

Polishing Pennies

How can you make an old penny shine again?

What You Need

- 6 old, dull pennies
- 5 paper cups
- lemon juice
- milk
- cola
- apple juice
- water
- 5 plastic spoons
- paper towel



Engineering Scoop

A new penny is partly made from bright, shiny **copper**. But after a while, it loses its shine. Why? Because the **copper mixes with oxygen** in the air and makes a coating of **copper oxide**. When you put a penny in **lemon juice**, the dull coating of copper oxide goes away. That's because lemon juice is an **acid**. Acids can **dissolve** copper oxide. Which other **liquids** did you find make a penny shiny?

- 1 Put** a penny in each cup.
- 2 Pour** some lemon juice into the first cup. Make sure that the penny is completely **covered**.
- 3 Wait** a few minutes. Then **remove** the penny. What does it **look** like? **Record** your observations on the chart in the box under "lemon juice."
- 4 Rub** the penny on a paper towel. **What happens?**
- 5 Try it again** using the other liquids! To one cup add **milk**. To the next cup add **cola**. To the next cup add **apple juice**, and to the last cup add **water**. Use the **same amount** of each liquid.
- 6 Wait** about 5 minutes. Then take a **look**. Which pennies are **shiny**? Which liquids make the pennies shine the **most**?



Keep experimenting to find the best way to polish a penny! What happens if you use a **different liquid**, like soap or vinegar? (Ask an adult to help you choose a liquid to test.) Or, what happens if you put a penny in a liquid for a **longer period of time**, like a day or a week? Choose one thing to change (that's the **variable**) and make a **prediction**. Then **test it** and **send** your results to ZOOM.

Sent in by Adriana F. of Prescott, AZ

OBSERVATIONS

Lemon juice	Milk	Cola	Apple juice	Water

