

Magic Penny Cleaner

Materials:

Vinegar

Salt

Cup or Bowl

Tarnished Penny

Teaspoon



Procedure:

- 1) Take the vinegar and pour into bowl or cup until $\frac{1}{2}$ full.
- 2) Measure out 1 teaspoon of salt. Pour salt into bowl or cup.
- 3) Write down a quick description of how the penny looks before the experiment. Drop the dirty, tarnished, oxidized penny into the bowl.
- 4) Swirl the bowl or cup to mix for 30 seconds.
- 5) Let the penny sit in the chemical reaction for 1 minute.
- 6) Remove the penny and dry with a paper towel or napkin. Observe what happened. Write down a new description of how the penny looks after the chemical reaction.

The Science Behind Magic Penny Cleaner

We first need to understand what pennies are made of - copper! As pennies or copper gets older it starts to take on a dull or tarnished appearance. When copper makes contact with the oxygen in the air a reaction occurs and tarnish forms. This reaction creates a substance called an oxide.

Our experiment used chemistry to create a chemical reaction which removed the oxide from the penny. The ingredients for our chemical reaction were acid acetic (vinegar) and sodium chloride (salt). These two ingredients combined to form a new substance called hydrochloric acid. The acid removed the dullness and tarnish (oxide) from the penny. Once the oxide was gone the penny looked shiny and clean again.

Try another penny experiment!

Add more pennies to the bowl for 1 minute, but this time, don't rinse them off. Place them on a paper towel to dry off. In time the pennies will turn greenish-blue as a chemical called malachite forms on your pennies. Wow!