Due Date:	**Friday, 19th April 2024**
Student Number:	
Name:	

Y10 Triple T5 W2 – C2 Bonding

Question	Answer
What are the properties of metals?	Metals are malleable, ductile and good conductors of electricity and heat. Metals usually have high boiling points.
What are properties of non-metals?	Non-metals are brittle and poor conductors of heat and electricity.
What does the group and period number of an element tell you?	group number: number of electrons in the outer shell of an atom period number: number of electron shells in each atom
What is the maximum number of electrons that can be held in each electron shell?	Two electrons in the first shell. Eight electrons in the second and third shells.
What is an ion?	An atom which has lost or gained electrons to become charged.
What atoms will bond ionically?	Metals and non-metals.
How does ionic bonding occur?	Electrons are transferred from the metal to the non-metal. The metal forms a positive ion and the non-metal forms a negative ion which attract together due to strong electrostatic forces.
What atoms will bond covalently?	Non-metals
How does covalent bonding occur?	Electrons are shared between the atoms to form a full outer shell of electrons.
What is metallic bonding?	The strong electrostatic attraction between positive metal ions and a sea of delocalised electrons.

Look, Cover, Write, Check

Question	Answer
What does the group and period number of an element tell you?	
What is an ion?	
What atoms will bond ionically?	
What are properties of non-metals?	
How does ionic bonding occur?	
What are the properties of metals?	
How does covalent bonding occur?	
What is the maximum number of electrons that can be held in each electron shell?	
What atoms will bond ionically?	
What is metallic bonding?	

Look, Cover, Write, Check

Question	Answer
	Electrons are shared between the atoms to form a full outer shell of electrons.
What are properties of non-metals?	
What atoms will bond ionically?	
	The strong electrostatic attraction between positive metal ions and a sea of delocalised electrons.
What does the group and period number of an element tell you?	
How does ionic bonding occur?	
	Two electrons in the first shell. Eight electrons in the second and third shells.
What atoms will bond covalently?	
	An atom which has lost or gained electrons to become charged.
What are the properties of metals?	

Exam Question:

Compare the bonding in hydrogen gas (H_2) with the bonding in copper metal.

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(4)

Due Date:	**Friday, 26th April 2024**
Student Number:	
Name:	

Y10 Triple T5 W3 – P2 Newton's Laws

Question	Answer
What is Newton's first law?	An object remains is the same state of motion unless a resultant force acts on it.
What state of motions would an object have if the resultant force is zero?	Stationary or moving at a constant velocity
What is Newton's second law?	Force = mass x acceleration
What is Newton's third law?	When objects interact, they exert equal and opposite forces on each other.
What are contact forces?	Forces exerted between two objects when they are touching.
What are non-contact forces?	The push or pull between objects that are not physically touching when they interact.
What are the force pairs that occur when pushing a pram?	The person pushes the pram forwards, the pram pushes the person backwards.
What are the force pairs that occur between a satellite in orbit and the Earth?	The Earth pulls the satellite, and the satellite pulls the Earth.
What forces are acting on a skydiver?	Weight and air resistance
What is terminal velocity?	The maximum speed of an object, reached when the forces moving the object are balanced by frictional forces.

Look, Cover, Write, Check

Question	Answer
What are contact forces?	
What are non-contact forces?	
What is Newton's second law?	
What are the force pairs that occur when pushing a pram?	
What is Newton's third law?	
What forces are acting on a skydiver?	
What is terminal velocity?	
What is Newton's first law?	
What are the force pairs that occur between a satellite in orbit and the Earth?	
What state of motions would an object have if the resultant force is zero?	

Look, Cover, Write, Check

Question	Answer
	An object remains is the same state of motion unless a resultant force acts on it.
What state of motions would an object have if the resultant force is zero?	
	Force = mass x acceleration
	When objects interact, they exert equal and opposite forces on each other.
What are contact forces?	
What are non-contact forces?	
	The person pushes the pram forwards, the pram pushes the person backwards.
What are the force pairs that occur between a satellite in orbit and the Earth?	
	Weight and air resistance
	The maximum speed of an object, reached when the forces moving the object are balanced by frictional forces.

Exam Question

Q1. An object travelling in a circle at a constant speed has a changing velocity.

