

## Ice Cream Making

**Standard(s):** 3.4, 3.7

**Objective(s):**

1. Students will investigate the effects of heat transfer on phase changes.
2. Students will investigate the effects of temperature changes on physical changes.
3. Students will apply the concepts of conduction and convection to the ice cream-making process.
4. Students will make observations, design experiments, record and analyze data, make models, and infer their findings.

**Procedure:**

1. Lecture discussion:
  - a. Briefly discuss background information on ice cream making.
  - b. Discuss the reasoning for adding salt to the ice to make ice cream.
  - c. Discuss the experiment and basic setup.
2. Use the textbook, internet, or various other sources to find information on the following questions relating to the ice cream making experiment:
  - a. Various types of milk
  - b. Various salts to use and their effects on ice cream making
  - c. PA Dairy Industry
  - d. Various ice cream manufacturers

Find the definitions to the following ice cream making vocabulary:

- a. butterfat
- b. churn
- c. custard
- d. sorbet
- e. syrup
- f. gelato
- g. temperature
- h. thermal energy
- i. heat
- j. radiation
- k. conduction
- l. convection

3. After the textbook, internet, or various other sources research is completed we will have a class discussion on what we have found

**Follow-up Activities:**

1. Students can enjoy their ice cream.
2. Students will make other milk related foods.