Separate Physics Paper 1

Name: _____

Topic 1: Energy

Topic 2: Particle Model

Topic 3: Electricity

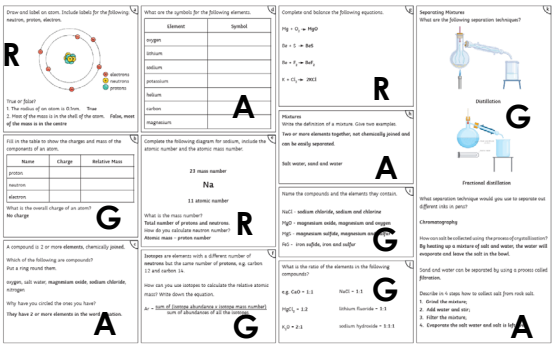
Topic 4: Atomic Structure

Exam Date: Thursday 22nd May 2025

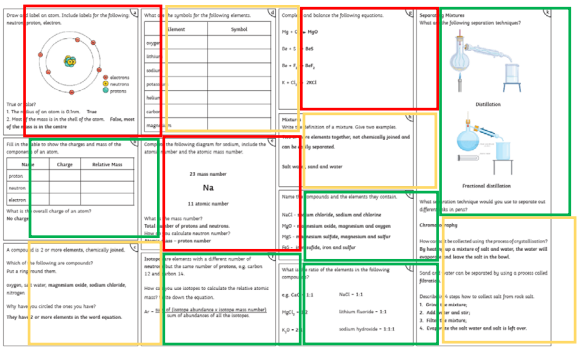
Instructions

This booklet has been separated according to the topic that will be covered in the exam.

1. Go through the revision mat for the topic and rate each box according to your understanding of that content. Use a typical RAG rating or 3 different colours of highlighter.
   For example:



OR



R = Red 😟 Low understanding

A = Amber 😐 Some Understanding

G = Green 😊 Good Understanding

2. Cut along the dotted lines of the question card template provided. Then produce a set of revision questions and answers for that topic – you should focus on those you have rated as red or amber on the revision mat. **For example:**

Front	**Back**
What is the mass number of an atom?	The total number of protons and neutrons found in the nucleus

3. Fold along the line indicated on the following page and glue where indicated to create a storage pocket for your question cards.
4. Regularly test yourself using your question cards or ask someone to test you and return them to your storage pocket for safekeeping after each use.

a

Describe what a system is.

It is an object or group of objects.

b

Describe energy store changes for the following objects:

A football that has been kicked upwards.

As the ball moves upwards, the kinetic energy store of the ball decreases and the gravitational potential energy store of the ball increases.

A squash ball hitting a wall.

When the ball hits the wall, the kinetic energy store of the ball decreases and the elastic potential energy store increases. Some of the energy is also transferred to the surroundings. The thermal energy store of the surroundings increases and some of the energy is carried by sound waves.

A car accelerating.

As the car moves, the chemical energy store of the petrol decreases and the kinetic energy store of the car increases. Some of the energy is also transferred by sound waves to the surroundings and the thermal energy store of the surroundings also increases.

A car decelerating.

As the car slows down, the kinetic energy store decreases and the thermal energy store of the surroundings and brakes increases. Some of the energy is also transferred by sound waves to the surroundings.

Bringing water to the boil.

The electrical energy from the mains is transferred and the thermal energy store of the water increases, which increases the kinetic energy stores of the particles that make up the water.

c

What is the equation linking kinetic energy, mass and speed?

kinetic energy = $\frac{1}{2}$ × mass × (speed)^2

Write the units for the following:

kinetic energy: **(E_k), joules, J**

mass: **(m), kilograms, kg, grams, g**

speed: **(v), metres per second, m/s**

List some examples of objects with kinetic energy stores.

(These are just a few examples. There will be many more.)

Toy car travelling down a ramp.

Parachute falling through the air.

