

## SNOW

### Teaching Guidelines

**Subject:** Mathematics

**Topics:** Measurement (Volume)

**Grades:** 4 – 6

#### Concepts

- Ratio

#### Knowledge and Skills:

- Can solve complex, multi-step problems
- Can use proportional reasoning to solve problems

**Materials:** None

**Procedure:** The activity can be done individually, in teams, or as a class discussion.

Distribute the handout and discuss the first three paragraphs as a class. Make sure all students understand the situation presented.

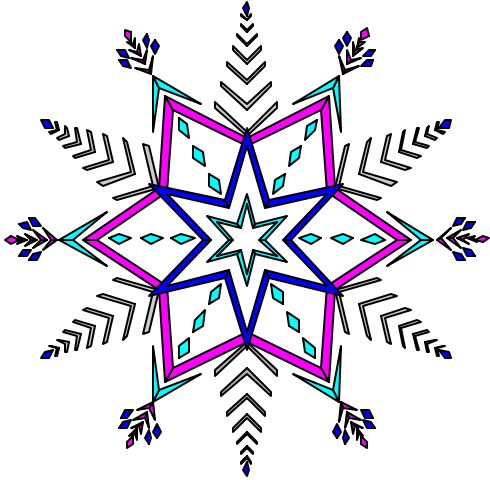
Ask students if they know the mathematical word that is used when we talk about a comparison of numbers, such as 10 inches of snow turns into 1 inch of water. Lead this discussion to review of the concept of *ratio* and the ways that ratios can be written.

Discuss the ratio presented in this problem (10:1) and ensure students understand what it represents.

Allow the teams or individuals to work on the problem on their own. Circulate and help as needed.

*Answers:*

1. 1,000 acres of snow, 30 inches deep = 1,000 acres of water, 3 inches deep
2. If one acre of water, one inch deep = 27,000 gallons,  
then 1,000 acres of water, one inch deep = 27,000,000 gallons
3. 3. Then 1,000 acres of water 3 inches deep =  $3 \times 27,000,000$  gallons = 81,000,000 gallons.



# Snow

Snow takes up a lot more room than the same amount of liquid water.

For some kinds of snow, it can take 10 inches of snow to equal 1 inch of liquid water.

Suppose there is a layer of snow that covers 1,000 acres at a depth of 30 inches, and it melts in the springtime.

If you use the 10:1 ratio, how much liquid water would that be?

Follow these steps to find out:

1. If the snow is 30 inches deep before it melts, how deep will the water be after it melts? Fill in the blank:

*1,000 acres of snow, 30 inches deep =*

*1,000 acres of water, \_\_\_\_\_ inches deep*

2. If one acre of water, one inch deep = 27,000 gallons,

*then 1,000 acres of water, one inch deep = \_\_\_\_\_ gallons*

3. Put together your answers to #1 and #2 to find out how many gallons of water you would get when the snow melts.