

The Architecture of Eggshells



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FILM

- ▶ **What Body is This? Chris - Fake News**
- ▶ **House of Little Scientists - Brushing Teeth**
- ▶ **GUB Explorer Channel - Experiments with Eggs**
- ▶ **Smile Action Team**

KEY OBJECTIVES

- 1 **To know how strong eggshells in holding off weight**
- 2 **To demonstrate how tooth decay happens**
- 3 **To inspire students to maintain healthy teeth since the characteristics of eggshells are similar to the human teeth**

INTRODUCTION

Our teeth help us to chew and digest food, to speak clearly, and to give our face its shape. They are very strong. Even though they are strong, they have a weakness. Each time we consume a sugar or starch, bacteria in our mouth will utilize it to create acid that can destroy tooth enamel. But, don't worry because we can prevent it from happening. That's why keeping our teeth healthy is important. To inspire you to always maintain healthy and strong teeth, we will do an experiment. We will use eggshells as a substitute because their characteristics are similar to human teeth. They are both made of calcium, which makes them strong and sturdy.

GUIDING QUESTIONS

- How many books will the eggshells be able to hold?
- How many books will the eggshells that had been soaked in vinegar be able to hold?
- Which group of eggshells are the strongest in bearing the weight?

TOPICS

Oral and dental hygiene (primary school)

KEYWORDS

Healthy teeth calcium tooth decay

LEVEL

Primary students to university students

RESOURCE TYPE

Experiment

INTENDED AUDIENCE SIZE

From 10 to 100 students in one session

MODE OF DELIVERY

Live online

TIME FOR ACTIVITY

5-10 min.

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MATERIALS/PREPARATION

- Half eggshells (8) (rinse all the half eggshells before using them)
- Books as weights (prepare at least five books)
- Vinegar (any kind of vinegar is welcome)
- Water
- Scissors (optional)
- Glass (1)



TASKS/PROCEDURE

PART 1: EXPERIMENTAL GROUP

- 1 Prepare four half eggshells. You might want to trim the edges of the eggshells with scissors.
- 2 Fill your glass with water to a half of their volume. Add vinegar of your water volume.
- 3 Soak four of your eggshells in that liquid for at least 15 minutes. Make sure all of your eggshells are covered in.
- 4 After 15 minutes, rinse all your eggshells that had been soaked in vinegar.
- 5 Turn all of the eggshells upside down and create a simple structure that can bear the weight.
- 6 Now, test the strength of your structure. Start with putting one book on top of the shells. Observe whether the shells start to crack or break out.
- 7 Add more load until the shells start to crack.

PART 2: CONTROL GROUP

- 1 Turn the other four half eggshells upside down and create a simple structure that can bear the weight.
- 2 Now, test the strength of your structure. Start with putting one book on top of the shells. Observe whether the shells start to crack or break out.
- 3 Add more load until the shells start to crack.

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FOSTERING DISCUSSIONS

- 1 Which group of eggshells is stronger?
- 2 Why are eggshells that have been soaked in vinegar weaker?
- 3 Reflect how our teeth are similar to the shells in the experiment. So, what are your actions to keep your teeth strong and healthy?

SAFETY INSTRUCTIONS

Clean up or disinfect your desk, book, and everything you've touched and also don't forget to wash your hands because raw eggs carry the danger of Salmonella. Remember how germs spread!

AUTHORS AND SOURCES

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