

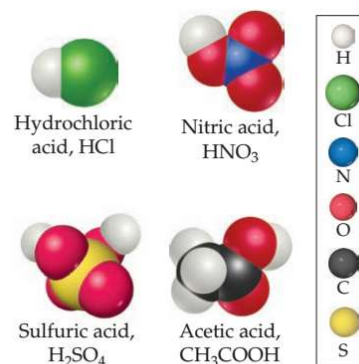
# 3. REACTIONS OF ACIDS & BASES

UNIT 1 REACTIONS IN AQUEOUS SOLUTIONS  
CH40S  
MR. WIEBE

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## PROPERTIES OF ACIDS

1. Acids contain  $H^+$
2. Acids have a pH lower than 7
3. Acids taste sour
4. Acids affect indicators (Blue litmus turns red)
5. Acids react with active metals, producing  $H_2$
6. Acids react with carbonates, producing  $CO_2$
7. Acids neutralize bases



▲ Figure 4.6 Molecular models of four common acids.

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## PROPERTIES OF BASES

1. Many bases contain  $\text{OH}^-$
2. Bases have a pH greater than 7
3. Bases taste bitter
4. Bases effect indicators (Red litmus turns blue)
5. Solutions of bases feel slippery
6. Bases neutralize acids

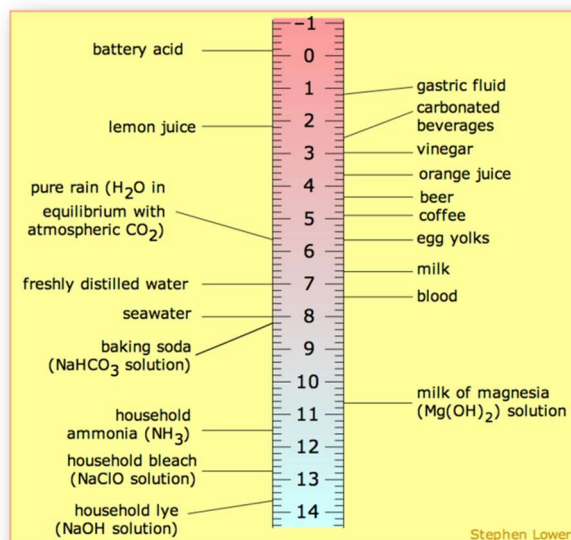
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## THE pH SCALE

Acids have a  $\text{pH} < 7$

Bases have a  $\text{pH} > 7$

$\text{pH} = 7 = \text{Neutral}$



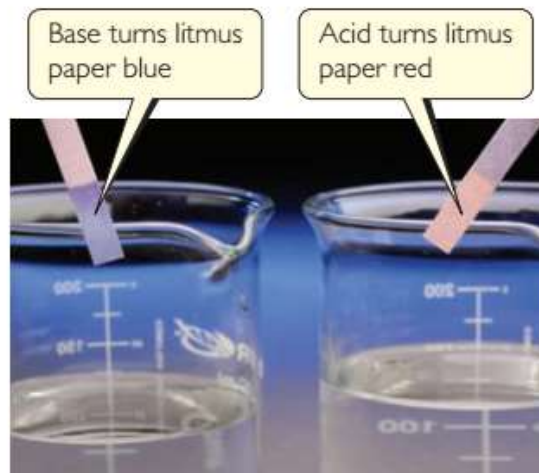
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## INDICATORS

Indicators are chemicals that change their colour as pH changes.

There are many different types of chemical indicators. We will learn more about them in a later unit.

You may be familiar with litmus paper.



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## REACTIONS OF ACIDS

1. Acids react with active metals to form salts and hydrogen gas.

**A piece of magnesium is placed in a test tube of hydrochloric acid.**

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## REACTIONS OF ACIDS

2. Acids react with carbonate salts to produce carbon dioxide gas.

**Vinegar (acetic acid) is mixed with washing soda (sodium carbonate).**

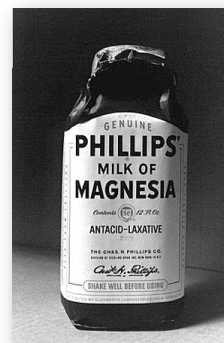
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## REACTIONS OF ACIDS

Acids react with bases to produce a soluble ionic salt and water.

This is called a neutralization reaction.

**Milk of Magnesia contains magnesium hydroxide,  $Mg(OH)_2$ , which neutralizes stomach acid, HCl.**



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# NEUTRALIZATION DEEP DIVE

Adding just a few drops of hydrochloric acid would not be sufficient to dissolve all the  $\text{Mg}(\text{OH})_2(\text{s})$ . Why not?

