

Penny Oxidation Experiment

Learn About Chemical Reactions with Statue of
Liberty National Monument



Did you know the Statue of Liberty is a National Monument? The National Park Service has protected and cared for the colossal copper statue since 1933.

Background:

If you visit the Statue or look at a photo, you will probably notice that it doesn't look like copper at all – it's green! When copper is exposed to oxygen, a chemical reaction called **oxidation** occurs, and the copper turns green. When the statue arrived in New York in 1886, it was a dull brown color. Over time, the copper reacted with the air and slowly turned the entire statue the green shade we recognize today.

You will model the same chemical reaction with copper pennies in this experiment. Pennies are typically coated with copper oxide, which makes them look dirty. Pouring vinegar over the pennies helps break up this copper oxide and expose the pure copper on the penny. As the penny dries and is exposed to the air, it will begin to oxidize and slowly turn green!





Materials:

- Copper pennies (make sure you have a couple made before 1982)
- White Vinegar
- Salt
- Shallow bowl or plate
- Paper towels

Procedure:

- Line your bowl or plate with paper towels and place your pennies on top.
- Pour vinegar over the pennies and make sure the paper towels are completely saturated.
- Sprinkle the pennies with salt.
- Wait for the reaction to start; you will need some patience with this experiment! It's best to wait multiple hours to a few days to see the best results. Make observations every few hours and record any changes you see.

You may notice that not all of your pennies turn green. Before 1982 pennies were made of copper. After 1982, they were made with only 2.5% copper and coated with zinc, so there are not as many copper molecules exposed to undergo this reaction. If your pennies are new, they may not turn as green as older pennies.