Gas particles moving in the air.

d

What is the equation linking elastic potential energy, spring constant and extension?

elastic potential energy
= $\frac{1}{2}$ x spring constant x (extension)^2

Write the units for the following:

elastic potential energy: **(E_e), joules, J**

spring constant: **(k), newtons per metre, N/m**

extension: **(e), metres, m**

List some examples of objects with elastic potential energy stores.

(These are just a few examples. There will be many more.)

Stretched elastic band.

Tennis ball that has been squashed.

Extended spring.

e

What is the equation linking gravitational potential energy, mass, gravitational field strength and height?

gravitational potential energy
= mass x gravitational field strength x height

Write the units for the following:

gravitational potential energy: **(E_p), joules, J**

mass: **(m), kilograms, kg**

gravitational field strength: **(g), newtons per kilogram, N/kg**

height: **(h), metres, m**

List some examples of objects that have gravitational potential energy stores.

(These are just a few examples. There will be many more.)

Apple on a tree.

Plant pot on a windowsill.

Aeroplane in the sky.

f

What is the equation linking change in thermal energy, mass, specific heat capacity and temperature change?

change in thermal energy
= mass x specific heat capacity x temperature change

Write the units for the following:

change in thermal energy: **(ΔE), joules, J**

specific heat capacity: **(c), joules per kilogram per degree Celsius, J/kg °C**

Write a definition for specific heat capacity.

The amount of energy needed to increase the temperature of a 1kg material by 1°C.

g

Define Power.

The rate at which energy is transferred.

The rate at which work is done.

What is the equation linking power, energy transferred and time?

power = energy transferred ÷ time

What is the equation linking power, work done and time?

power = work done ÷ time

Write the units for the following:

power: **(P), watts, W**

energy transferred: **(E), joules, J**

time: **(t), seconds, s**

work done: **(E), joules, J**

An LED bulb has a power rating of 8W, a halogen bulb has a power rating of 28W but they both have a similar brightness. What is the difference?

The LED bulb transfers less energy per second than the halogen bulb.

The power output of a hairdryer is 2000W. How much energy is transferred per second?

2000 joules per second.

a

What is the law of conservation of energy?

Energy cannot be created or destroyed. It can be transferred, stored or dissipated.

Define dissipation.

Energy being transferred to the surroundings.

b

For the following situations, name the useful energy transfers and the type of energy that is dissipated to the surroundings (wasted):

picture on a television screen.

useful: **chemical energy stores → thermal energy stores, and light and sound carry energy to the surroundings.**

energy dissipated as: **thermal energy stores of the surroundings**

printer

useful: **chemical energy stores → kinetic energy stores**

energy dissipated as: **thermal energy stores and some is carried by sound waves to the surroundings.**

mobile phone

useful: **chemical energy stores → thermal energy stores and light and sound waves carry the energy to the surroundings**

energy dissipated as: **thermal energy stores of the surroundings**

c

For the following situations, suggest methods to reduce unwanted energy transfers and what the unwanted energy transfers are.
Hot water stored in a tank.

Insulation around the water tank. Reduces dissipation of energy to the surroundings into thermal energy stores.

Moving parts in a car.

Lubricating the moving parts. Reduces dissipation of energy to the surroundings into thermal energy stores.

d

Describe how thermal conductivity of a material affects how it transfers energy by conduction.

If a material has a high thermal conductivity, it will transfer heat via conduction at a much quicker rate.

e

How is energy lost from a building? What factors affect this?

Energy is transferred to thermal energy stores of the surroundings. The factors that affect this are the thermal conductivity of the walls and the thickness of them.

f

What is the equation linking efficiency, useful output energy transfer and total input energy transfer?

efficiency = useful output energy ÷ total imput energy transfer

What is the equation linking efficiency, useful power output and total power input?
efficiency = useful power output ÷ total power output

When energy is transferred in a closed system, what happens to the total amount of energy?
Total energy does not change.

How can the efficiency of an energy transfer be increased?

By increasing the useful output by reducing the wasted energy.

g

Which lorry is more energy efficient and why?