State why. _____

Q2 A book rests on a table. **[1]**

Draw a free body force diagram to show the forces acting on the book.

Use arrows to represent the forces..

[4]

Q3. How can mass be calculated?

A Acceleration divided by force
B Force divided by acceleration
C Gravity divided by weight
D Weight divided by force

Your answer ☐ **[1]**

Due Date:	**Friday, 3rd May 2024**
Student Number:	
Name:	

Y10 Triple T5 W4 - B3 The Nervous System

Question	Answer
What do receptor cells detect?	They detect different stimuli.
What are the three main neurons called?	Sensory neurone, relay neurone and motor neurone.
What happens to a stimulus once it has been detected?	It is converted into an electrical impulse which can travel along sensory neurones to the CNS.
What are the receptors and stimuli associated with the skin organ?	Receptor cells detect pressure and temperature. The stimulus is pressure and heat.
What is a reflex action?	A reflex action is an involuntary response that bypasses the brain.
Write the pathway/order of a nervous reaction	Stimulus → Receptor cells → Sensory neurone → Brain → Motor neurone → Effector → Response
Write the pathway/order of a reflex response	Stimulus → Receptor cells → Sensory neurone → Spinal cord → Motor neurone → Effector → Response
Why is a reflex response faster than a voluntary response?	The response bypasses (misses out) the brain, so the body can respond faster.
What is the difference between a receptor and an effector?	A receptor detects the change in stimuli whereas an effector is a muscle or gland that initiates a response

Look, Cover, Write, Check

Question	Answer
What do receptor cells detect?	
What are the three main neurons called?	
What happens to a stimulus once it has been detected?	
What are the receptors and stimuli associated with the skin organ?	
What is a reflex action?	
Write the pathway/order of a nervous reaction	
Write the pathway/order of a reflex response	
Why is a reflex response faster than a voluntary response?	
What is the difference between a receptor and an effector?	

Look, Cover, Write, Check

Question	Answer
	They detect different stimuli.
What are the three main neurons called?	
What happens to a stimulus once it has been detected?	
	Receptor cells detect pressure and temperature. The stimulus is pressure and heat.
What is a reflex action?	
Write the pathway/order of a nervous reaction	
Write the pathway/order of a reflex response	
	The response bypasses (misses out) the brain, so the body can respond faster.
What is the difference between a receptor and an effector?	

Exam Question:

Doctors were worried that a man might have injured his spine. They touched different areas of his skin with a sharp point.
They asked him to tell them each time if he could feel the sharp point.

Explain how the information about the sharp point touching the skin reaches the man's brain.

(6)

Due Date:	**Friday, 10th May 2024**
Student Number:	
Name:	

Y10 Triple T5 W5 C3 - Introducing Chemical Reactions

Question	Answer
What are the rules for writing the formulae of elements?	Each element starts with a capital letter, with any other letters being lower case. E.g. Na or Br
What is a diatomic molecule?	A molecule containing 2 atoms e.g. Cl_2.
What does the 'molecular formula' show you?	The numbers of atoms of each element in a molecule or the ratio of atoms in an ionic compound.
What are the 4 different states and the corresponding state symbols?	Solid (s), liquid (l), gas (g) and aqueous (aq)
What is a mole?	The amount of a substance that contains the same number of particles (6.02×10^{23}) as there are atoms in 12g of carbon-12 (^{12}C).
How many particles in 1 mole?	6.02×10^{23}
What is an exothermic reaction?	A reaction in which thermal energy is released into the surroundings, increasing the temperature of the surroundings.
What is an endothermic reaction?	A reaction in which thermal energy is absorbed (taken in) from the surroundings, decreasing the temperature of the surroundings.
What is the general word equation for combustion?	Fuel + oxygen → carbon dioxide + water
Define 'activation energy'	The minimum amount of energy required to start a reaction by breaking the bonds in the reactants.

Look, Cover, Write, Check

Question	Answer
Define 'activation energy'	
What are the rules for writing the formulae of elements?	
What is an exothermic reaction?	
What are the 4 different states and the corresponding state symbols?	
What is a mole?	
What is an endothermic reaction?	
What does the 'molecular formula' show you?	
How many particles in 1 mole?	
What is the general word equation for combustion?	
What is a diatomic molecule?	

