



Minds in Motion

Crystal Clean Eggs

Activity Rundown:

We consume so many foods and drinks throughout our lifetime we rarely think about how they impact our teeth. Today we will be performing multiple experiments to replicate these impacts on our oral hygiene! You will learn how to make your own toothpaste and see if you can scrub your test subjects clean!

You will need:

- + Eggs (4)
- + Coke or any kind to pop
- + Concentrated Orange Juice
- + Concentrated Lemonade
- + Milk
- + 1 tooth brush (not the one you use everyday)
- + Cups (8)
- + Baking Soda
- + dixie cups to mix the toothpaste
- + Popsicle sticks or mixing sticks
- + gloves

Let's do it!

- 1) Your dentist has told you a million times just how important it is to take good care of your teeth!
- 2) Today we will be performing multiple experiments to see just how some of the food and drinks we consume impact our oral health.
- 3) The first item on our list to complete is making our very own "toothpaste"
- 4) In your dixie cup (small cup) you will fill $\frac{3}{4}$ of the cup with water. The remaining amount of room will be used to add in 1 tablespoon of baking soda.
- 5) Mix these two ingredients together until it is smooth.
- 6) Now in front of you, you should lay out four eggs as well as four more small cups that can hold your egg entirely.
- 7) Fill each cup with a different liquid from the items listed above: Pop, milk, orange juice and lemonade. You can substitute these liquids with anything you can find in your household!
- 8) Submerge your eggs into these liquids for about a minute.
- 9) After the minute has gone by you may remove them and see how the liquids have impacted the outer shell of the egg.



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- 10) This is meant to replicate a similar reaction to liquids flowing against your teeth after meals.
- 11) The egg shell simulates enamel of human teeth. Enamel is the visible tissue of the tooth and is **avascular** meaning there is no blood flow - it is not renewable
- 12) Now take your (new) toothbrush and dip it into your toothpaste. Attempt to scrub off the build up of color from the different liquids on the egg.
- 13) Write down if the staining comes off easily or not at all!
- 14) Keep these findings in mind for when you brush your teeth and when consuming different foods and liquids!

- 15) The enamel on our teeth is not renewable so make sure you take care of your oral health!



Background:

- Teeth are not just for eating, animals often use them to defend themselves or to attack other animals.
- Different shaped teeth have different purposes. Flat molars like humans have are for grinding and chewing food, while sharp canine teeth are for tearing food apart (these are found in carnivores) and large incisors for cutting and chopping grass (found in herbivores).
- Cleaning teeth, using floss and mouthwash help keep teeth and gums free from plaque. Plaque is formed by bacteria feeding on the sugar left on the surface of teeth after eating.
- Tea is rich in tannins which stain teeth if they're not cleaned properly while cola and fizzy drinks are acidic as well as containing staining products.
- Vinegar (which is acidic) dissolves the calcium carbonate in the shell, leaving just the membrane intact.



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Resources:

- <http://www.drugabuse.gov/eggstra-healthy-teeth>
- <https://www.science-sparks.com/how-to-keep-teeth-healthy/>

Reach out!

We would love to hear from you about all the amazing STEM projects you are doing at home! Show us your finished products on any of the following social media platforms by tagging us or by using the following hashtags. We hope these projects have brought some excitement to your day during these difficult times.

Let us know how we did! Please [click here](#) to fill out a short survey on how well we did and what you would like to see more of in the future. Thank you!

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