A Paste with a Taste

Background

Did you know that minerals and rocks are used every day, in many ways that might be surprising or unexpected? Did you know that minerals and some of the elements they contain are used to make toothpaste? The minerals and elements that are included in toothpaste act as an abrasive (to help scrub our teeth clean), and help to strengthen and keep teeth healthy. Some minerals and elements found in toothpaste include Calcium Carbonate, Fluorite (the source for fluoride) Mica, sand (Silica) and Titanium.

Purpose:

To explore how rocks and minerals and elements are used in toothpaste.

Materials:

- Sodium Bicarbonate (Baking Soda)
- Calcium Carbonate (unflavoured TUMS®)
- Mortar and pestle
- Water
- Three small cups
- Eye dropper
- Measuring spoons
- Stir stick
- Food colouring (optional)
- Food flavouring (optional) (Peppermint, Cinnamon, Orange, Almond)

Directions

1. Ask your family what they know about toothpaste and about how it is made. Ask if they know what they brush their teeth with when using toothpaste.
2. Use the mortar and pestle to grind the TUMS® into a fine powder.
3. Follow the recipe below to make your toothpaste:
   - In one of your small cups combine ½ teaspoon calcium carbonate, ¼ teaspoon sodium bicarbonate and enough water to create a paste. Use the eye dropper to add water to the calcium carbonate and sodium carbonate.
4. When you have made your toothpaste ask your family to taste it. Ask them what they think of it. Ask them why they think it tastes different from the toothpaste that is sold at the store.
5. Ask your family what they think could be done to improve your toothpaste. Following the recipe, create two more batches of toothpaste and add a flavour and colour of your choice to each.
6. Conduct another taste test with your family and ask them to decide which of the new formulations is their favourite.
7. Finish the activity by reminding your family how many ingredients are used to manufacture toothpaste and that many of them come from rocks and minerals!