

Cloudy With a Chance of Meatballs

Summary

A learning activity where students are introduced to the common types of precipitation.

Time Frame

2 class periods of 45 minutes each

Group Size

Large Groups

Life Skills

Thinking & Reasoning, Communication

Materials

stapler
overhead projector or blackboard
a copy of *Cloudy With a Chance of Meatballs* (ISBN 0689707495)
Student Product:
Materials for a student group
colored pencils or crayons
three pieces of white 8.5 x 11 in paper
pencil

Background for Teachers

This lesson may be delivered either in conjunction with a unit on the water cycle or weather. Even though this may seem obvious, students need to understand that water can change from a liquid to a solid (ice). You may want to briefly touch upon this concept prior to teaching this lesson. You should know the meaning of each of these key vocabulary words:

- **atmosphere**
: the layer of air that surrounds the earth.
- **precipitation**
: any form of water that falls to the earth from the atmosphere.
- **rain**
: water droplets that fall from the atmosphere to the earth.
- **freezing rain**
: water droplets that fall from the atmosphere and freeze to ice when they contact the earth or another object.
- **sleet**
: water droplets that fall from the atmosphere and freeze into ice pellets before hitting the earth.
- **hail**
: frozen water droplets that grow larger while being held inside a cloud by strong updrafts.
- **snow**
: ice crystals that leave the cloud and don't melt before hitting the earth

Some of these definitions may be different from what you think. 'When we start naming the different kinds of ice, confusion begins. Scientists don't always agree on the names....But the official guide for United States weather observers has different descriptions. Neither set of definitions uses the

common word 'sleet,' which is defined differently in various parts of the English-speaking world. In the United State, 'sleet' refers to frozen raindrops, or ice pellets.' (Williams, Jack. The Weather Book, p. 103. New York, Vintage Books (1992)).

More information about precipitation and its types can be found at the University of Illinois [Online Meterology Guide](#).

Intended Learning Outcomes

Use reference sources to obtain information. Know science terminology appropriate to grade level. Prepare reports.

Instructional Procedures

Read the humorous picture book Cloudy With a Chance of Meatballs by Judith Barrett to the students. Discuss the different things that came out of the sky in Cloudy With a Chance of Meatballs. Ask if this is something that is fact, fiction, or opinion. Pass out the materials and explain that the students will be making a &34Precipitation Pamphlet&34 that will describe the common types of precipitation that we experience. **Make the Pamphlet**

Though there are many ways of folding the paper to make a pamphlet, for this activity I prefer having the students make a tiered pamphlet. I suggest making a sample pamphlet prior to guiding the students through the process.

To make a tiered pamphlet.

Place two of the three sheets of paper on a flat surface; one exactly on top of the other with long edges on the sides (portrait orientation).

Keeping the long edges adjacent, slide the top sheet of paper toward you so that the short edges are offset by about 2 to 3 cm.

Place the next sheet of paper on top of the others and align the long edges. Offset it equal distance so you can see the tops of all the three sheets.

Carefully take the short edges of paper closest to you and bend them toward the offset edges so that top sheet's bottom edge is offset 2 to 3 cm from its top edge.

Crease the papers.

Equally spaced along the fold and 2 mm from the fold, staple twice.

Turn the pamphlet so the staples are along the top.

If you did it correctly, you should have a six-paged pamphlet that has tiered edges.

The pamphlet should look similar to this:

-	-	
My Precipitation Pamphlet		
Rain		
Freezing Rain		
Sleet or Ice Pellets		
Hail		
Snow		

Guide the students in illustrating and writing the descriptions for each type of precipitation

Place a title on the top front page (ie. My Precipitation Pamphlet)

Have the students label each of the tiered edges with the different types of precipitation: rain, freezing rain, sleet or ice pellets, hail, snow

Have the students lift up the top (title) page and draw an illustration of a cloud with rain coming out of it and hitting the ground

Lift the next page and guide the students in illustrating and labeling how freezing rain leaves the cloud as a liquid and freezes when it hits the ground or another object (ie. airplane, house, telephone line, etc.)

For the sleet or ice pellet page have the students draw a cross section of the atmosphere showing how sleet leaves the cloud as liquid and passes through cold air and freezes into ice pellets that look like fertilizer granules or bean bag chair styrofoam beads

Have the students illustrate and label the hail page. Have them show the ice pellets going up and down inside the cloud to form hailstones and then dropping out and falling to the ground when they are too heavy for the updrafts to carry them

Have them use the snow page to show how ice crystals form while in the cloud and stay frozen until they hit the earth. They may even like to draw some snowflakes.

Extensions

Have the students make snow flakes. Remember snow flakes are six-sided crystals that are technically minerals.

Use bean bag chair styrofoam pellets to show the students what hail looks like.

Have the students create their illustrations for their precipitation pamphlets using a computer.

Use the *Windows on Science: Earth Science Vol. 2* lasardisc to show still and moving pictures of many different types of precipitation.

Type Frame(s) rain 10352 to 10423 rain 08731 rain 08737 snow 07244 snow 07247 snow 8749 to 08752 hail 10424 to 10690 hail 15255

Use the *Windows on Science: Earth Science Vol. 3* lasardisc to show still and moving pictures of many different types of precipitation.

Type Frame(s) hail 01920 to 02856 rain 03493 to 03747 precipitation 11474 precipitation 11475

Assessment Plan

Give the students a pre-test on the different types of precipitation prior to teaching the lesson.

Have the students create a graphic organizer showing many, varied, things that are associated with precipitation.

Bibliography

Williams, Jack Weather Book, The (USA Today, 1992) pp. 100-101, 103

Barrett, Judith Cloudy With a Chance of Meatballs (, 1982)

Windows on Science: Earth Science vol. 2 (Optical Data Corporation, 1994)

Windows on Science: Earth Science vol. 3 (Optical Data Corporation, 1994)

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