The red lorry is streamlined and so is more energy efficient . It wastes less energy due to air resistance and so has a higher useful output energy.

h

List the main energy resources.

Fossil fuels (coal, oil and gas) N **Nuclear fuel N** **Biofuel R**

Wind R **Hydroelectricity R** **Geothermal R**

Tidal R **Waves R** **Sun R**

i

Define renewable and non-renewable energy resources.

A renewable energy resource can be replenished.

A non-renewable energy resource will eventually run out.

j

For the energy resources that you have listed, write an R next to those that are renewable and N next to those that are non-renewable.

Except for oil, all energy resources are used for electricity generation. Which are used for heating?

Geothermal, solar, fossil fuels (coal, oil and gas)

k

My main areas for improvement are:

_____

_____

_____

_____

l

Energy Resource	Enviromental Impact	Reliability of Output
Coal	Produces carbon dioxide, a greenhouse gas and sulphur dioxide which contributes to acid rain.	Reliable.
Oil	Produces carbon dioxide, nitrogen dioxide and sulphur dioxide. If it is spilt there can be disastrous environmental consequences.	Reliable.
Gas	Produces carbon dioxide.	Reliable.
Nuclear	Produces radioactive waste.	Reliable.
Biofuel	A lot of land is needed for growing the fuel.	Reliable.
Wind	Can be noisy and the turbines are dangerous for birds.	Unreliable.
Hydroelectricity	Large areas of land is needed and can cause disruption to ecosystems.	Reliable.
Geothermal	None.	Reliable.
Tidal	Can affect habitats.	Not always reliable due to changing tides.
Waves	Can affect habitats.	Unreliable.
Solar	None.	Unreliable.

a

What is the equation linking density, mass and volume?

density = mass ÷ volume

b

Write the symbols and units for the following:

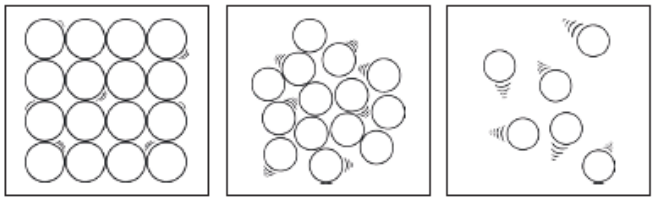
density: **(ρ) kilograms per metre cubed, kg/m³**

mass: **(m), kilograms, kg**

volume: **(V), metres cubed, m³**

c

Draw the particle models for solids, liquids and gases.



d

Describe the three states of matter in terms of structure, shape and movement of the particles.

solid – **They have a regular structure and the particles are packed closely together so they have a definite shape. The particles are in a fixed position but do vibrate.**

liquid – **They have an irregular structure and the particles are close together. They take the shape of the container but do not have a definite shape. The particles vibrate and move over one another.**

gas – **The particles are widely dispersed and do not have a definite shape. The particles move around rapidly.**

e

Why is a change of state referred to as a physical change and not a chemical change?

If the changes are reversed then the material will recover its original properties.

f

Describe the displacement technique used to determine the volume of an irregularly shaped object.

Fill a displacement vessel/eureka can with water. Put the spout of the can over a measuring cylinder. Put the irregularly shaped object into the can and measure the volume of water displaced.

g

When substances change state, their mass is conserved. What does this mean?

The mass of the substance does not change once it has changed state.

Describe how to determine the volume of a regularly shaped object.

width × length × height

h

What is an internal system?

An internal system is one in which the energy is stored by the particles within it.

i

Define internal energy.

This is the total kinetic and potential energy of the particles that make up that system.

j

List some factors that affect the increase of temperature of a system.

Mass of the substance.

Type of material being heated.

Energy input.

k

Explain the differences in density of solids, liquids and gases.

Solids are very dense because the particles are so closely packed together and there are strong forces of attraction between them. Liquids are less dense than solids, but more dense than gases because the particles are very close together and attract one another. Gases are the least dense and have very weak forces of attraction only when they collide.

l

Define specific heat capacity.

