

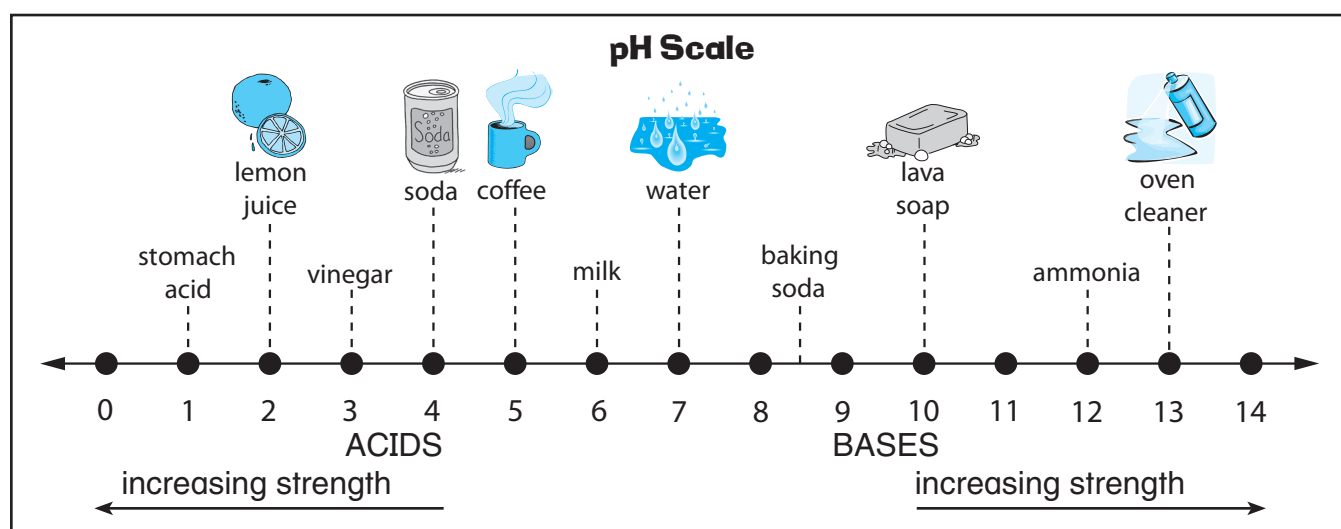
Acids and Bases

Read the passage and study the diagram.

Acids and bases are compounds that people use every day. Most **acids** are sour liquids. Some acids can “eat away” metal, some can cause serious skin burns, and others are harmless. The stomach makes acid to help us digest certain foods. Some acids are even good to eat. **Citric acid** comes from oranges and lemons. Other common acids are **sulfuric acid** (used in car batteries) and **acetic acid** (also known as vinegar).

The chemical opposite of an acid is a **base**. Bases usually taste bitter and feel slippery. Some are very corrosive and reactive. Bases are used for cleaning and industrial processes. Examples of common bases include soap, ammonia, and bleach. Milk of magnesia is a mild base people drink to cure an upset stomach.

The strength of an acid or base is measured on the **pH scale**. The scale ranges from 0–14. A pH value between 0 and 7 means the substance is an acid. A pH value between 7 and 14 means the substance is a base. A substance with a pH of exactly 7 is not an acid or a base—it's a **neutral** substance.



Every one-unit change on the pH scale is a 10-fold change in the strength of the acid or base. For example, an acid with pH 2 is 10 times stronger than an acid with pH 3.





Find the word that correctly completes each sentence.

- 1 Acids usually have a ■ taste.
- 2 The acid in lemons and oranges is called ■ acid.
- 3 The acid used in car batteries is called ■ acid.
- 4 Bases usually have a ■ taste.
- 5 The strength of an acid or base is measured on the ■ scale.
- 6 A substance with a pH between 0 and 7 is a/an ■.
- 7 A substance with a pH between 7 and 14 is a/an ■.

Use the diagram of the pH scale to answer the questions.

- 8 What is the pH of coffee?
- 9 Which substance has a pH of 8.5?
- 10 What is the pH of soda?
- 11 Which substance has a pH of 1?
- 12 Which is a stronger acid: lemon juice or vinegar?



Answer Box

A lemon juice	B 5	C bitter	D sour	E pH	F stomach acid
G citric	H acid	I base	J 4	K baking soda	L sulfuric



Find out how cabbage juice is used to tell if a substance is an acid or a base. With an adult's help, use cabbage juice to test common household liquids.

