

Year 2: Science Home Tasks (week 7)



This week, we have some science experiments for you to try. For at least one of the experiments, we would like you to write a prediction, conclusion and an evaluation. You do not have to do it for both experiments but try and do it for at least one, enjoy!

Here is a template for you to follow to write your predictions, conclusions and evaluations.

Can you write a **prediction** for your experiment?

- What do you think will happen?
- Why will that happen?
- What will it look like?

Conclusion

- What happened in your experiment?
- How did you use your equipment?
- Did it work?

Evaluation

- Do you think you could make the experiment any better? How?

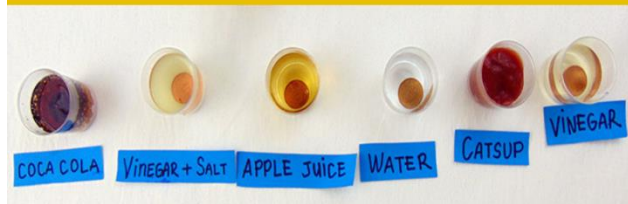
Experiment 1 – Cleaning Coins Experiment

You will need:

- 60ml of coke
- 60ml of apple juice
- 60ml of water
- 60ml of vinegar
- 60ml of vinegar + 2 pinches of salt
- Tweezers
- Kitchen paper
- Stick or teaspoon for mixing
- 5 old copper coins (1ps and 2ps)
- Pen
- Strips of paper to label
- 5 cups

CLEANING COINS EXPERIMENT

*step by step procedure
and explanation*



Method:

1. First, prepare all your cups and line them up. Write the name of each liquid on a strip of paper and put one strip beside the cup to mark it.
2. Next, pour one liquid into each cup. So 1st cup will have coke, 2nd will have apple juice, and so on.
3. Afterwards, put one old coin in each cup.
4. Leave the coins in the liquid for 10 minutes.
5. Talk with an adult or write down the answers to this questions while you are waiting:
 - *What has made the coins so dirty?*
 - *Which one do they think will clean the coin the most?*
 - *What will happen when the liquid cleans the coin?*
6. After 10 minutes, use your tweezers to take the coins out of each cup, you can use your fingers but be warned it can get quite messy!
7. Finally, wipe the coins dry with a tea towel or kitchen paper. Now closely look at each coin.
 - *Which one is the cleanest?*
 - *Which one is the shiniest?*
 - *Why do you think _____ worked the best?*

Parents

Have a read through the explanation of this experiment, then you and your child can have a discussion as to what and why things happened the way they did in that experiment.

QUICK & EASY EXPLANATION

So, what just happened here? Did you get to the same conclusion that the vinegar + salt mixture cleaned the coins the most?

Copper coins are usually shiny copper-coloured. In time, however, they get darker, brownish and dull. The reason for this is that copper has quite the relationship with Oxygen that is they react to each other.

So, when the coin stays in your pocket or is passed from person to person or stays in that container where you keep all your pennies, the copper in the coin reacts with the oxygen in the air and turns into what is called **copper oxide**.

Copper oxide is blackish. It's that dull dark colour that coats old coins.
Also, Copper oxide easily dissolves in acid.

And what is vinegar? It's acid! So, the acetic acid in vinegar dissolves the copper oxide and cleans it. So, if you look at the coin in the vinegar solution, it made the old coin *a little bit* brighter and less brown.

But the vinegar by itself didn't clean the coin as well as the vinegar + salt solution! Why is that?

It turns out that when you mix vinegar and salt, a chemical reaction takes place and forms what is called hydrochloric acid.

And **hydrochloric acid** is so much more acidic than vinegar alone.

And because this mixture is way up high in the acidic scale, it cleaned the coin so much better and quicker than just vinegar.

Experiment 2 – What do drinks do to your teeth?

In this experiment, you will be using eggs to represent your teeth. Eggshells and your teeth are made from calcium; so, you can use eggs to show what can happen to your teeth!

You will need:

- 5 raw white eggs
- 5 cups
- Masking tape
- Water
- A dark-coloured sugar-free drink like Gatorade/ Lucozade
- A dark-coloured fruit juice like grape juice
- A dark-coloured flavour of fizzy drink like coke.
- Orange juice

Method

1. Label your cups with the drink you are putting inside.
2. Put an egg into each cup.
3. Pour the drinks into their cups, making sure there is enough in there so the egg will be full submerged (full under the liquid)
4. Now you wait. You could leave them overnight and see what happens, or you could check every few hours and make observations. Here is a table you could use:

Time Passed	What Does The Egg Look Like?
2 hours	
4 hours	
6 hours	
8 hours	
10 hours	

5. Make some notes of your observations:
 - *What has happened to each egg?*
 - *Which liquid has done the most damage?*
 - *Why has this happened?*
 - *What does this mean for your teeth?*

Parents

Have a read through the explanation of this experiment, then you and your child can have a discussion as to what and why things happened the way they did in that experiment.

WHAT DO DRINKS DO TO YOUR TEETH?

A COOL SCIENCE EGGS-PERIMENT FOR KIDS

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The hard shell of an egg protects the soft parts inside, just like the hard enamel on your teeth protect the soft and tender pulp on the inside. Both eggshells and teeth are made of calcium, a hard-white substance that also makes up our bones.

Sugar and acids are very harmful to teeth. Acids dissolve the enamel, giving bacteria an inroad to begin decaying it, and sugar promotes decay (cavities).

EXTEND THE EXPERIMENT

Take this experiment a step further by brushing the eggs with a toothbrush and then with toothpaste and a toothbrush, to see how much of the stain can be removed from the egg and how much is left. It takes a lot longer than you think to clear away the stain, and you will probably find (as we did) that a lot of the stain is permanent.

This is the perfect experiment to do with your children just before the summer holidays, as they can begin to take responsibilities for their own choices!