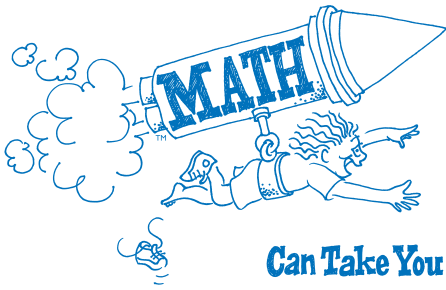


Activity 4: Let's Make Ice Cream

3rd - 6th Grade



Can Take Your Places

FOCUS AREA

Equivalency

ACTIVITY TYPE

Budgeting/Life Skills

Math Goal

To find equivalent fractions using liquid measurement (i.e., four $\frac{1}{4}$ cups = 1 cup)

NUMBER OF STUDENTS

20 kids total, separated into pairs (total of 10 teams)

TIME NEEDED

30 minutes

OBJECTIVE

To buy items needed for a camping trip by changing fractional prices to dollars

MATERIALS

- Egg timer or clock (to track 15 minutes)
 - For each pair:
 - $\frac{1}{2}$ cup half-and-half
 - 1 teaspoon of vanilla extract or favorite flavoring
 - 1 tablespoon of granulated sugar
 - 2 cups of crushed ice
 - $\frac{1}{4}$ cup of rock salt
 - Airtight plastic sandwich (You may want to use two bags to “double-bag” ingredients for caution.)
 - Quart-size plastic container with lid
 - Duct tape
 - Plastic spoons for tasting (one for each player)
 - Various measurement tools: $\frac{1}{8}$ cup, $\frac{1}{4}$ cup, $\frac{1}{2}$ teaspoon and 1 teaspoon, etc.
- From the *Math Can Take Your Places After School Kit***
- One copy of the “Ice Cream Recipe” sheet for each pair
 - Optional: Math Can Take Your Places video Episode I, “What’s Cooking?” (Patterns)

BEFORE YOU START

- Be sure to copy the “Ice Cream Recipe” sheet for each pair, gather the needed materials and have access to a refrigerator.
- To make the activity less challenging, give each pair the $\frac{1}{4}$ cup and $\frac{1}{2}$ teaspoon measuring tools or just have the students follow the recipe as stated without converting the measurements.
- To make the activity more challenging, ask the pairs to use only one of the teaspoon or tablespoon measuring tools to create their ice cream.
- During the 15-minute shaking period, make sure that all the plastic containers are shaken.

- Have water available so that students can verify their conversions before they measure the ingredients.
- **Extra Information:**
 - 1 tablespoon = 3 teaspoons
 - 1 cup = 16 tablespoons

HOW TO START

Ask: “How many of you like to cook?” (Wait for student responses.) “Today, we're going to make ice cream.”

STEPS

Step 1

Children will convert measurements in their recipes based on the measurement tools to which they have access. The recipe will not change. For example, if they have only a $\frac{1}{4}$ cup, they would measure $\frac{1}{2}$ cup by using two $\frac{1}{4}$ cups instead. They will record the changes on their Recipe Conversion Chart and present them to the teacher or helper, who will assess the accuracy of their conversions before mixing begins. Children will follow their converted recipe and complete their ice cream making.

Step 2

Mix the milk, vanilla and sugar in the sandwich-size bag. Remove as much air as possible and seal tightly. You may want to double-bag the ingredients in order to reduce messes.

Step 3

Place the sandwich bag inside the quart-size plastic container. Fill the quart-size plastic container with ice and sprinkle rock salt on top of the ice. Remove as much air as possible and seal tightly using the duct tape. Label the containers by writing the kids' names on the tape.

Step 4

Tell the kids that they are going to have to “work” for their ice cream. To add in some physical activity and cut down on the boredom of the 15 minutes of shaking needed to finish the ice cream, divide the pairs into two large groups and do some of the following activities:

- Have each team create a straight line with them all facing forward. Start one plastic container at the front of each of the lines. Have the kids pass it over their heads, then through the legs of the next person, alternating until the container reaches the last person. When the container reaches the end of the line, the last player runs it to the front of the line and starts the process over. The first team to get their original starting player at the front of the line wins.
- Have the two teams make circles and pass the containers around the circle as quickly as possible. The team that gets the container back to the starting player without dropping it wins.
- Do a “shaking relay.” Have one person stand equal distances in front of each of the teams as their “finish line.” Give the first person in each line a container. When you say “go,” the first player must run - while shaking the container - up to the “finish line,” around the person, then hand the container to the next person in line. The team that gets back to the original player first wins.

