

Comet Ice Cream

Supplies

sandwich size re-closable plastic bags	gallon size re-closable plastic bags
small cups	plastic spoons
ice	can opener
whole milk	sugar
vanilla extract	evaporated milk
chunky cookies of any kind, crushed candies, coconut flakes, and peanuts	
mittens or gloves	old towels (for quick cleanups)
measuring cup	measuring spoons
salt	paper and pencil

Object: To make an edible model of a comet to examine and eat.

1. Have girls wash hands. Ask about any allergies to milk, chocolate, and or peanuts.
*Comets have sometimes been described as dirty snowballs, snowy dirtballs or something in-between. Comets are believed to be a cold mixture of frozen water, dry ice, and other sandy/rocky materials left over from the early formation of our solar system.

1. Divide the girls into groups of 3-5. For each group you will need the following.

1/3 c. evaporated milk	2/3 c. whole milk
5 spoonfuls of crushed cookie	5 tsp. of sugar
2 spoonfuls of coconut flakes	2 spoonfuls of "rock material"
1/4 tsp. vanilla extract	ice-enough to fill a gallon bag 3/4 full
sandwich bag	gallon bag
cups-the number of girls plus 1	spoons-one for each
mittens or gloves	

Comet connection: Add ingredients to the ice cream to represent dust (crushed cookies -like Oreo- in fine and large chunks) rocks (peanuts, crushed candies like MM's, toffee, peppermints), Dry Ice/carbon dioxide (coconut flakes).

2. Measure the milk, evaporated milk, vanilla and sugar into a sandwich bag. Let the girls measure out the crushed cookie, coconut flakes, and rocks into their own cups. Remind them they are to add only one type of rock material. Add the ingredients to the sandwich bag. Squeeze any extra air out of the sandwich bag and close it. Be sure it cannot leak! Slowly tilt the bag to check the seal.
3. Place the sandwich bag into the bottom on the gallon bag. Fill gallon bag with ice, add 8-10 spoonfuls of salt. Close the large bag tightly, removing as much air as possible and check for

leaks. Shake and roll the bag for approximately 10 minutes to freeze the ice cream. Let the girls start shaking the bag with bare hands so they can feel the temperature change. Then if hands get too cold give the team a pair of mittens to share.

4. When the ice cream feels stiff to the touch take it out of the ice and rinse the inner bag briefly with fresh water to remove any salt.

5. Have the groups trade bags with another group. Then spoon the ice cream into cups, one for each group member and one extra. Don't eat the extra cup.

Different scientific instruments take different kinds of data. Pretend your eyes, hands and taste buds are scientific instruments taking data from your "comet." Take the following "data" and record it on your paper.

**Look at your comet and see what you can observe visually.*

**Take the extra cup and have your group feel the contents with your fingers.*

**Holding your nose, taste the comet and see what you can taste and feel in your mouth.*

**Release your nose and see what you are able to taste with your sense of smell added.*

**Record what you discovered as you watched the elements in the bag become ice cream.*

**Share what you discovered with the other groups. Did you identify all ingredients in the ice cream.*

Hints:

-In winter snow can be used instead of ice.

-Have a mop on hand for drips.

-Remind the girls not to toss the bags or bang them against a hard surface or the bag may break.

-You may want to pre measure the milk, evaporated milk, vanilla and sugar into a glass before the groups arrive to save time.

-If the weather is nice do the activity outside.