

Snowfall *(modified for ADEED)*

Overview:

Snowfall and rainfall are both precipitation, but snowfall takes up much more space than rain. In this activity, students discover just how much liquid water is in one inch of snow.

Objectives:

The student will:

- use a scientific method; and
- explain that both snow and rain are water in different forms.

GLEs Addressed:

Science

- [3] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.
- [3] SA1.2 The student demonstrates an understanding of the processes of science by observing and describing the student's own world to answer simple questions.
- [3] SD3.1 using recorded weather patterns (e.g., temperature, cloud cover, or precipitation) to make reasonable predictions (L).

Math

- [3] MEA-6 The student demonstrates ability to use measurement techniques using pictorial representations or manipulatives in real-world contexts by measuring length to the nearest half-inch.
- [4] MEA-5 The student demonstrates ability to use measurement techniques using pictorial representations or manipulatives in real-world contexts by measuring length to the nearest half-inch or centimeter.

Materials:

- Small bucket
- Ruler
- STUDENT WORKSHEET: "Snow and Rain"

Activity Procedure:

1. Remind students that precipitation is water that falls from the sky as both snow and rain. Snow and rain are both water, but in different forms. Scientists measure snowfall and rainfall to determine the amount that falls.
2. Ask students if they think 1 inch of snow has the same amount of liquid water as 1 inch of rain. Explain that when scientists are looking for the answer to a question they follow a set of steps called a scientific method. The scientific method starts with asking a question. Today, our question is: "Does 1 inch of snow have the same amount of liquid water as 1 inch of rain?"
3. Tell students that in this activity they are going to find out exactly how much liquid water is in snow. Explain the next thing scientists do is make a guess about the answer to their question. A guess is based on what we know is called a prediction.
4. Hand out the STUDENT WORKSHEET: "Snow and Rain." Ask students to fill in the prediction section of their worksheets by making a guess as to how much liquid water will be in the bucket after the snow melts.

5. Explain the next thing scientists do is test their prediction. Ask students how they would test their prediction. Explain that today the class is going to fill a bucket with snow and let it melt, then measure how much water there is. Take the class outside and fill up a bucket with 1 inch of snow; use the ruler to measure. Bring the snow inside.
6. While the snow is melting, remind students that snow, rain, and ice are all water in different forms. Play the following game:
 - a. Explain the three different phases of water (solid, liquid, and vapor) and their characteristics, and have the students draw and describe the three stages.
 - b. Push all desks against one wall and use one wall as the start line and the opposing wall as the finish line. If the game can be played outside, create a start line and a finish line. Line students up on the start line. Explain that every time a student hears the teacher yell out a different phase of water, the student has to pretend to be that state of water. So, when the teacher yells out... - "solid!" students must be frozen solid and expand their bodies (by stretching arms and legs wide, sticking out chests, etc.) - "liquid!" students run towards the finish line - "vapor!" Students must do leaps up into the air like vapor rises, with very little forward movement.
 - c. If a student gets confused and does the incorrect movement, they must go back to the start of the line.
7. When the snow is melted, continue with the worksheet. Have each student measure the water in the bucket and record it on their worksheets. Assist students with completing their worksheets.

Answers:

1. Answers will vary.
2. Answers will vary, but should be the same for all students in the class
3. Line should connect the snow sample to the bottom cup of water
4. Answers will vary.
5. A. solid, liquid, vapor
6. Answers will vary.

Name: _____

Snow and Rain

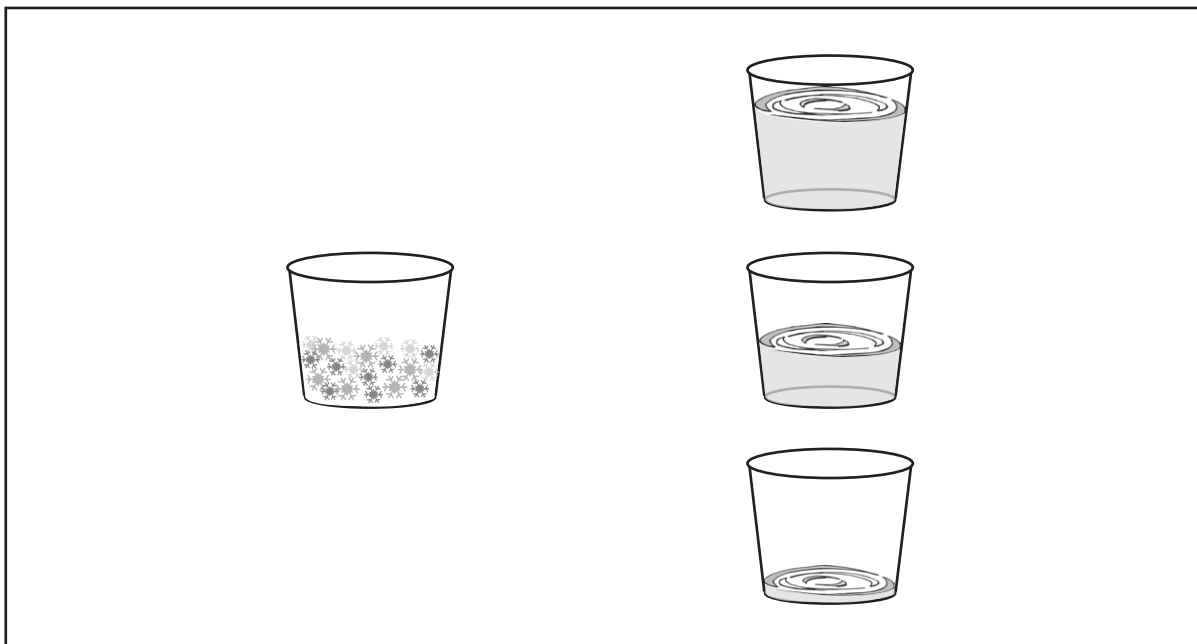
Student Worksheet (page 1 of 3)

