

Cosmic Coolers

Target Standard Connections

- Recognize and use connections among mathematical ideas
- Understand how mathematical ideas interconnect and build on one another to produce a coherent whole
- Recognize and apply mathematics in contexts outside of mathematics

Related Standard Measurement

- Recognize the attributes of length, volume, weight, area, and time
- Compare and order objects according to these attributes
- Understand how to measure using nonstandard and standard units
- Use tools to measure

Prior Knowledge

- Addition
- Measuring volumes in cups, ounces, tablespoons, etc.

Teaching Plan

Materials

Unsweetened Kool-Aid drink mix
Sugar
Water
Clear soda pop (7-up, Sprite, etc.)
Gummy candies with outer space theme
Clear measuring cups
Plastic drink cups
Pint jars/containers to mix in
Rubber band

Implementation

Preparation

Students will be making “cosmic coolers” for your class, using the following ingredients per package. You may need to double or triple as needed.

1 package unsweetened Kool-Aid
1 quart water
1 quart clear soda pop
1 cup white sugar
1 gummy candy per drink
This recipe makes $\frac{1}{2}$ gallon.

Directions

Divide the class into two equal groups, the “planetary patrollers” and the “spacey space cadets”. Inform students that we will be making cosmic cooler drinks. There is one mystery ingredient...a mysterious “planetary powder” (the unsweetened Kool-Aid). Show them the package...you might want to place it in a different container for added effect. Students are going to add more ingredients (displayed on the board or chart) to make the beverage:

Cold Water
Clear Soda Pop
White Sugar
Gummy candy

Show them the pint jar, with a rubber band indicating a “fill-to” line. Tell them that if they fill up this jar with water to the rubber band, they will have enough water in the cosmic cooler for only one of the two groups. Ask them how they much more water they need to add to

make enough for the whole class. Do the procedure with the soda pop as was done with the water. Then, choosing a different container, measure the sugar. Go through the same procedure as was done with the water and pop...measure to the fill line, tell them there is only enough sugar in the mix for one of the two groups, etc.

Teacher Questions:

1. How many times did the container have to be filled with water (or soda pop, or sugar)?
2. Why did we need to add more?
3. What if we had another class join us? How much more water (or soda pop, or sugar) would be needed?
4. What if a really big thirsty alien joined us, and could drink as much as ALL of you! How much more water (or soda pop or sugar) would we need?
5. How much would be needed for the whole school? Would it fit in this container (indicate the container where you are mixing all of the ingredients).

Now, give the students each a plastic cup and 1 gummy candy. Have them place the gummy candy in the bottom of the glass, and give each student some of the cosmic cooler drink.

Teacher Questions:

1. In what ways can I pour the cosmic cooler to help make sure everyone gets the same amount?
2. What should we do with the left over cosmic cooler, if there is any?

Extensions for older students

1. Rather than breaking the students into two groups (and discussing halves and doubling) break them into three groups, four groups, etc., with appropriate fractions
2. Do the same activity with a different recipe, for example Rice Krispy treats or cookies.
3. Have the students do the actual measuring and mixing of ingredients, calculating the increase in ingredients needed.
4. This activity used non-standard units of measurement. Adapt the activity to use standard measurements. Have the children write down the total amount of each ingredient.
5. Have the children create their own recipes, doubling, tripling, etc. the ingredients! Encourage them to make these recipes at home.