

7 Acids and bases – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
acids	酸	_____	_____	_____
alkalis	碱	_____	_____	_____
bases	碱	_____	_____	_____
metal	金属	_____	_____	_____
salt	盐	_____	_____	_____
hydrogen	氢气	_____	_____	_____
base	碱	_____	_____	_____
carbonate	碳酸盐	_____	_____	_____
carbon dioxide	二氧化碳	_____	_____	_____
indicator	指示剂	_____	_____	_____
Litmus	石蕊	_____	_____	_____
Universal indicator	通用指示剂	_____	_____	_____
acidic	酸性	_____	_____	_____
neutral	中性	_____	_____	_____
alkaline	碱性	_____	_____	_____

Recall

At IGCSE you meet **acids** 酸 and **alkalis** 碱 and the **pH** scale. An acid forms **hydrogen ions** (H^+) when dissolved in water.

- Acids taste sour and turn blue litmus red.
- Alkalis are soluble **bases** 碱.

Nothing here is hard — it just organises the reactions.

New ideas

Read these first, then do the Practice.

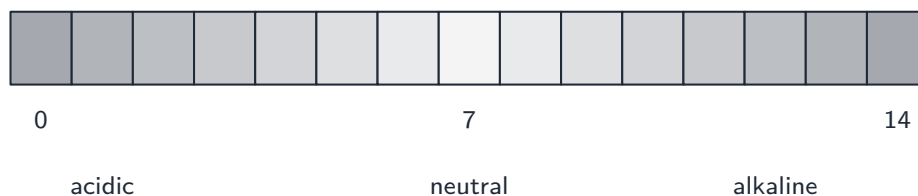
■ 1 Reactions of acids

Acid reacts with	Products
a metal 金属	a salt 盐 + hydrogen 氢气
a base 碱 (neutralisation)	a salt + water
a carbonate 碳酸盐	a salt + water + carbon dioxide 二氧化碳

■ 2 Indicators and pH

An **indicator** 指示剂 changes colour to show acid or alkali. **Litmus** 石蕊: red in acid, blue in alkali.

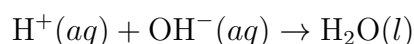
The **pH** scale runs 0–14. **Universal indicator** 通用指示剂 shows it:

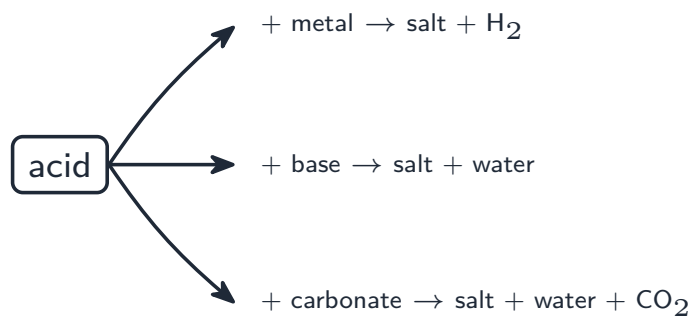


- below 7 → **acidic** 酸性; exactly 7 → **neutral** 中性; above 7 → **alkaline** 碱性.

■ 3 Neutralisation

When an acid reacts with an alkali, the H^+ and OH^- ions join to make water:





Watch out: an **alkali** is a base that *dissolves* in water — every alkali is a base, but not every base is an alkali. On the pH scale, below 7 is acidic, exactly 7 is neutral, above 7 is alkaline.

Practice

Try these in order.

7.1 What ion do all acids form in water? [1]

7.2 Name the products of (a) acid + metal, (b) acid + carbonate. [2]

7.3 What colour is litmus in (a) an acid, (b) an alkali? [2]

7.4 What colour does universal indicator show at pH 7, and what is that called? [2]

7.5 Write the ionic equation for neutralisation. [1]

7.6 Challenge. Write the **word** equation for dilute hydrochloric acid reacting with

calcium carbonate, and name the gas given off.

[3]