Look, Cover, Write, Check

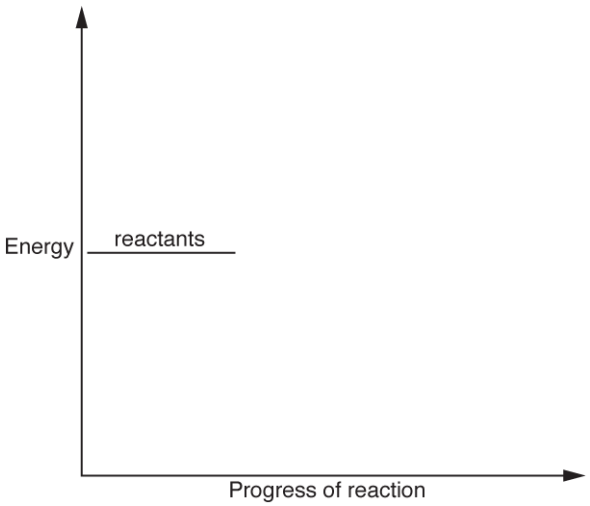
Question	Answer
What are the rules for writing the formulae of elements?	
What is a mole?	
	The numbers of atoms of each element in a molecule or the ratio of atoms in an ionic compound.
What are the 4 different states and the corresponding state symbols?	
	6.02×10^{23}
What is an exothermic reaction?	
	A reaction in which thermal energy is absorbed (taken in) from the surroundings, into the reaction, decreasing the temperature of the surroundings.
What is the general word equation for combustion?	
	A molecule containing 2 atoms e.g. Cl_2.
Define 'activation energy'	

Exam Question:

1. Draw a labelled reaction profile for an **endothermic** reaction.

Use the following labels on your reaction profile:

- products
- energy change
- activation energy.



[4]

Due Date:	**Friday, 17th May 2024**
Student Number:	
Name:	

Y10 Triple T5 W6 – P2 Forces in Action

Question	Answer
What is momentum?	The product of mass and velocity
How is momentum calculated?	momentum = mass x velocity
What is work done?	A measure of how much energy is transferred when an object is moved.
How is work done calculated?	work done = force x distance
What is power?	The rate at which energy is transferred or work is done.
What is weight (also known as gravity force)?	The force acting on an object due to the pull of gravity from a massive object like a planet.
How is moment (turning effect force) calculated?	Moment = Force x perpendicular distance from the pivot
What is gravitational field strength on Earth?	10 N/kg
How is gravitational potential energy (GPE) calculated?	GPE = mass x height x gravitational field strength
What is a moment?	The turning effect of a force

Look, Cover, Write, Check

Question	Answer
What is power?	
What is weight (also known as gravity force)?	
How is gravitational potential energy (GPE) calculated?	
What is a moment?	
How is work done calculated?	
How is moment (turning effect force) calculated?	
What is work done?	
What is gravitational field strength on Earth?	
What is momentum?	
How is momentum calculated?	

Look, Cover, Write, Check

Question	Answer
	The product of mass and velocity
How is momentum calculated?	
What is work done?	
How is work done calculated?	
	The rate at which energy is transferred or work is done.
	The force acting on an object due to the pull of gravity from a massive object like a planet.
How is moment (turning effect force) calculated?	
What is gravitational field strength on Earth?	
	GPE = mass x height x gravitational field strength
	The turning effect of a force

Exam Questions:

Q1

Emma drops a rock from the top of a cliff.

The rock has a mass of 0.5 kg.

As the rock falls it loses potential energy and gains kinetic energy.

The rock is travelling at a speed of 15 m / s just before it hits the ground.

Calculate the distance the rock falls.

Take the value of g to be 10 N / kg.

Ignore the effect of air resistance.

answer _____metres

Due Date:	**Friday, 24th May 2024**
Student Number:	
Name:	

Y10 Triple T5 W7 – Working Scientifically

Question	Answer
What is the definition of accurate?	Close to the true value.
What is the definition of reliable (sometimes called precise)?	Consistent with one another: this means they have a small range.
What is the definition of valid?	The investigation is appropriate to answer the question: only one variable is changed.
What is the definition of repeatable?	One person can use the same method and equipment to obtain similar results.
What is the definition of reproducible?	Someone else can repeat the experiment and obtain similar results.
What is the cause of a systematic error?	A problem with the method. All results are affected in the same way.
What is the cause of a random error?	Each result is effected differently: it can be an error reading the scale or human reaction time.
What is the cause of a zero error?	A lack of calibration (setting the equipment to zero before use). All results are affected in the same way.
What is an independent variable?	What you change/investigate in the investigation.
What is a control variable?	The control variables are what you keep the same.

