

ACIDS AND BASES

Most every liquid has acidic or basic traits. Acids and bases are two important compounds.

Acids

An **Acid** is a type of sour substance. Examples of acids are lemon juice and vinegar.

Remember: DO NOT TASTE SUBSTANCES during science experiments.

Some Characteristics of ACIDS Important to Know:

- Acids taste sour
- Acids react strongly with metals (example: acid mixed with iron gives off hydrogen gases)
- Strong acids are dangerous!

Remember:

Weak acids:
acids are v

Please login or register to download the printable version of this study guide.

www.newpathlearning.com

experiments.

weak

Strong acids are dangerous! They can burn your skin instantly when touched – so you do NOT want to touch or even get near strong acids!

When placed in water, acids release hydrogen ions into the water. Remember ions are negatively or positively charged atoms. When an acidic substance dissolves in water, hydrogen atoms break away from the acid molecules. This process forms hydrogen ions. The more hydrogen ions formed, the stronger the acid.

*Lesson Checkpoint: What is an ACID?
Give one example of an acid.*

Bases

A **base** is a type of bitter substance. A base dissolved in water is called a basic solution. Examples of a base substance are soap and baking soda. A base releases hydroxide ions in water.

Some Characteristics of BASES Important to Know:

- ➔ Bases taste bitter
- ➔ Bases often have a slippery feel
- ➔ Strong bases are extremely dangerous and can burn your skin!!!
- ➔ Bases are also called alkalis

*Lesson Checkpoint: What is an BASE?
Give one example of a base.*

Identification of Acids and Bases

Scientists use a **pH scale** to measure how acidic or basic a substance is.



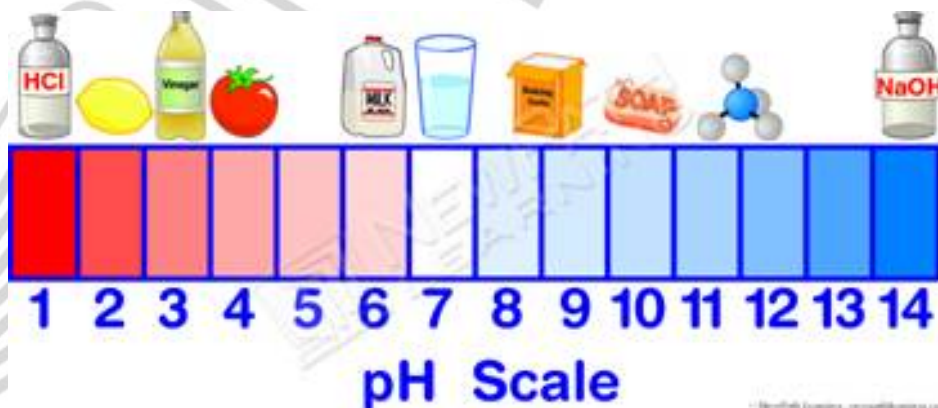
Please login or register to download the printable version of this study guide.

www.newpathlearning.com

A strong
A strong
A neutral
base.

acid or a

The pH Scale



- The pH scale is numbered from 0 → 14.
- The lower the number = the more hydrogen ions = the more **acidic** the substance is
- The strength of an acid increases with distance from pH ranking of 7. ← ← ← ←
- Any substance listed **below pH 7 is acidic.**
- Example of an acid from the pH chart above is a tomato = pH of 4
- The higher the number = the less hydrogen ions = the more **basic** the substance is
- The strength of a base increases with distance from pH ranking of 7. → → → →
- Any
- Exar
- Pure it is



PREVIEW

Please login or register to download the printable version of this study guide.

www.newpathlearning.com

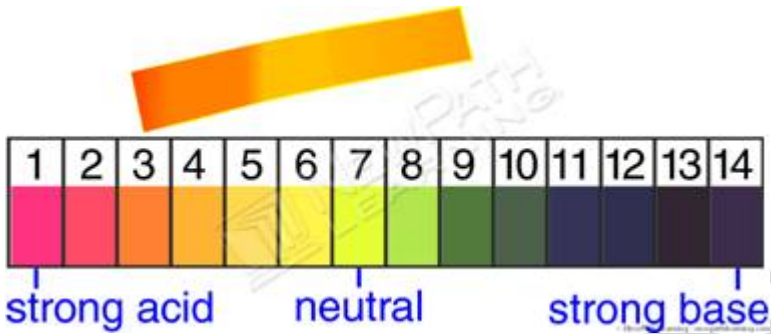
Lesson Checkpoint: what color is used to represent a substance with a pH ranking of 1 on a pH scale?

Indicator Paper:

Scientists use a variety of pH indicators to determine which substances are bases and which are acids. These pH indicators have very special chemicals that will change color if you change the pH by adding an acid or base to it.

There is special paper, called universal indicator paper, which acids and bases react with. The reactions are visible in the form of different colors on the paper.

The universal paper comes along with a pH scale to help determine if the substance you were testing is an acid, a base, or neutral.



A strong acid will turn the universal indicator paper **red**. A strong base will turn universal indicator paper **purple**.

Scientists also use a similar type of indicator paper called **litmus paper**, which is special paper used to detect the presence of an acid or a base. Litmus paper will tell you the pH of a particular substance by the color it turns when the paper is dipped into that substance.

Pink Litmus
Litmus paper

Lesson C



Please login or register to download the printable version of this study guide.

www.newpathlearning.com

Blue

universal