

### Let them shine!

**Junior Inventors** Name: \_\_\_\_\_


**Let them shine!**

Many of us are big fans of apples, but we really don't love it when they turn brown. When apples are cut, the enzyme contained in the apples is exposed to oxygen in the air. The oxidation reaction makes the apples turn a reddish-brown colour.

How can we keep sliced apples looking white for longer? Try the following experiment and see how well the liquids will keep the fruit from turning brown.

**Materials:**

- Baking sheet or wax paper
- Labelling tape
- A bowl
- Tongs
- A knife
- An apple
- Vinegar
- Milk
- Lemon juice
- Water
- Solution of baking soda and water



**Steps:**

1. Use the tape to create labels for each type of liquid you will test.
2. Place your labels on the baking sheet or wax paper.
3. Take the apple and have an adult help you cut it into six slices.
4. Fill the bowl with enough vinegar.
5. Take a slice of apple with tongs, dip the slice in the liquid and cover it with the liquid.
6. Place it under the correct label on the baking sheet or wax paper.
7. Clean the bowl, take another slice and repeat the same procedures with other liquids.
8. Leave the remaining slice out in the open.
9. After a few minutes, examine the colour of the slices.

Vinegar, milk and lemon juice contain acids. Baking soda is a base. Water is neutral, neither an acid nor a base. Can you conclude which liquid will prevent the slice from turning brown the best?

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### Lesson Sequence:

**Provocation:** Watch the video of “Making coins”. Show students some shiny coins and some old coins.

**Tuning In:** Compare the colour of the coins.

**Finding Out:** Read the article and watch video “Penny Chemistry Experiments” together.

**Activity:** Have students watch the video “Tim & Moby Acids and Bases”, and do the fruit experiment to learn more about how to slow down the process of oxidation.

## TIPS TO SUPERCHARGE YOUR LESSON

### Vocabulary

atom - molecule - compound - substance - chemical reaction - oxidation - acids - bases

### Extended learning

The Statue of Liberty is green but it hasn't always been green. It was made with an exterior of copper and originally had a far more shiny appearance. Find out some interesting facts of the Statue from this article:

<http://wonderopolis.org/wonder/why-is-the-statue-of-liberty-green>