The amount of energy needed to cause a 1°C rise in 1kg of a substance.

m

What is the equation linking change in thermal energy, mass, specific heat capacity and temperature?

change in thermal energy = mass x specific heat capacity x temperature change

n

Write the units and symbols for the following:

energy: **(E), Joules, J**

mass: **(m), kilograms, kg**

specific heat capacity: **(c), Joules per kg per degree Celsius, J/kg oC**

temperature change: **(Δ), degrees Celsius, oC**

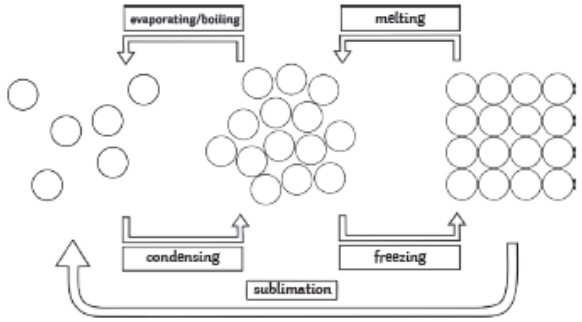
o

After a long journey, the temperature of a car tyre increases. What is the effect on the gas particles within the tyre?

The gas particles will gain more kinetic energy, therefore they will move around more.

p

Label the diagram with the terms used for changes of state.



Topic 2: Particle Model

a

Define latent heat.

Latent heat is the energy required for the change of state of a substance.

b

What is the equation linking energy for a change of state, mass and specific latent heat?

Energy for a change of state = mass x specific latent heat

Write the symbol and unit for the following:

specific latent heat: **(L), joules per kilogram, J/kg**

c

Describe the difference between specific latent heat of fusion and specific latent heat of vaporisation.

Specific latent heat of fusion is the amount of energy needed to change 1kg of a substance from a solid to a liquid with no change of temperature. Specific latent heat of vaporisation is the amount of energy needed to change 1kg of a substance from liquid to gas with no change of temperature.

d

Distinguish between specific heat capacity and specific latent heat.

Specific heat capacity is the amount of energy required to increase the temperature of a substance, whereas specific latent heat is the energy needed to change the state of a substance with no temperature change.

e

What is the equation that links pressure and volume?

Pressure x volume = constant

List the symbols and units for the following:

pressure: **(p), pascals, Pa**

volume: **(V), metres cubed, m^3**

f

Explain the effect of an increase in temperature on the pressure of a gas in a container.

An increase in temperature causes more collisions of the gas particles with the walls of the container. This causes an increase in the force on the walls of the container over a particular area and so increases the pressure.

g

For the heating and cooling curve (shown in section J), what are the terms used to describe the changes of state for:

B→C **Melting**

D→E **Evaporating/Boiling**

E→D **Condensing**

C→B **Freezing**

h

What is happening to the particles between A-B, C-D and E-F?

They are gaining kinetic energy and spreading out more.

How are kinetic energy of particles and temperature related?

As the temperature increases the kinetic energy of the particles increases.

i

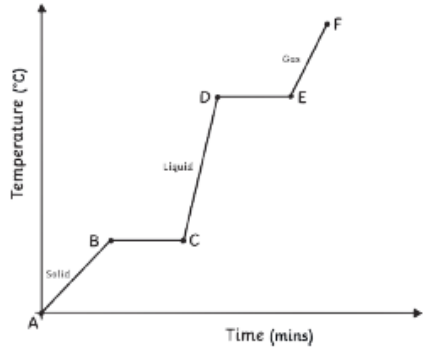
Using the diagram, explain the effect of an increase of volume on pressure.

(a) High pressure (b) Low pressure

An increase in volume causes the particles to spread out more and so the number of collisions on the walls of the container decreases. So, there is less force exerted on the container over a certain area and therefore a lower pressure.

j

What are the states of matter for the diagonal sections of the graph? Add labels to the graph below.



k

When work is done on a gas, what effect is there on the internal energy of the gas?

