



## Curiosity Guide #605

### Acids and Bases

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

#### Colorful Combination

Investigation #2

#### Description

This fun investigation with acids and bases will make your head spin!

#### Materials

- Glass beaker or jar
- Phenolphthalein
- Ammonia. This must be used with adult supervision.
- Distilled water
- Vinegar
- Safety Goggles
- Eye dropper
- Measuring cup
- Digital pH meter
- A friend
- An adult to supervise

#### Procedure

- 1) Put on safety goggles.
- 2) Measure and fill a glass beaker with 100 ml of water.
- 3) Use the eyedropper to add 3 drops of phenolphthalein.
- 4) What do you notice?
- 5) Before adding several drops of ammonia to the mixture, have a friend predict what will happen.
- 6) Add several drops of ammonia to the mixture.

- 7) What happens once the ammonia is added?
- 8) Before adding several drops of vinegar to the solution, ask a friend to predict what will happen.
- 9) Add several drops of vinegar to the mixture.
- 10) What did you notice after the vinegar was added?

My Results

## Explanation

When the phenolphthalein is added to the water, nothing happens. The mixture remains clear and transparent.

Adding the clear drops of ammonia results in a surprising color change. The mixture turns red! The change in color indicates the presence of a base, which is the ammonia.

Adding the clear vinegar changes the solution back to clear again. The vinegar is an acid that neutralizes the ammonia.

Phenolphthalein is an indicator chemical that changes to a reddish color when exposed to a high base level, or a pH level greater than 8.3. This happens when the molecule separates and reveals its purplish color. Adding the ammonia caused the molecules to separate, but the vinegar increased the hydrogen ions in the solution and made the solution lower than pH 8.3, which made the phenolphthalein clear once again.

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