Step 5

Enjoy your ice cream

WRAP UP

Discuss other measurement equivalencies: how many quarts equal a gallon, how many cups are in a quart, etc.

OPTIONAL ACTIVITIES

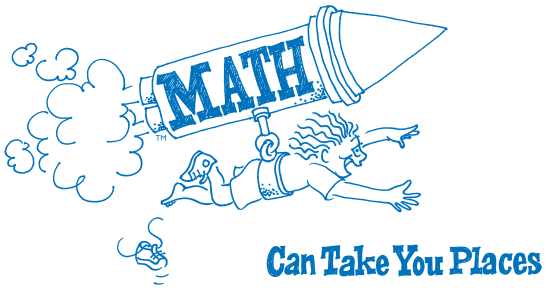
- Have the students correctly calculate a double batch of ice cream.
- Make an “estimation” batch of ice cream without actually using the actual measuring cups and spoons.
- Have students bring in their favorite recipes and have the class adjust the portions or servings as needed.
- Ask a local chef to share recipes he or she may use to feed hundreds of students, and adjust the recipes to feed a small family. Possibly invite the chef to come and share the recipe with the class as a speaker.
- Ask the kids to create an original recipe using their favorite foods and the fractions from the lesson. Then allow the students to exchange their recipes and double the serving size.

SUGGESTED MATH CAN TAKE YOU PLACES CONNECTIONS

View the *Math Can Take You Places* student video Episode 1: “What’s Cooking” (Patterns). Chef Koval talks about using math to adjust the serving sizes for the recipes he makes. Ask the kids to name other times when a chef would have to cook for large groups of people. (Possible answer: at a hospital, army base, school, etc.)

WEB RESOURCES

- Fractions: short word problems: <http://www.dositey.com/math/mistery2.html>
- Naming Fractions: http://nlvm.usu.edu/en/nav/frames_asid_104_g_2_t_1.html
- Ice Cream Recipes (over 30 flavors): <http://www.sendicecream.com/recformakice.html>
- Interactive Volume Conversion Chart: <http://www.sciencemadesimple.net/volume.php>



Activity Cue Card

- Students convert the ice cream recipe to reflect the kind of measurement tools that they have been given access to and record changes on the Recipe Conversion Chart.
- Have the facilitator check to make sure the converted recipe is correct.
- Make the recipe, then shake the bag for 15 minutes. To prevent boredom, you may wish to regroup the students into two teams and engage them in an activity while they shake their bags.
- Eat the ice cream.

Ice Cream Recipe

Materials

For each pair:

- 1/2 cup half-and-half
- 1 teaspoon of vanilla extract or favorite flavoring
- 1 tablespoon of granulated sugar
- 2 cups of crushed ice
- 1/4 cup of rock salt
- Airtight plastic sandwich bag (You may want to use two bags to double-bag ingredients for caution.)
- Quart-size plastic container with lid
- Duct tape
- Plastic spoons for tasting (one for each player)
- Various measurement tools: 1/8 cup, 1/4 cup, and 1/4 teaspoon, 1 teaspoon, etc.
- Egg timer or clock to track 15 minutes

Directions

Mix the milk, vanilla and sugar in the sandwich-size bag. Remove as much air as possible and seal it tightly. You may want to double-bag the ingredients in order to reduce messes.

Place the sandwich bag inside the quart-size plastic container bag. Fill the quart-size plastic container with ice and sprinkle rock salt on top of the ice. Remove as much air as possible and seal it tightly, using the duct tape. Label the containers by writing the kids' names on the tape.

Shake for 15 minutes.

Recipe Conversion Chart

Original Measure	Measuring Tool Used	Converted Measure
For example: 1 Cup	Tablespoon	16 Tablespoons