



## Curiosity Guide #605

### Acids and Bases

Accompanies Curious Crew, Season 6, Episode 5 (#605)

#### Soapy pH

Investigation #6

#### Description

Has your skin ever been itchy or dry? This investigation may help!

#### Materials

- Various bars of soap, neutral and acidic varieties
- Litmus paper
- Containers
- Water
- Popsicle sticks

#### Procedure

- 1) Scrape several pieces of soap each into its own container.
- 2) Add a small amount of water to each sample of soap.
- 3) Stir each sample with a different stick.
- 4) Use the litmus paper to determine the pH level of each of the soaps.
- 5) What do you notice? Is there a difference in soaps?

#### My Results

## Explanation

Litmus paper is a pH indicator that changes color in the presence of a base or an acid. Soap is a kind of salt that results from the combination of fats with sodium or potassium hydroxide. Soaps are generally more basic than acidic, which impacts the dry skin people experience in the winter months. On the average, people's skin has a pH of about 5.5. Frequent contact with soap that tests higher than neutral on the pH scale can increase the pH of the skin and lead to irritations. People who have this problem can purchase neutral or more acidic soaps to minimize the harm to the skin.

**Apply the learning.** Sometimes our hands get chapped during the cold winter months, especially if we wash them a lot or when we are doing laundry. Acids and bases are involved in this situation, too. Our skin has a pH level of about 5.5. Using soap frequently can raise that pH level and irritate our skin. We can do several things to protect our hands during the winter months. We can wear protective gloves when we wash the dishes or do laundry. We can choose neutral or slightly acidic soap to keep our skin's pH level in balance. That feels so much better!

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