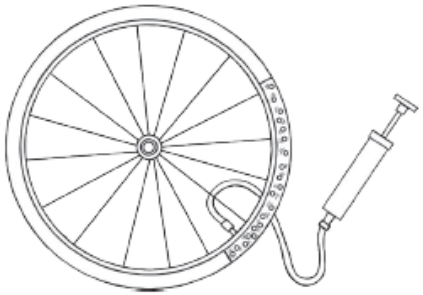
The internal energy of the gas increases.

l

When work is done on a gas what effect can there be on the temperature of the gas?

The temperature can increase.

m



Using the image above, explain what happens to:

a) The internal energy of the gas within the tyre:

The internal energy of the gas increases.

b) The energy of the particles:

The particles gain kinetic energy.

c) The temperature of the gas:

The temperature of the gas increases.

n

My main areas for improvement in this topic are:

_____

_____

_____

_____

_____

_____

_____

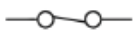
_____

a

Draw the symbol diagrams for:

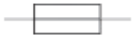
switch (open)

switch (closed)



lamp

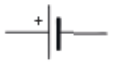
fuse



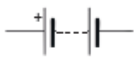
diode

LED

cell



battery



voltmeter

ammeter

resistor

variable resistor

thermistor

LDR

b

What is electric current?

Electric current is the flow of charge.

What is the equation that links charge flow, current and time?

charge flow = current × time

Write the symbols and units for the following.

charge flow: **(Q) – coulombs, C**

current: **(I) – amperes, A**

time: **(t) – seconds, s**

c

What is the equation that links current, potential difference and resistance?

Potential difference = current × resistance

Write the symbols and units for the following:

potential difference: **(V) – Volts, V**

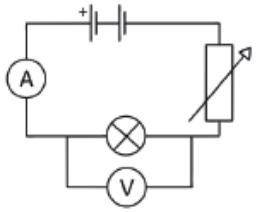
resistance: **(R) – Ohms, Ω**

If you were measuring resistance, what would you need to measure and what components would you need?

Current and potential difference using an ammeter and voltmeter respectively.

d

Draw a circuit diagram including the following components:
ammeter, voltmeter, battery, lamp, variable resistor.

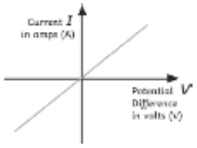


e

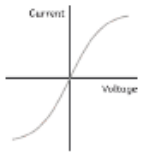
Resistors

Draw the graphs for:

resistor



filament lamp



diode

f

Which graphs show a linear relationship and which show a non-linear relationship?

The ohmic conductor shows a linear relationship.

The filament lamp and diode both show non-linear

g

Thermistor: as temperature increases, resistance **decreases**

Uses:

temperature detectors in car engines or thermostats

LDR: as intensity increases, resistance **decreases**

Uses:

street lights

h

Complete the table:

Type of Circuit	Potential Difference: Shared or the Same?	Current: Same or Split between Branches?
series	**shared**	**same**
parallel	**same**	**split between brances**

i

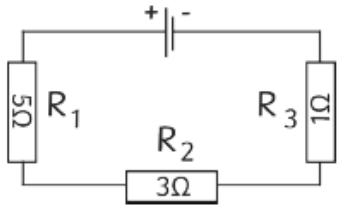
What is the effect on the total resistance of adding resistors into a:

a. series circuit? **Increase in the total resistance.**

b. parallel circuit? **Decrease in the total resistance.**

j

For the below circuit, calculate the total resistance.



Total resistance = **9 Ω**

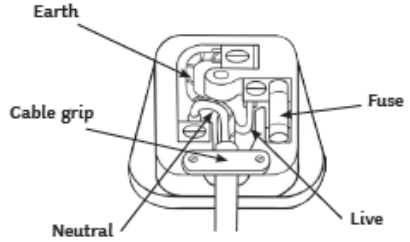
k

In the UK, mains electricity has an ac supply. Explain the difference between ac and dc.

In direct current, the electrons flow in one direction only.

