explore

LET'S EXPLORE coin chemistry

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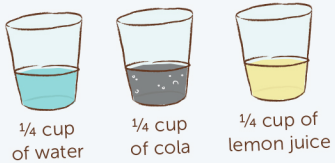
What makes coins so dirty? Find out with these coin experiments!

Part A: cleaning coins

prep the materials:



¼ cup of water

¼ cup of cola

¼ cup of lemon juice

¼ cup of vinegar & 2 tsp salt (mixed)

¼ cup of ketchup

you'll also need:

- ☐ 5-10 dirty coins *(pennies, dimes and Canadian loonies work best)*
- ☐ paper towels
- ☐ spoon

hypothesis

Write down your guess for which solution will work best.

1

You may need to push the coin into the ketchup with your finger.

Put 1 or 2 coins in each cup. Let them sit for about 10 minutes.

2

Remove the coins with a spoon, then put them on a paper towel and wipe them off. You should have shiny, clean coins!

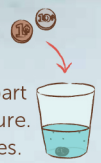
results

Which solution worked the best?

Part B: copper coin reactions

1

Place a few of the coins from part A into the vinegar and salt mixture. Let them sit for about 10 minutes.



2

Scoop out the coins and place them on a paper towel. Let them air-dry for about 30 minutes to an hour. **Do not** wipe the coins off.

3

Come back to check on the coins. What happened?

To clean the coins again, repeat Step 1 and wipe them off.

what's going on?

Part A

Coins like pennies and dimes are mostly made of copper. The lemon juice, the vinegar and salt mixture, and the ketchup all worked because they contain acid. The acid ate away the gunk that grows on copper coins, leaving the coins bright and shiny!

Part B

When you let the coins air-dry, they turned a blue-green color. Why? Cleaning the coins exposed the copper in the coins to the air. When the copper mixed with the salt and vinegar, there was a chemical reaction. That reaction made **malachite**, the blue-green coating on the coins. The longer you leave the coin to air-dry, the more malachite will appear.

Did you know the Statue of Liberty is made of copper that's covered in malachite? That's how it got its blue-green color.