Look, Cover, Write, Check

Question	Answer
What is an independent variable?	
What is the definition of repeatable?	
What is the cause of a systematic error?	
What is the definition of reliable (sometimes called precise)?	
What is a control variable?	
What is the definition of accurate?	
What is the cause of a zero error?	
What is the definition of reproducible?	
What is the definition of valid?	
What is the cause of a random error?	

Look, Cover, Write, Check

Question	Answer
	The control variables are what you keep the same.
What is the definition of repeatable?	
What is the cause of a random error?	
	Reproducible means that someone else can repeat the experiment and obtain similar results.
	Valid means the investigation is appropriate to answer the question: only one variable is changed.
What is an independent variable?	
	Results which are reliable are consistent with one another: this means they have a small range.
	A zero error is caused by a lack of calibration (setting the equipment to zero before use). All results are affected in the same way.
What is the cause of a systematic error?	
What is the definition of accurate?	

Q1. A student investigated the rate of the reaction between magnesium and hydrochloric acid.

The student measured the volume of hydrogen gas produced.

(a) How could the student collect and measure the volume of gas produced?

_____

_____

(1)

(b) At the start of the investigation the volume of gas was 0 cm^3

The student took readings at 20-second intervals

Readings for the volume of gas were 24 cm^3, 44 cm^3, 59 cm^3, 70 cm^3, 76 cm^3 and 79 cm^3

Draw a results table for the investigation.

Include the student's results in the table.

(3)

Due Date:	**Friday, 7th June 2024**
Student Number:	
Name:	

Y0 Triple T6 W1 B4 – Ecosystems

Question	Answer
Define 'ecosystem'	All the living organisms and non-living factors in an area.
What is a 'producer'?	An organism that **produces its own food** e.g. plants
What is a 'consumer'?	An organism that **eats other organisms** for energy e.g. animals
What is a 'decomposer'	An organism that **feeds on dead or decaying material** for energy e.g. bacteria or fungi.
What is a biotic factor? Give 2 examples.	A **living factor**. E.g. Number of predators, number of bacteria
What is an abiotic factor? Give 2 examples.	A **non-living factor**. E.g. soil pH and temperature.
What do animals compete for?	Food, water, space (territory), shelter, breeding partners
What do plants compete for?	Light, minerals, carbon dioxide, water, space.
What is predation?	When an animal (predator) hunts and eats another animal (prey).
What is a mutualistic relationship? Give an example.	**A mutualistic relationship is when both organisms benefit** from each other another**. E.g. Oxpecker and buffalo** – the oxpecker eats the fleas off the buffalo.
What is a parasitic relationship? Give an example.	A parasitic relationship is when **only one organism benefits** and the other organism is harmed. **E.g. Fleas living on other animals**.

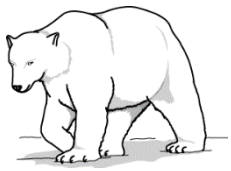
Look, Cover, Write, Check

Question	Answer
What is a 'decomposer'	
What is a 'producer'?	
What is a 'consumer'?	
Define 'ecosystem'	
What do plants compete for?	
What is an abiotic factor? Give 2 examples.	
What do animals compete for?	
What is a biotic factor? Give 2 examples.	
What is a parasitic relationship? Give an example.	
What is a mutualistic relationship? Give an example.	
What is predation?	

Look, Cover, Write, Check

Question	Answer
Define 'ecosystem'	
	An organism that **produces its own food** e.g. plants
	An organism that **eats other organisms** for energy e.g. animals
What is a 'decomposer'	
What is a biotic factor? Give 2 examples.	
	A **non-living factor**. E.g. soil pH and temperature.
What do animals compete for?	
What do plants compete for?	
	When an animal (predator) hunts and eats another animal (prey).
What is a mutualistic relationship? Give an example.	
What is a parasitic relationship? Give an example.	

