



## Sweet or sour? - Teeth don't like either.

Anna and her brother Paul would like to make a fruit salad together. They know that fruits are healthy and delicious. Their mother points out that it's important to eat them fresh. But afterwards they should remember to brush teeth carefully with toothpaste. Anna and Paul wonder why they have to use toothpaste. Isn't it enough to brush their teeth only with water and a toothbrush?

Food that contains a lot of acid and has a pH of less than four can cause significant damage to the teeth. At first the enamel is attacked, the hard protective outer layer of the teeth. This enamel contains Calcium compounds which are also in the shell of chicken eggs.

Even healthy foods such as fruits contain acid. Therefore you should consume this type of food not too much. For this reason the cleaning of the toothpaste is very important. Fluoride toothpastes also help to strengthen the outer layer of the teeth by creating a protective layer which protects the teeth against acid attacks. So Anna and Paul should brush their teeth carefully with tooth paste. But it's important that they don't brush their teeth immediately after eating because the attacked enamel can be removed by the mechanical friction of the toothbrush. Anna and Paul should therefore either brush their teeth before eating or wait some time before they start to brush their teeth.

### Tasks:

- 1.) Formulate a scientific problem referring to the article in partner work.
- 2.) Propose a hypothesis that relates to the problem
- 3.) Plan an experiment that is suitable to solve the given problem in the newspaper article and allows to check your hypothesis.
- 4.) Perform your designed experiment.

**Note:** Wear gloves and goggles during the experiment execution.

- 5.) Record your observations during the execution of your experiment.
- 6.) Evaluate your experiment regarding your hypothesis. Can you recognize a connection between the eggshell and the teeth?

**Accomplish your goal:  
Additional help and instructions can be found on the tablet computer**

Start with the guide on the tablet computer, if you need any help!



## Experiment report: Sweet or sour? - Teeth don't like either

Name: \_\_\_\_\_

Group members:

\_\_\_\_\_  
\_\_\_\_\_

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Date: \_\_\_\_\_

<b>Problem:</b>		
<b>Hypothesis</b>		
<b>Material:</b>	<ul style="list-style-type: none"><li>• A beaker</li><li>• Protective gloves</li><li>• Goggles</li><li>• Paper towels</li></ul>	<ul style="list-style-type: none"><li>• Vinegar</li><li>• Fluoride toothpaste</li><li>• Water</li><li>• Hard-boiled egg</li></ul>
<b>Experimental setup:</b> (Sketch)		



<b>Experimental procedure:</b>	
<b>Observation: (data)</b>	
<b>Interpretation: (Data analysis)</b>	

**What was difficult?**