Lesson Summary for Grade 1
The purpose of this lesson is to make the students aware that science (and more specifically, chemistry) is involved everywhere in our lives, including the foods we eat. The lesson includes four science activities that use foods from each of the four food groups.


Science Activity 1: Floating Pasta (Breads/Pasta Group)
*Students are shown how a chemical reaction can move objects.*

**Materials**
- uncooked pasta
- glass container
- vinegar
- baking soda
- tablespoon
- water

**Procedure**
1. Fill the container with 2 cups of water.
2. Dissolve 1 tablespoon of baking soda in the water.
3. Place the pasta in the container.
4. Stir in 4 tablespoons of vinegar and observe. (When reaction starts to slow down, add more vinegar.)

**Science Explanation**
A chemical reaction produced carbon dioxide gas, which formed bubbles on the pasta. The bubbles attached to the pasta and floated to the top. When the bubbles popped at the surface, the pasta sank to the bottom of the container.

Science Activity 2: Egg Experiment (Meat/Fish/Eggs Group)
*Students see how fluoride protects tooth enamel from being eaten away by acids.*

**Materials**
- 2 hard-boiled eggs
- jar with lid
• vinegar
• fluoride mouthwash

Procedure
1. Two days before the activity, place one egg in the jar and completely cover it with mouthwash.
2. Cap the jar and let it sit for 24 hours.
3. On the day before the activity, remove the egg from the jar of mouthwash, flush the liquid down the drain, and rinse the jar with clean water.
4. Place both eggs in the clean jar.
5. Fill the jar with vinegar so it completely covers both eggs.
6. Cap the jar and let it sit for 24 hours.
7. On the day of the activity, explain to students what you’ve done in the first six steps. Remove the eggs from the jar and carefully squeeze both of them.

Science Explanation
The shell of the egg pre-soaked in fluoride will be harder than the other egg’s shell. The vinegar, a weak acid, eats through the non-treated egg, while the fluoride forms a protective layer over the treated egg. Tooth enamel can be compared to the shell of an egg because both are hard, protective outer layers. Vinegar acts like certain mouth acids that promote tooth decay. Using fluoride mouthwash daily can combat these mouth acids and keep teeth strong.

Science Activity 3: Is My Apple Ripe? (Fruit/Vegetable Group)
Students are shown how iodine can reveal the presence of starch in fruit.

Materials
• apple
• tincture of iodine solution (from drugstore)
• knife

Procedure
1. Cut the apple in half.
2. Pour a small amount of iodine on the cut surface, draining away any excess.
3. Allow the apple to stand for a few minutes. Try on other fruits, if desired.

Remember: Iodine stains and should not be ingested. Use only under adult supervision.

Science Explanation
As apples ripen, the starch in the fruit turns to sugar. To see if an apple is ripe, harvesters test the fruit for the presence of starch using iodine. Starch reacts with iodine to give a blue-black color while sugar does not. If the apple has no blue-black color, it is ripe. If there is some stain, it is not completely ripe, and if there is a lot of stain, there is a lot of starch, and therefore, the apple is not ready to be eaten.

Art Extension
Have students make a tri-flip book showing the different effects of iodine on ripened and pre-ripened foods using construction paper and cutout paper apples.
Science Activity 4: Curds and Whey (Dairy Group)
Students are shown how milk can be separated into its solid and liquid parts.

Materials
• small jar with lid
• fresh milk
• 2 tablespoons of vinegar
• tablespoon

Procedure
1. Fill the jar 3/4 full of milk.
2. Add 2 tablespoons of vinegar.
3. Allow the jar to sit for a few minutes.

Science Explanation
The solid particles in the milk are evenly spread throughout the liquid. The vinegar, which is a weak acid, causes the solid particles to clump together and form the solid curd. The liquid that remains is whey. A mixture of liquids with solid particles spread throughout is called a colloid. Milk is an example of a colloid.

Language Arts Extension
Read the nursery rhyme “Little Miss Muffet” as a class. Have the class identify rhyming words.

Health Activity
Review the Food Pyramid with the students. Based on the Pyramid, have the students decide if they are eating a balanced lunch. Think up a few healthy meals that sound good to eat.

Language Arts Activity
Before reading the featured book, take a picture walk of the story with the class and record the students’ predictions. During reading, check the predictions to see whether or not the students were right. After reading, have the class sequence the events in the story using sentence strips. Then, copy a sentence onto a sentence strip, cut it up, and have the students help put it back together.

Mathematics Activity
Ask each student to choose a favorite experiment and then have the students work together as a class to graph the results.

References