Food Science Experiments

You will need to do a minimum of three experiments for each activity (9 minimum total). You will need to record these on a copy of the Food Science Form
(http://mypage.iu.edu/~lwoz/socrime/FoodScienceBExperimentForm.pdf)

You will need to include pictures of your experiments/results for each form

1. Activity 1: Determination of Milk Fat (lipids) from Cream
   a. Transfer 150 mL of the heavy cream into a plastic 500–600 mL bottle.
   b. (The temperature of the cream should be approximately 13°C).
   c. Cap the bottle carefully and shake in a horizontal position until a distinct separation of butter particles occurs (this will take a significant amount of effort; be persistent).
   d. Drain off liquid portion and discard it. What is this discarded portion called?
   e. Wash the butter particles twice with cold tap water. Drain off as much water as possible.
   f. Transfer the butter particles to a clean beaker.
   g. Press and work the butter particles into a mass. Drain the released liquid (make an observation about the liquid).
   h. Dry the butter in paper towel and weigh the dried butter to calculate a percentage.

2. Activity 2: Determination of Cheese Curd Percentage
   a. Measure 120 mL of milk in the beaker.
   b. The temperature of the milk should be close to room temperature.
   c. Add about 6 ml in drops of vinegar or lemon juice to the milk and gently swirl (or stir) for 30 seconds, then allow the milk to sit for 5 minutes. The casein will precipitate into heavy white curds.
   d. Cut out a piece (2-3 layers) of cheesecloth large enough to cover the top and 2 inches down the sides of an empty beaker. Using the rubber band, fasten the cheesecloth over the top of the beaker. Pour the curdled milk into the beaker, collecting the curds (casein) in the cheesecloth and allowing the vinegar and whey to drain off into the bottom of the beaker.
   e. After 15 minutes, gather the cheesecloth and very gently squeeze to separate the milk solids from the whey. Set the solids to dry by spreading out the cheese cloth with the milk solids for about 5 minutes.
   f. Weigh the solids to determine and calculate the curd percentage.

3. Activity 3: Preparation of Ice Cream
   a. Combine ½ cup milk, cream or half and half with 1 tablespoon of sugar, add ¼ teaspoon of vanilla if desired.
   b. Fill a 1 gallon Ziploc bag half-full with ice and add 6 tablespoons of salt. Seal the bag and shake to mix the ice and salt.
   c. In a 1 pint sized Ziploc bag place the ice cream mixture and seal the bag.
   d. Place the smaller sealed bag in the large bag and mix and shake vigorously so that the ice cream mixture is cooled and mixed well.
   e. After about 5 minutes, the ice cream can be removed from the smaller plastic bag.