

## TOOTHPASTE WITH A TWIST

### PURPOSE:

To allow students to produce a “marketable” product used by most people every day that is made from minerals. Both the abrasive and cleansing compounds, calcium carbonate and sodium bicarbonate, found in toothpaste are minerals. Powdered calcium carbonate can be ordered by most pharmacists or from a lab supply house.

### MATERIALS NEEDED:

Calcium Carbonate	Water
Sodium bicarbonate (baking soda)	Plastic spoons
Small plastic cups	Eye droppers
Sticks for stirring	
Assorted food colors and flavorings	
Optional items: hydrogen peroxide, fluoride, sugar, Diatomite	
Have some commercial toothpaste samples available	

### INSTRUCTIONS:

Basic recipe for toothpaste is:  
½ teaspoon calcium carbonate; ¼ teaspoon sodium bicarbonate in small plastic cup; add just enough water (with eye dropper) 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 others. Remember: the purpose is to produce the most “marketable” toothpaste. Each group is responsible for one recipe. (As the samples are quite small, only small amounts of color and flavoring are needed.) Each group will keep a record of their recipe and submit it with the sample for judging. The judges can be another class, parents, etc., and will determine the winner. Have a prize for the winning sample.

### Review:

How did the homemade toothpaste compare to commercial products?  
What mineral is added to toothpaste to fight cavities?  
How many of the commercial toothpastes had minerals in them?  
Have the students compare the prices of commercial toothpaste in relation to the number of mineral ingredients. Which were most expensive? Have the class develop an advertising campaign for the winning toothpaste. This can be a slogan, jingle, rap, or a song that will help sell their toothpaste. Have a prize for the winning ad campaign.

## TOOTHPASTE WORKSHEET

Group No. \_\_\_\_\_

Product Name \_\_\_\_\_

Basic Recipe:      ½ tsp. Calcium carbonate  
                         ¼ tsp. Sodium bicarbonate  
                         water to form a paste

Added:

\_\_\_\_\_

Ingredient

\_\_\_\_\_

Amount

\_\_\_\_\_

Ingredient

\_\_\_\_\_

Amount

\_\_\_\_\_

Ingredient

\_\_\_\_\_

Amount

Flavoring(s): \_\_\_\_\_

Color(s): \_\_\_\_\_

AD CAMPAIGN:

Slogan (if any) \_\_\_\_\_

\_\_\_\_\_

15 second ad:

\_\_\_\_\_

\_\_\_\_\_

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