In alternating current, the flow of electrons changes.

Label the diagram of the 3-point plug:



l

What is the purpose of the three core cables in electrical appliances?

live wire: **the alternating current from the mains supply flows through this.**

neutral wire: **this completes the circuit.**

earth wire: **this usually does not have a current running through it. It is a safety feature to prevent the appliance becoming live.**

How would you make sure that the live wire to a switch is dead?

Switch off the supply from the main circuit board or remove the fuse from the main circuit board and test that it's dead.

Explain why it is dangerous to have any connection between the live wire and the Earth.

This is a short circuit which will cause a high current to flow and could cause a fire. If the fuse did not blow then a person touching it could also get electrocuted.

a

What is the equation linking power, potential difference and current?

power = potential difference × current

What is the equation linking power, current and resistance?

power = (current)^2 × resistance

Write the symbol and unit for power.

Power (P) – watts, W

b

Can you name the energy transfers for the following domestic appliances?

mains powered hair dryer:

Chemical energy store (in the Power Station) → thermal and kinetic energy stores

mains powered toaster:

Chemical energy store (in the Power station) → thermal energy store

battery powered torch:

Chemical energy store (in the battery) → thermal energy stores

c

What is the equation linking energy transferred, power and time?

energy transferred = power × time

What is the equation linking energy transferred, charge flow and potential difference?

energy transferred = charge flow × potential difference

Write the symbol and unit for energy transferred.

energy transferred (E) – joules, J

d

Describe the relationship between the power ratings of appliances and the changes in stored energy when they are in use.

An appliance with a higher power rating will transfer stored energy to other types of energy at a faster rate than one with a lower power rating.

e

Why is energy transferred at such a high voltage in cables?

High voltages mean that the energy is transferred at low currents. This results in less resistance and therefore less energy is lost as heat.

Describe how the following work:

a. step-up transformer: **voltage is increased.**

b. step-down transformer: **voltage is decreased.**

f

Describe what happens to these insulating materials (above) when they are rubbed together.

When the cloth and the acetate are rubbed together the friction causes the electrons to be rubbed off from one material to the other. The material that gains the electrons becomes negatively charged. The material that loses the electrons becomes positively charged.

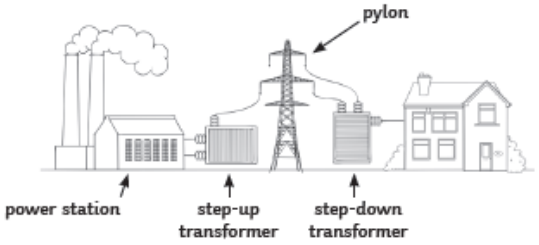
What happens when two objects are brought together that have:

a. the same charge? **They repel.**

b. the opposite charge? **They attract.**

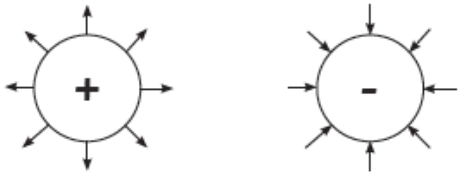
g

Label the national grid diagram.



h

Complete the diagrams below to show the electric fields around positively and negatively charged spheres.



i

Charged objects have an electric field around them.

Where is this field the strongest?

The field is strongest closer to the charged object.

What happens to the field strength as you go further away from the charged object?

As you go further away from the object, the field strength decreases.

Charged objects exert a force on one another when they are brought close together.

What is this type of force called?

Non-contact force.

Where is the force the greatest?

The force is greatest closer to the object.

j

List some everyday examples of static electricity:

1. **Giving someone an electric shock after sliding down the stairs.**
2. **Getting an electric shock from taking a jumper off.**
3. **A balloon causing hair to stand on end when it has been rubbed against a jumper.**

(This is not an exhaustive list. Students may come up with many more.)

Topic 4: Atomic Structure

a

What is the radius of the nucleus of an atom?

1×10^{-10} metres

Label the diagram of an atom (nuclear model).