Testable Question:

How much liquid is in 1 inch of snow?

Prediction:

Draw a line to connect the snow bucket with the bucket that shows how much water will be there after the snow melts.



Procedure:

1. The teacher will take the class outside and put 1 inch of snow in a bucket.
2. The class should let the snow melt.
3. The teacher will pick a student to measure the level of water in the bucket after the snow has melted.
4. Complete the worksheet.

Name: _____

Snow and Rain

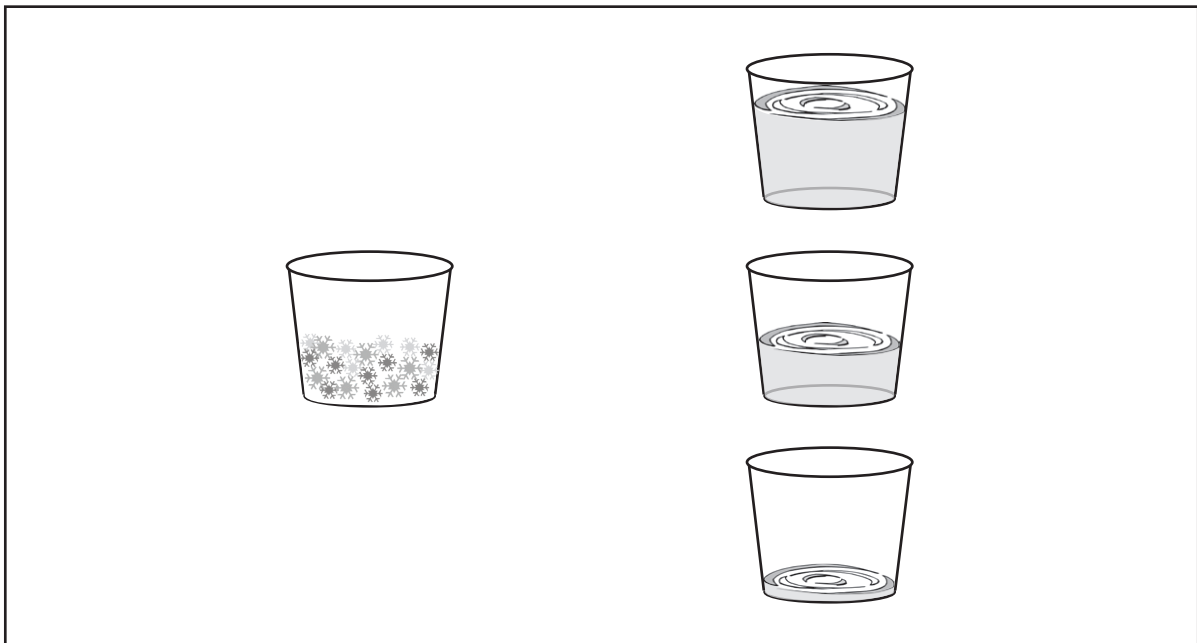
Student Worksheet (page 2 of 3)

Data:

1. How much snow was put in the bucket? _____ inch
2. How much water was there after the snow melted? _____ inches

Conclusion:

3. Draw a line to connect the snow bucket with the bucket that shows how much water there was after the snow melted.



4. How do you know?

Name: _____

Snow and Rain

Student Worksheet (page 3 of 3)

Further Questions:

5. What are the three phases of water? (circle one)

A. solid, liquid, vapor

B. solid, liquid, snow

C. rain, snow, hail

D. ice, snow, rain

6. If this experiment was repeated on another day, would you get the same result? Why or why not?
