

# Fun Nutrition

## Ice Cream in a Bag

### Purpose:

- Learn a recipe for making ice cream
- Identify where ice cream would be located on the food pyramid
- Observe the scientific change of matter

### Activity 1: Making Ice Cream

#### Supplies (for each group):

- 1 cup milk
- 1 cup half and half
- 1/4 cup of sugar
- 1/2 tsp. vanilla
- 2 freezer bags (1 quart and 1 gallon size)
- Duct tape
- Bath towel
- 1 cup of rock salt
- Crushed ice
- Copy of USDA food pyramid:  
[http://teamnnutrition.usda.gov/Resources/mpk\\_poster.pdf](http://teamnnutrition.usda.gov/Resources/mpk_poster.pdf)
- Disposable cups and spoons for each participant

Work in groups of four. Ask each group where ice cream is located on the food pyramid and if ice cream is considered a healthy food or a junk food. Have each group place half and half, milk, sugar, and vanilla in the one-quart freezer bag. Seal the bag and reinforce by folding a piece of duct tape over the seal. Place the one-quart bag inside the gallon freezer bag. Fill the rest of the gallon bag with crushed ice surrounding the smaller bag. Pour one cup of rock salt over the ice and seal the outer bag. Again, reinforce the seal with duct tape. Wrap freezer bag in bath towel and shake for about 10

minutes. After shaking, open outer bag and remove inner bag. Wipe off the outside of the inner bag and make sure salt water does not get into the ice cream. Cut the top off of the inner bag and divide the ice cream into cups for each group member. If desired, top ice cream with fruit or nuts. Eat and enjoy.

#### Discussion:

1. We know that matter can exist in three states: a solid, liquid or gas. For example, besides a liquid, water can be frozen to become a solid. Water can also be boiled to become a gas in the form of steam. Describe some of the qualities of each state of matter.
2. What state of matter was in the inner bag before shaking? After shaking?
3. Additional discussion for older age groups: Why do you think that we needed to add salt to the outer bag of ice?

Answer: Adding salt causes the freezing point of the ice to be lowered. The temperature of the melting ice falls below 0 degrees Celsius. The melting ice removes heat energy from the milk mixture changing the milk mixture to a solid.

Adapted from: Wyoming Agriculture in the Classroom <http://www.wyomingagclassroom.org> and Kansas Farm Bureau <https://www.kfb.org/intranet/>



**1 activity for grades K-8. Allow 45-60 minutes. Science Standard – Physical Science**  
Colorado State University Extension 4-H Youth Development