

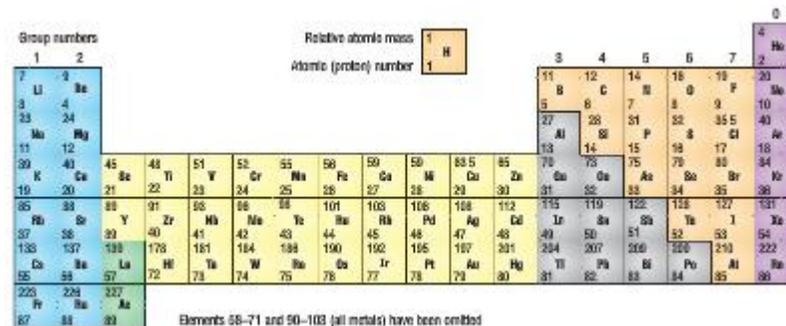
C3 REVISION - CHAPTER 1 - THE PERIODIC TABLE

State how each of these scientists aided in the development of the modern periodic table:
Dalton:

Newland:

Mendeleev:

Describe how the modern periodic table is arranged:



Create a key for the colours displayed on the periodic table above:

Group 1 - the alkali metals:

Describe the properties:

Describe the reactions:

Transition metals:

Describe the physical properties:

Describe the chemical properties:

Describe the types of compounds formed:

The halogens:

Describe the properties: Describe the reactions: Describe the displacement reactions:

KEY WORDS:

Dalton	Non-metals	Chemical properties
Newland	Nobel gases	Compound
Mendeleev	Melting point	Halogens
Reactivity	Boiling point	Displacement
Reactive metals	Alkali metals	
Transition metals	Physical properties	

ASSESSMENT:



C3 REVISION - CHAPTER 2 - WATER

Explain what hard water is and how it is formed:

State the equation that shows why hard water wastes soap:

Describe how limescale is formed:

Explain the how the effects of the following on hard water:
Washing soda:

Ion-exchange column:

Heating:

Explain how water is treated to make it safe to drink: You can use a diagram

Explain the issues surrounding the treatment of water with ions such as chlorine and fluoride:

KEY WORDS:

Hard water	Ion-exchange column
Soapless detergents	Water treatment
Scale	Pure water
Temporary hard water	Softener
Permanent hard water	Chlorine
	Fluoride

ASSESSMENT:



C3 REVISION - CHAPTER 3 - ENERGY CALCULATIONS

We calculated the energy used when burning fuels using the following calculation:

$$\text{Energy released} = \text{mass of water heated} \times \text{specific heat capacity of water} \times \text{rise in temperature}$$

This is sometimes written as:

$$Q = mc\Delta T$$

We also need to know the amount of energy released per gram or per mole to compare the efficiency of the fuels:

$$\text{Energy released per gram (kJ/g)} = \text{energy released} \times \frac{1\text{g}}{\text{change in mass of fuel}}$$

$$\text{Energy released per mole (kJ/mol)} = \text{energy released} \times \frac{\text{RAM of fuel}}{\text{change in mass of fuel}}$$

Use these equations to show which fuel is more efficient:

0.2 grams of fuel A heats 50g of water from 16°C to 41°C

0.46 grams of fuel B heats 50 g of water from 21°C to 57°C

Sketch an energy change graph for each of the following and explain the energy changes taking place:

Endothermic



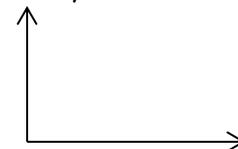
Exothermic:



Activation energy:



Catalysts:



Explain how to calculate bond energy for a reaction:

KEY WORDS:

Energy release	Activation energy
Energy transfer	Catalyst
Solutions	Bond breaking
Exothermic	Bond making
Endothermic	Bond energy

ASSESSMENT:



C3 REVISION - CHAPTER 4 - ANALYSIS AND SYNTHESIS

Fill in the flow chart to show your understanding of positive ion tests:

Metal ion	Colour of precipitate	Further tests required
Copper Cu^{2+}		
	Reddish-brown	
Iron Fe^{2+}		
Magnesium Mg^{2+}		
		Insoluble in excess NaOH, red flame test
Aluminium Al^{3+}	White	

Fill in the table to show your understanding of flame tests:

Metal ion	Flame colour
Lithium (Li^+)	
Sodium (Na^+)	
	Lilac
	Red
Barium (Ba^{2+})	

Describe how to carry out a titration:

Describe the Haber process:

Fill in the table to show your understanding of negative ion tests:

Anion	Test	Observation
		CO_2 gas produced
Halide		Colour precipitate: Chloride → Bromide → Iodide →
Sulphate		White precipitate

State the different types of chemical analysis that can be carried out:

Describe the effects of temperature on this process:

Describe the effects of pressure on this process:

KEY WORDS:

Flame test	End point
Sodium hydroxide	Concentration
Carbonates	Chemical analysis
Halides	Equilibrium
Sulphates	Pressure
Titration	Energy
	Haber process

ASSESSMENT:



C3 REVISION - CHAPTER 5 - ORGANIC CHEMISTRY

Alcohols:

Draw the structure of the first 3 members:

Methanol Ethanol Propanol

State the some of the uses of alcohol:

Describe the combustion of alcohol:

Describe the reaction of alcohol with sodium:

Describe the oxidation of alcohol:

Carboxylic acids:

Draw the structure of the first 3 members:

Methanoic acid Ethanoic acid Propanoic acid

Describe the reaction of carboxylic acid with carbonates:

Explain why carboxylic acids are called weak acids:

Esters:

Draw the structure of the first of ethyl ethanoate:

Explain how esters are made:

Explain the issues of ethanol in drinks:

Explain the issues of ethanol and esters as biofuels:

KEY WORDS:

Alcohol
Functional
group
Homologous
series

Carboxylic acid
Esters
Combustion
Oxidation
Ethanol

ASSESSMENT:

