The Scoop-on-Ice-Cream Planning

Strand: Computation and Estimation

Topic: Solving problems involving percents, ratios tables, and proportions

Primary SOL: 8.4 The student will solve practical problems involving consumer applications by using proportional reasoning and computational procedures for rational numbers.

Related SOL: 7.3, 7.10, 8.16

Materials

- *The-Scoop-on-Ice-Cream Planning Sheet* (attached)

Vocabulary

equivalence, proportion, ratio table (earlier grades)

Student/Teacher Actions: What should students be doing? What should teachers be doing?

1. Distribute *The Scoop-on-Ice-Cream Planning Sheet*, and review the information about the three favorite ice cream flavors. Also, review the essential measurement equivalents that students must use to solve the problems.
2. Go over the problems with the class, and answer questions, as necessary.
3. Have the students work in pairs to solve the problems.
4. When students are finished, have them share their solutions and strategies for solving.

Assessment

- **Questions**
    - What would happen to your results if chocolate chip ice cream were included and half the people who picked vanilla were to switch to chocolate chip?
    - What would happen if 50 visitors to town were also to show up to get free ice cream?

- **Journal/writing prompts (include a minimum of two)**
    - Explain the relationship between percents and proportions.
    - Explain what a unit rate is and why it is useful.

- **Other Assessments (include informal assessment ideas)**
    - Take a class survey based on favorite types of ice cream, using chocolate, vanilla, and strawberry. Then have students work together to complete *The Scoop-on-Ice-Cream Planning Sheet* for the classroom population.
    - Change the population size a few times. Ask students to provide you with the equivalent number of people for each flavor based on the new populations.

Extensions and Connections (for all students)

- Have students compile data about their own interests and use those percents in calculations.
- Have the class participate in an ice cream taste test to determine the percents to use.

Strategies for Differentiation

- Adjust the percents in *The Scoop-on-Ice-Cream Planning Sheet* to be easier to work with (e.g., 20 percent, 10 percent).
- Review measurement equivalents (i.e., cups, quarts, gallons, grams, pounds) before the lesson
- Provide students with M&Ms or Skittles.
- Make up questions based on grams.
- Review and preteach essential vocabulary to certain students before introducing the lesson.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

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The Scoop-on-Ice-Cream Planning Sheet

Name _____ **Date_____**

The Three Favorite Flavors of Ice Cream

Flavor	Percent of Those Polled
Vanilla	55%
Chocolate	29%
Strawberry	16%

Scrumptious Scoops is a popular ice cream parlor in Smalltown, Virginia. To celebrate the Fourth of July, the store's owner decided to serve free single scoops of the three most popular flavors to the audience at the Independence Day outdoor band concert. Mr. Scrumptious decided he could determine how much ice cream he would need by using data provided by the International Ice Cream Association. The town estimates that approximately 800 residents will attend the concert.

Mr. Scrumptious uses the ratio table below to plan for the event. Using the table, Mr. Scrumptious can get an accurate count for each favorite flavor.

Fill in the missing data from the ratio table below.

Percent	Number of People
1	
5	40
10	80
15	
16	
20	
29	
30	
50	
55	

Assuming everyone will want a free scoop of ice cream, how many people do you expect to prefer chocolate? _____

How many people do you expect to prefer vanilla? _____

How many people do you expect to prefer strawberry? _____

If Mr. Scrumptious had offered a free scope of coffee ice cream, it is predicted that 1% of the population would have requested this option. How many Smalltown residents would have asked for coffee ice cream? _____

Use the Essential Measurement Equivalents along with the ratio tables below to determine how many half-gallons of each flavored ice cream Mr. Scrumptious will need.

| **Essential Measurement Equivalents** |
| A gallon of ice cream weighs about 5 pounds and contains 4 quarts. One scoop of ice cream is one cup, or 68 grams. One gallon contains 16 cups, so one half-gallon contains 8 cups. |

Number of Free Scopes	Number of Cups Needed
5	5
40	40
128	
232	
440	

Number of Cups	Number of Half Gallons
8	
16	2
32	4
40	
80	
100	
128	
232	
440	
800	

How many half-gallons of chocolate ice cream should Mr. Scrumptious plan to have on hand to serve to those people? _____

How many half-gallons of vanilla ice cream should Mr. Scrumptious plan to have on hand to serve to those people? _____

How many half-gallons of strawberry ice cream should Mr. Scrumptious plan to have on hand to serve to those people? _____

If the representatives from Scrumptious Scoops serve everyone at the concert a scoop of ice cream, how many half-gallons of ice cream will they serve? _____

Use the ratio table below to figure out how many pounds that will be.

Number of Half Gallons	Number Pounds
1	
2	5
4	10
10	
20	
45	
50	
100	

How many pounds of ice cream will Scrumptious Scoops serve if everyone at the concert receives their free scoop? _____