

Age: 4+ (parental help required for cutting)

O is for... Oxidation

What is oxidation? Oxidation is a chemical reaction that results in electrons moving around. This means that the substance that is losing an electron is becoming oxidized.

This process may be familiar:

For example, when iron reacts with oxygen it forms rust. This means that the iron has lost some electrons and therefore there is less oxygen which creates rust.



Experiment: Apple Oxidation

Materials needed:

- 1 apple
- 1 lemon
- bowl
- 2 paper plates or towels
- Marker

Instructions:

- Cut the apple directly in half
- Next, cut the lemon in half and squeeze the lemon juice into a bowl
- Turn the apples up, so that the seeds are facing you
- Next, lightly apply lemon juice to the apple. Grab your marker and label the paper towel or plate “lemon juice”
- Next, label the other apple as “control”
- Put the apples halves in the center of the table and leave them there for a couple hours
- After a couple hours have passed, observe and see what the apples look like.
 - Is there a difference between the two apples?

- Did one turn brown?

Activity explained:

- Since there is oxygen in the air, when the inside of the apple was exposed to the air, the oxygen caused a reaction which made the apple turn brown.
- The other half of the apple didn't brown because the lemon juice contains citric acid, which is also an "antioxidant", meaning it slows the process of oxidation.

Career Exploration:

- **Chemist:** Chemists study substances at the atomic and molecular levels. They analyze the ways in which the substances interact with one another. They use their knowledge to develop new and improved products and to test the quality of manufactured goods.
- **Chemical Engineer:** Chemical engineers apply the principles of chemistry, biology, physics, and math to solve problems that involve the production or use of chemicals, fuel, drugs, food, and many other products. They design processes and equipment for large-scale manufacturing, plan and test production methods and byproducts treatment, and direct facility operations.
- **Biochemists:** They study the chemical and physical principles of living things and the biological processes, which include things like cell development, growth, and disease.

To learn more about this activity, please visit:

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