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Exploring Familiar Acids and Bases: From Lemons to Soap

Acids and bases are all around us, often in the products we use every day. In this engaging reading passage, we will dive into some common examples of acids and bases that you're sure to be familiar with.

Common Acids

- **Citric Acid:** One of the most well-known acids is citric acid, found in citrus fruits like lemons, oranges, and limes. This acid is what gives these fruits their tart, sour flavor. Citric acid is also used in food preservation and as a flavor enhancer in many foods and drinks.
- **Vinegar (Acetic Acid):** Vinegar is a kitchen staple that contains acetic acid. It's not only used for flavoring but also as a cleaning agent due to its acidity. You might have seen vinegar being used to clean windows, countertops, or even as a natural weed killer.
- **Hydrochloric Acid:** While it sounds scary, hydrochloric acid is naturally produced in your stomach to help with digestion. It's a strong acid that plays a crucial role in breaking down the food you eat so your body can absorb the nutrients.
- **Sulfuric Acid:** Sulfuric acid is a powerful industrial acid used in various applications, including car batteries and chemical manufacturing. It's known for its corrosive properties and should be handled with extreme caution.



Common Bases

- **Sodium Hydroxide:** Also known as lye, sodium hydroxide is a strong base commonly used in cleaning products like drain cleaners and oven cleaners. It's effective at breaking down grease and other organic materials.
- **Baking Soda (Sodium Bicarbonate):** Baking soda is a versatile base found in most kitchens. It's used not only in baking but also as a gentle cleaning agent, deodorizer, and even for relieving heartburn.
- **Ammonia:** Ammonia is a base often found in cleaning products like glass cleaners and floor cleaners. It's excellent at cutting through tough stains and leaving surfaces sparkling clean.

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Neutral Substances

Not everything we encounter is acidic or basic; some substances are neutral. One prime example is water. Pure water has a pH of 7, right in the middle of the pH scale, making it neither acidic nor basic. It's the reference point for measuring the acidity or alkalinity of other substances.

Everyday Uses

These common acids and bases have a wide range of uses in our everyday lives:

- **Acids in Cooking:** Citric acid in fruits adds a tangy flavor to dishes, while vinegar is used in salad dressings and pickling.
- **Acids in Cleaning:** Hydrochloric acid and sulfuric acid are used in cleaning products to remove tough stains and unclog drains.
- **Bases in Cleaning:** Sodium hydroxide and ammonia help dissolve grease and grime in cleaning solutions.
- **Baking Soda in Baking:** Sodium bicarbonate (baking soda) is a leavening agent that makes baked goods rise.



Balancing Act

Maintaining the right balance between acids and bases is crucial in various applications:

- **pH Regulation in Swimming Pools:** Swimming pool water is carefully balanced to ensure it's neither too acidic nor too basic. This protects swimmers' skin and prevents damage to the pool equipment.
- **Digestive Health:** Your stomach maintains a balanced pH to aid in digestion without harming the stomach lining.