Acids and Bases—
Demonstration Summaries and Concepts

Indicator Sponge—A Discrepant Event Demonstration

Place a red sponge in a red solution, and it comes out blue! This discrepant event demonstration will capture your students' attention and stimulate a lively discussion of possible explanations. Use the indicator sponge to introduce the properties of acid–base indicators and how substances are classified as acids or bases.

Concepts
- Acids and bases
- Indicators

The Rainbow Tube Chemical Demonstration

Saturated sodium carbonate solution is added to a test tube containing a dilute solution of hydrochloric acid and universal indicator. A rainbow column of colors develops in the tube as the dense sodium carbonate solution sinks to the bottom and carbonate ions diffuse upward and neutralize the hydrochloric acid.

- Acids and bases
- Indicators
- pH Scale
- Neutralization

Upset Tummy? MOM to the Rescue—Colorful Antacid Demonstration

Mix milk of magnesia with universal indicator and add hydrochloric acid solution. Observe a dramatic spectrum of color changes as the antacid dissolves in and neutralizes the simulated stomach acid. This is a great demonstration to illustrate principles and consumer applications of acid–base chemistry.

- Acids and bases
- Solubility
- Neutralization
- Antacids

Strong vs. Weak Acids Chemical Demonstration

Not all acids are created equal! This demonstration compares the "frothing and foaming" activity of two acids with calcium carbonate and examines their behavior in the presence of their conjugate bases to distinguish strong versus weak acids. The pH scale, hydrogen ion concentrations, rates of reaction, and equilibrium all come together in this engaging demonstration.

- Strong acid
- Weak acid
- Conjugate base
- pH

Buffer Balancing Acts Chemical Demonstration

Buffers provide an essential acid–base balancing act—in consumer products, foods, lakes and streams, and even living cells. What are buffers made of and how do they work? The ability of phosphate buffer and Alka-Seltzer solutions to resist pH changes highlights the physiological role of buffers within cells and in consumer products.

- pH
- Buffer
- Weak acid
- Conjugate base

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