What is the radius of the nucleus compared to the atom?

The radius is less than $\frac{1}{10\,000}$ of the radius of the atom.

b

Fill in the blanks.

Electrons are arranged in different **energy levels** around the **nucleus**. If electromagnetic **radiation** is absorbed, then electrons move **further** from the **nucleus** (a higher energy level). If electromagnetic **radiation** is emitted, then the electrons move to a **lower energy level** (closer to the nucleus).

c

Why does an atom have no overall charge?

Atoms have the same number of electrons (negatively charged) and protons (positively charged).

What happens to an atom if:

it loses one or more electrons? **It becomes positively charged.**

it gains one or more electrons? **It becomes negatively charged.**

Give the definition of an isotope.

An isotope is an element with the same number of protons but a different number of neutrons.

Mass number is

the total number of protons and neutrons in an atom.

Atomic number is

the number of protons in the atom of an element.

d

For the following isotopes of chlorine, what are the numbers of protons and neutrons?

$^{35}_{17}$Cl protons = **17** neutrons = **18**

$^{37}_{17}$Cl protons = **17** neutrons = **20**

e

Describe the plum pudding model of the atom.

The atom is a ball of charge with electrons embedded within it.

f

Why was the plum pudding model replaced?

Rutherford and Marsden carried out an alpha particle scattering experiment. If the plum pudding model was correct then the particles would have passed straight through. Most particles passed straight through but some were deflected or reflected. The ones that were reflected must have been repelled by a positive charge that was heavier than the alpha particle.

g

Summarise the key developments of the nuclear model.

Niels Bohr suggested that electrons orbited the nucleus at specific distances. His calculations supported the experimental evidence.

Other experiments suggested that the positive charge was made up of smaller positively charged particles, which were named protons.

James Chadwick's experiments provided evidence for another particle in the nucleus; the neutron.

h

What effect can new evidence have on models?

Models can be further modified to incorporate the new findings.

i

Define radioactive decay.

A random process where unstable atomic nuclei give out radiation and become more stable.

j

Complete the following sentences.

The activity of a radioactive source is **the rate at which it decays.**

It is measured in **becquerels (Bq).**

Count rate is **the number of decays recorded each second by a detector.**

k

Complete the table:

Type of Radiation	Description	Penetration	Range in Air	Ionising Power
alpha (α)	**helium nucleus – 2 protons and 2 neutrons**	**Stopped by a few millimetres of paper.**	**A few centimetres**	**strong**
beta (β)	**a high speed electron ejected from the nucleus as a neutron turns into a proton**	**Stopped by a few millimetres of aluminium.**	**Several metres**	**medium**
gamma (γ)	**electromagnetic radiation from the nucleus**	**Stopped by many centimetres of lead.**	**At least a kilometre**	**weak**

l

Write how alpha and beta radiation are represented.

alpha $^{4}_{2}$**He**

beta $^{0}_{-1}$**e**

m

Complete the following equations:

$^{222}_{88}$Radium → $^{218}_{86}$**Radon** + $^{4}_{2}$He + energy

$^{14}_{6}$Carbon → $^{14}_{7}$**Nitrogen** + $^{0}_{-1}$e + energy

n

Why doesn't a gamma ray change the mass number or atomic number?

Gamma radiation is a wave.

o

What effect do alpha and beta decay have on the mass of the nucleus?

alpha - **mass number decreases by 4 and the atomic number decreases by 2.**

beta - **no effect on mass number, increases the atomic number by 1.**

p

My main areas for improvement in this topic are:

a

Define half-life of a radioactive isotope.

The time taken for the number of nuclei of an isotope to halve.

The time taken for the count rate from a sample containing the isotope to fall to half its initial level.

