Why do apples turn brown?

An experiment on oxidation!

Apples turn brown after you cut them. But why? In this experiment, you'll test different liquids to see which ones keep apple slices the freshest.

Big idea questions:

- Why do apples turn brown after cutting them?
- Can different liquids slow down or stop the browning?
- Which liquid is the best at keeping apples fresh?

Materials:

- 1 Apple (cut into slices)
- 6 small bowls or cups
- ½ cup of lemon juice
- ½ cup of water
- 1 teaspoon of salt + ½ cup of water (salt water)
- ½ cup of milk
- ½ cup of vinegar
- Paper and pencil to record observations

Procedure:

1. Label your bowls: Lemon juice, Water, Salt water, Milk, Vinegar, and None.
2. Pour corresponding liquids into each bowl.
3. Place one apple slice into each bowl.
4. Wait 15 minutes, check your slices and record any observations. Are they still fresh, or are they starting to brown?
5. Check again after another 15 minutes. Record your results.

Sample observation table for your paper:

Liquid	Fresh at 15 minutes?	Fresh at 30 minutes?	Notes/Observations
Lemon Juice	Yes/No	Yes/No	
Water	Yes/No	Yes/No	
Salt water	Yes/No	Yes/No	
Milk	Yes/No	Yes/No	
Vinegar	Yes/No	Yes/No	
None	Yes/No	Yes/No	

Conclusion:

Apples turn brown because oxygen in the air reacts with chemicals inside the fruit. This reaction is called oxidation, and scientists test ways to slow it down. Lemon juice usually works best because it’s acidic and it protects the apple from browning.

By doing this experiment, you used the same steps scientists use in laboratories! Scientists ask questions, test different methods, record their observations, and make conclusions!