

## The Delicious Science of Ice Cream

Why is making ice cream cool? You get to mix learning about chemistry and enjoy a delicious treat!

### The Ice Cream Experiment

*Yields one serving of ice cream*

#### Materials

- Measuring spoons
- Measuring cup
- 1 small, sealable bag (pint-size or sandwich size)
- 1 gallon-size sealable bag
- Oven mitts or a small towel
- Timer or clock

#### Ingredients

- 1 tbsp sugar
- 1/2 cup Half & Half (milk or heavy cream can my used instead)
- 1/4 tsp vanilla extract
- 1/2 cup salt (Table salt or rock salt both work but may give you different ice cream textures)
- 4 cups of ice

#### Making the Ice Cream

1. Place the sugar, Half & Half (or milk or cream), and vanilla extract in the small bag.
2. Seal the bag and put it in the refrigerator until you are ready for mixing.
3. Put the ice cubes in the large bag and add the salt. *A question: What do you think will happen if you don't use the salt?*
4. Check that the small bag with the cream mixture is tightly sealed and place it into the large bag with the ice. Then seal the large bag.
5. Put on the oven mitts or wrap the bag in a towel because it will get very cold.
6. Shake the bag for 5 minutes. About every minute, check the small bag to see what is happening to the cream mixture.

*A few more questions: What happens to the ingredients each minute? Did the ice cubes change at all? Did you notice a temperature difference?*

If your cream mixture is frozen, then enjoy your ice cream! Add some sprinkles or chocolate sauce if you want to get fancy with it. If the mixture is not frozen, continue shaking for a few more minutes, checking once per minute until the mixture is frozen.

### **Reflect on Your Experience**

- Did you notice that the ice cubes in the bag started to melt and were much colder than a normal ice cube? *This is because it was cold enough (several degrees below freezing), to cool the cream mixture enough to make them freeze, and in the process go from liquid to solid.*
- How is this ice cream different from what you would buy at a store?
- What would you do differently if you were to do this again?

*Please share any pictures of your ice cream experiment with us @CapeCodSTEM on Instagram and Twitter, and like us on Facebook!*