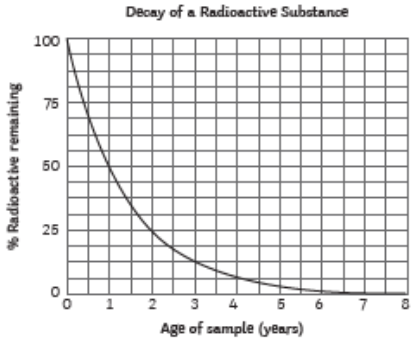
A radioactive isotope has an initial count rate of 600Bq. After 20 minutes its count rate is 150Bq. What is its half-life?

10 minutes.

b

What is the half-lifeof the radioactive isotope shown by the graph?

1 year.



Phosphorus-32 has a half-life of 14 days. What fraction of the original isotope will remain after 42 days?

$\frac{1}{8}$

c

Describe what radioactive contamination is.

It is the unwanted presence of materials containing radioactive atoms on other materials.

Describe irradiation.

This is the process of exposing an object to nuclear radiation, without it becoming radioactive.

Compare irradiation and contamination.

Irradiation does not cause the object to become radioactive but contamination does.

d

What precautions should be taken when irradiating an object?

Wear protective clothing.

Handle sources using tongs.

Use low-activity sources for a short period of time.

e

List some sources of background radiation.

Rocks

Cosmic rays from space

Nuclear weapons testing and nuclear accidents.

Medical

What factors affect a person's level of exposure to background radiation?

Occupation, e.g. pilot exposed to higher levels of cosmic rays.

Location, e.g. some areas have higher levels of radon gas.

What is radiation dose measured in?

sieverts (Sv)

State some medical uses for nuclear radiation.

Looking at internal organs – ingestion or injection an isotope, e.g. test kidney function, look for blockages or damage in the small intestine. Destroying tumours.

f

Explain why alpha radiation would not be used as a medical tracer.

It is the most ionising radiation so would cause the most damage to cells/DNA in the body.

Explain the effect that half-life has on the choice of a medical tracer.

The half-life needs to be long enough to ensure that medical staff can get the results required, but not so long that the patient is left radioactive for a long time.

g

Describe nuclear fission.

A neutron is absorbed by a large atomic nucleus, e.g. uranium-235. The nucleus becomes unstable and splits into two smaller nuclei. Two or three neutrons are also released.

What type of energy is released in a fission reaction?

Kinetic energy

Apart from neutrons and energy, what else is emitted during fission?

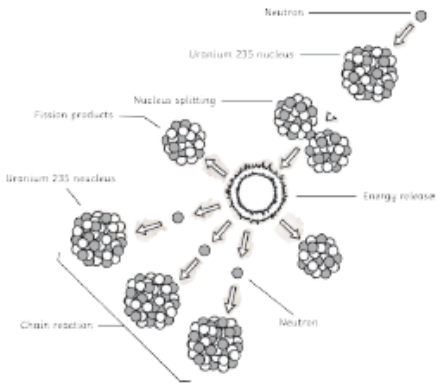
Gamma rays

How can fission lead to a chain reaction?

Each neutron emitted can be absorbed by other nuclei, which then release more neutrons.

h

Complete the diagram of a chain reaction.



i

Control rods are used to absorb neutrons in a nuclear reactor. Explain the effect that this has on the amount of energy released.

There will be fewer neutrons so the chain reaction slows down, causing less energy to be released.

j

Explain how an explosion could occur in a nuclear reactor.

If the neutrons aren't moderated, then there could be an uncontrolled chain reaction where fission releases large amounts of energy. Increasing numbers of neutrons are released and increasing numbers of fission reactions occur until there is an explosion.

k

Describe the process of nuclear fusion.

Two light nuclei join together to form a heavier nucleus.

Some of the mass is lost and energy is released.

Explain why high temperatures are needed for nuclear fusion.

High temperatures are needed because the nuclei repel.

This is because they are both positively charged.

Where does nuclear fusion occur naturally?

In the sun/stars.

Give one similarity and one difference between nuclear fission and fusion.

Similarity - **both release energy.**

Difference - **fusion is the joining of small nuclei, fission is the splitting of large nuclei.**

l

My main areas for improvement in this topic are:

Topic 4: Atomic Structure