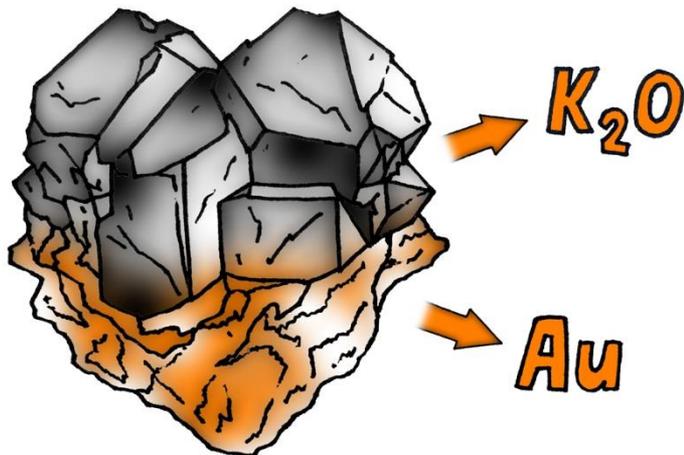


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| POTASSIUM |
| SODIUM |
| LITHIUM |
| CALCIUM |
| MAGNESIUM |
| ALUMINIUM |
| ZINC |
| IRON |
| COPPER |
| SILVER |
| GOLD |

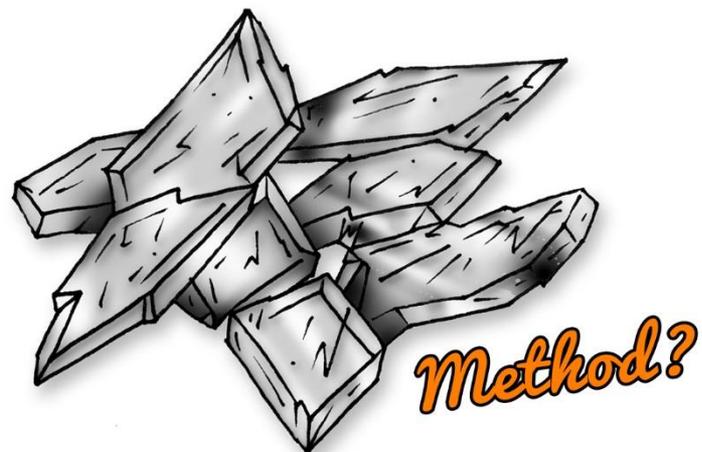
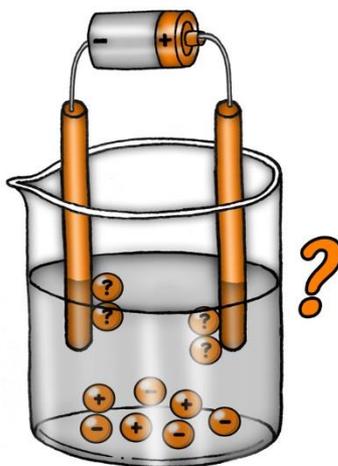
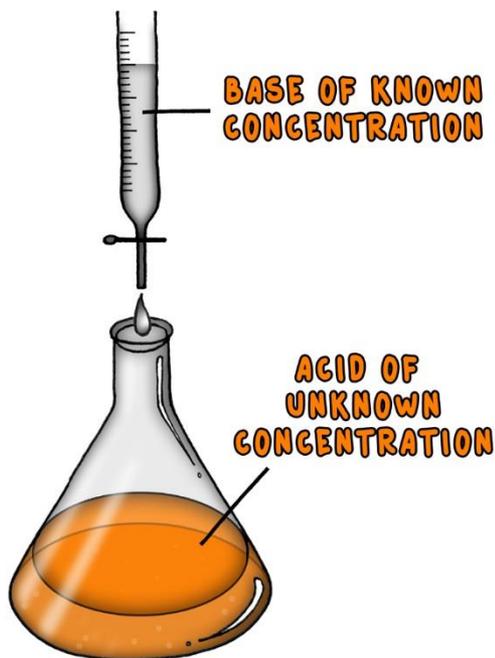
Pattern?



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AQA GCSE CHEMICAL CHANGES THINKIT!



The Reactivity Series:

- Li + H₂O and Zn + HCl produce similar products. State what these are and explain why they are produced and what you would observe.
- Explain why gold and silver are used to make jewellery and why potassium is stored in jars of oil.
- Describe a safe method that could be used to put metals in order of their reactivity according to their reactions with hydrochloric acid.

Titration (chemistry only):

- Describe how to accurately calculate the reacting volumes of strong hydrochloric acid and strong sodium hydroxide solution.
- Explain how to calculate the concentration of sodium hydroxide solution needed if 27.5 cm³ of 0.2 mol/dm³ hydrochloric acid is required to titrate 25.0 cm³ of sodium hydroxide solution.

Electrolysis:

- Explain the differences between the electrolysis of molten sodium chloride and the electrolysis of sodium chloride solution.
- To carry out the electrolysis of water, sulfuric acid is added. How does the addition of sulfuric acid produce a conducting solution?
- **(HT only)** Describe the electrolysis of lithium fluoride solution using half equations.

Metal Oxides and Extraction:

- Explain why gold is found as a metal element rather than combined with any other elements in a compound.
- The reaction between aluminium powder and iron(III) oxide is used in the rail industry. Explain the reaction using a word and symbol equation.
- Explain why carbon can reduce tin oxide but not magnesium oxide.

Reactions of Metals with Acids:

- Explain why copper sulfate cannot be made by adding copper metal to sulfuric acid.
- Explain why potassium chloride should not be made by reacting potassium metal with hydrochloric acid.
- **(HT only)** Explain why the reaction between zinc and hydrochloric acid is a redox reaction.

AQA GCSE Chemical Changes

ThinkIT!

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The pH scale and Neutralisation:

- Using a sketch graph, describe and explain how the pH changes when a strong acid is added to a strong alkali.
- Universal indicator paper is the best indicator to use to distinguish between distilled water, sodium hydroxide (aq) and ethanoic acid (aq). Discuss.
- **(HT only)** Explain what differences you would see when magnesium carbonate reacts with ethanoic acid (weak acid) compared with nitric acid (strong acid).

Electrolysis:

- Explain why ionic substances only conduct electricity when molten or in an aqueous solution.
- Suggest why aluminium knives and forks used to be more precious than gold in the 19th century.
- **(HT only)** Explain using half equations which ions are oxidised and which ions are reduced in the electrolysis of aluminium oxide.

Salts:

- How could scientists identify an unknown chemical as being a carbonate?
- Explain a method to show how lithium chloride can be synthesised in the laboratory.
- A sample of copper sulphate crystals was accidentally contaminated with sand. Describe the method to regain the pure copper sulphate crystal back again.