



# Calcium Capers / Dental Disasters!

**You are a dentist, studying the effects of drinks on teeth.**

**As you do not have lots of teeth to experiment on, you will have to use some other materials. Teeth have lots of calcium in them so you will need to use another material with calcium in (e.g. egg shell or chalk).**

**Can you devise a fair test to show the effects of continuous exposure to a variety of drinks on materials containing calcium?**

## **You have**

6 different drinks (coke, water, tea etc.)

6 cups

Clear nail varnish (to simulate tooth enamel)

Egg shell or chalk

## **Activity**

1. Research the structure of a tooth. This web site might help you:

[http://encarta.msn.com/media\\_461516411\\_761559101\\_-1\\_1/Structure\\_of\\_a\\_Tooth.html](http://encarta.msn.com/media_461516411_761559101_-1_1/Structure_of_a_Tooth.html)

2. Decay begins in teeth when the enamel is damaged and bacteria can attack the softer dentine of the tooth. If the decay is not stopped the tooth nerve can be affected and this is when the pain starts. Some food and drinks can encourage decay or cause other damage to the tooth. Choose the drinks that you are going to put the shell and/or chalk in and put them in different beakers.
3. Add chalk and or egg shells to each of them. (The same amount in each!) You might want to paint some with clear waterproof nail varnish or modelling enamel to see if this protects the calcium, like tooth enamel.
4. Leave the materials in the liquids for a week and then rinse them in water and examine them. You may want to store this experiment, labelled, in a fridge to discourage bacterial growth.
5. Are there any changes that you can see or feel? Compare these materials with some that have been left just exposed to air.

## **Useful Questions**

- What changes can you see?
  - What could you have done to the materials to stop the changes and how could you test these hypotheses in a further experiment?
  - Why do you think these changes have happened?
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Investigate!

- Can we use these results to predict what might happen to teeth if we drink lots of these types of liquids?

### Research Opportunities

- Find out more about the role of dentists and dental hygienists in looking after teeth.
- Sometimes teeth fall out in accidents, how can they be repaired?
- What treatments can you have at the dentist to protect your teeth?
- What treatments might you have to remove decay?
- Crocodiles don't use toothbrushes - can you find out how they keep their teeth clean?
- Find out what people used to use before toothbrushes were invented to clean their teeth.
- What materials have false teeth been made of in the past?
- Why do humans have two sets of teeth?

### Useful Websites

[http://www.bbc.co.uk/health/awareness\\_campaigns/may\\_smile.shtml](http://www.bbc.co.uk/health/awareness_campaigns/may_smile.shtml)  
Very interesting site with lots of useful links

<http://smilekids.deltadentalca.org/healthyTeeth.html>  
A site with some fun facts and games

<http://www.dentalhealth.org.uk/>  
This site will help you learn more about dentists

**creativeminds** The Creative Minds project works with museums libraries and archives across the Yorkshire region, to provide young people with learning opportunities in Science, Technology, Engineering & Maths (S.T.E.M.). This ground-breaking project is the first of its kind in the country and is managed by MLA Yorkshire. This pack was developed by Creative Minds and Eureka! The Museum for Children with funding from Yorkshire Forward.

