

# Apple Chemistry

**Grade Level:** 4-6

**Common Core:** ELA-Literacy.W.4.2; W.4.8

**Next Generation Science Standards:** Structures and Processes: 4-LS1-2;  
Engineering Design: 3-5-ETS1-3

## **What You Will Need:**

- Several apples at different levels of ripeness (Preferably the same variety)
- Pastry Brush
- Knife and cutting board
- Iodine

## **Intro:**

Apples contain starch which naturally converts to sugar as the apple ripens. This process starts near the core of the apple and moves toward the skin. An apple is considered ripe when most of the starch has turned into sugar.

Iodine will appear dark purple in the presence of starch. If you apply iodine to an apple that has ripened, it will not appear to be very purple as most of the starch is now sugar. However, an unripe apple will stain heavily purple, meaning there is much more starch present.

## **Directions:**

1. Label the apples (Apple "A," Apple "B,"...etc.) and have the students make observations about the color, texture, firmness, and size of each sample. This may be easiest in a chart format.
2. Cut the apples in half (transversely) and separate the top half from the bottom half.
3. Observe all the apple halves while taking care to remember which halves go together.
4. Using the pastry brush, wipe iodine across the cut surface of the bottom half of each apple. Let the apples sit for 1-2 minutes.
5. The cut surface of the apples will begin to change color depending on the levels of starch.
6. Make final observations and conclusions in an explanatory paragraph.

