



A Paste with a Taste

From: *Women in Mining Education Foundation*
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This activity allows students to produce a “marketable” product used by most people every day, which is made from minerals. Calcium carbonate and sodium bicarbonate, the abrasive and cleansing compounds found in toothpaste, are minerals.

Materials Needed for 8 Groups of 4:

- Calcium carbonate (finely powdered unflavored TUMS will work)
- Sodium bicarbonate (baking soda)
- 32 small plastic cups
- 32 Popsicle sticks for stirring
- 8 eyedroppers
- 8 plastic spoons
- Water
- Assorted food colours and flavourings
- Some commercial toothpaste samples

Instructions:

The basic recipe for toothpaste is:

- $\frac{1}{2}$ teaspoon calcium carbonate, $\frac{1}{4}$ teaspoon sodium bicarbonate in a small plastic cup. Add just enough water (with eyedropper) to make a paste.

Have the students taste the basic recipe and discuss possible improvements. Divide the class into groups of 4, and let them come up with some solutions to make the basic recipe more appealing to children. Remember, the purpose is to produce the most “marketable” toothpaste. Each group can decide on 4 samples, with each member of the 4-person group responsible for 1 sample, or this can be done as a group project with 1 sample per group. (As the samples are quite small, only small amounts of colour and flavouring are needed.) Individual students or each group will have to keep a record of their recipe, and submit it with the sample for judging. Each group will be responsible for submitting 1 sample to the panel of judges (another class, parents, etc.), for determining the winner. Have a prize for the winning sample.

Summary and Extensions:

- How did the homemade toothpaste compare to commercial products?
- What other mineral is added to toothpaste to fight cavities?
- How many of the commercial toothpastes had minerals in them?
- Have the class develop an advertising campaign for the winning toothpaste.