in the ground.
3. Describe the general weather you observe each day on your Observation Record.
4. Finish your Observation Record and discuss the Family Time questions that follow.
5. Return your Observation Record, packet, and dry supplies to school by the date due.

Family Time — Questions

1. How much total rain did you get in the week? Why do you think this happened?
2. Which day got the most rain? How much?
3. How does rain affect your life? The environment around you? What was the weather like when it rained? Are there any patterns in the weather?
4. Explain some of the effects of the rain or the lack of rain on the environment.
5. What other thoughts do you have about this experiment?

Family Notes

- After measuring rain amounts for the day, remember to empty the container to have a fresh start for the next day.
- On the Observation Record, all responses are acceptable; no answer is right or wrong. For the “I discovered” section, any thoughts are welcome.
- Encourage your scientist to record what she or he observes and thinks about the activity. Words or drawings may be used to record the observations.
- Your scientist may need help to complete the activity and fill out the Observation Record. Please partner with your child on this activity.

Family Science Observation Record

Rainy Days



Name: _____

Date: _____

Hypothesis: I predict it will rain _____ inches over the next 4 days.

Complete the chart below based on your observations. Use words and/or drawings.

Date	Rain Amount in Inches	Description of Weather
Day 1 ____/____ Month/Date		
Day 2 ____/____ Month/Date		
Day 3 ____/____ Month/Date		
Day 4 ____/____ Month/Date		
Total Rain Amount		

I discovered...
