

FriscO^{PUBLIC} Library

Activities at Home



Shiny Pennies

Ages 5+



Dull pennies are covered in copper oxide. Did you know that copper oxide can be dissolved with acids to make pennies shiny again? This fun chemistry activity will teach you how to do it!

Materials you will need:

- Dull pennies
- Vinegar
- Salt
- Water
- Glass or plastic bowl
- A towel or rag
- *Optional:* lemon juice, ketchup, hot sauce, soy sauce, or soda

How to make a dull penny shiny:

1. Observe your pennies. They should be dull, and it may be hard to see small details.
2. In a glass or plastic bowl, mix $\frac{1}{4}$ cup of vinegar with a tablespoon of salt. Mix it all up until the salt dissolves into the vinegar.
3. Place your dull pennies into the vinegar and salt solution.
4. Now, wait for at least 10 minutes. While you are waiting, observe the pennies. Do you see any changes occurring?
5. After at least 10 minutes, take the pennies out of the vinegar and salt solution, and rinse them in a bowl of clean water.
6. Dry the pennies off with a rag or paper towel.
7. Observe the pennies again. They should be much shinier than when you started! Are there details on the penny, such as the date, that were covered before but you can read now?

Why it worked:

Pennies are made of a shiny metal called copper. Over time copper is exposed to oxygen in the air, and a compound called copper oxide develops on the penny, which is what makes it look dull. Copper oxide dissolves in acid though!

Vinegar is a very weak acid on its own, but mixing vinegar and salt creates a slightly stronger acid that will eat away all the copper oxide, and leave you with a nice, shiny penny!

Now that you know that acids dissolve copper oxide, you can try this experiment using some other common acids such as lemon juice, ketchup, soy sauce, hot sauce, or soda. Test them all to find out which one is the best for cleaning pennies!