



#FontanaTogether

Stopping Apples from Turning Brown

When apples have been damaged the enzymes in the apple react to the oxygen in the air causing oxidation. The apple will produce melanin in order to protect itself. When the apple produces melanin, it turns the apple brown. The goal is to see if lemon could stop the apple from creating melanin (turning brown.)

Materials:

- Apple
- 2 Disposable Plates
- Cutting Utensil
- Lemon
- Marker

Instracutions:

1. With the marker and label each plate, one with “Lemon” and the other “No Lemon.”



2. Have an adult assist you to safely cut the lemons and apples into slices.



3. Squeeze the lemon juice to coat the apple slice. Be sure coat the apple slice evenly. Place the lemon coated apple slice on the plate labeled "lemon." Place the apple slice without lemon on the plate that's labeled "No Lemon".



Step 4: Wait, observe and record the two apple slices. Which one is turning brown? Does the lemon slow the process down? How does the lemon help?

Debrief/Results: The lemon juice helps keep the apple from turning brown because it is full of ascorbic acid and has a low pH level. The reason ascorbic acid works is because oxygen will react with it first before it reacts with the polyphenol oxidase enzymes in the apple.



Step 5: Go ahead eat the apples! They are safe to eat :)