1. Global warming has been linked to the melting of the Arctic ice cap.
Polar bears live in the Arctic regions.
Polar bears and killer whales feed on seals.
Polar bears compete with other polar bears for seals.
They also compete with killer whales for seals.
What is the main difference between these two types of competition and if the ice cap continues to melt, explain which type of competition will be most significant for polar bears.



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[6]

Due Date:	**Friday, 14th June 2024**
Student Number:	
Name:	

Y10 Triple T6 W2 C3 - Types of Chemical Reactions

Question	Answer
How can you detect the change in a pH of a solution?	Using universal indicator and a pH scale or a pH meter
What happens during oxidation?	Oxidation is the gain of oxygen or loss of electrons (OIL RIG)
Write the formula for each acid: hydrochloric, sulphuric and nitric	Hydrochloric acid: HCl Sulfuric acid: H_2SO_4 Nitric acid: HNO_3
What is a base?	A substance (usually a metal oxide or metal hydroxide) that neutralises an acid.
What ions are present in an alkaline solution?	OH^- ions (hydroxide ions)
Write the general equation for neutralisation.	Acid + base → salt + water
Write the ionic equation for neutralisation.	$H^+ + OH^- \rightarrow H_2O$
What happens to ions in a strong acid?	They fully ionise in water giving a high concentration of hydrogen ions and a low pH.
What happens to the pH as the concentration of H^+ ions increases?	As the concentration of H^+ ions increases by a factor of 10 the pH decreases by 1.

Look, Cover, Write, Check

Question	Answer
How can you detect the change in a pH of a solution?	
What happens during oxidation?	
Write the formula for each acid: hydrochloric, sulphuric and nitric	
What is a base?	
What ions are present in an alkaline solution?	
Write the general equation for neutralisation.	
Write the ionic equation for neutralisation.	
What happens to ions in a strong acid?	

What happens to the concentration of pH as the concentration of H+ ions increases?	

Look, Cover, Write, Check

Question	Answer
How can you detect the change in a pH of a solution?	
What happens during oxidation?	
Write the formula for each acid: hydrochloric, sulphuric and nitric	
What is a base?	
What ions are present in an alkaline solution?	
	Acid + base → salt + water
Write the ionic equation for neutralisation.	
What happens to ions in a strong acid?	
	As the concentration of H+ ions increases by a factor of 10 the pH decreases by 1.

1. Sodium oxide reacts with water.

   An aqueous solution of sodium hydroxide is made.

   Write the **balanced symbol equation** for this reaction, including **state symbols**.

   _____ **[3]**

2. Sodium hydroxide neutralises acids. It is an alkali.

   Which ion do solutions of alkalis contain?

   _____ **[1]**

3. A salt is made when sodium hydroxide neutralises sulfuric acid.

   Name this salt.

   _____ **[1]**

4. A sample of hydrochloric acid has a pH of 1.04.
   A student adds water to the hydrochloric acid until the pH is 3.04.
   The concentration of hydrogen ions decreases.
   Calculate the factor by which the hydrogen ion concentration has decreased.

5.

Decrease in hydrogen ion concentration = ... **[2]**

Due Date:	**Friday, 21st June 2024**
Student Number:	
Name:	

Y10 Triple T6 W3 B3 Hormones

Question	Answer
What are hormones?	Chemical messengers
How are hormones transported around the body?	Through the bloodstream.
What is homeostasis?	Keeping the internal conditions of the body constant.
What is the menstrual cycle?	A monthly cycle during which a woman's body gets ready for pregnancy.
What are the four menstrual hormones?	FSH, LH, Oestrogen and Progesterone.
Where are the menstrual hormone made?	FSH and LH are made in the pituitary gland. Oestrogen and progesterone are made in the ovaries.
What does FSH do?	FSH causes an egg to mature.
What does oestrogen do?	Oestrogen causes the lining of the uterus to build up.
What does LH do?	When LH levels reach a peak in the middle of the cycle, ovulation is triggered.
What does progesterone do?	Progesterone maintains the uterus lining.

Look, Cover, Write, Check

Question	Answer
How are hormones transported around the body?	
What is homeostasis?	
What does FSH do?	
What are hormones?	
What are the four menstrual hormones?	
What does oestrogen do?	
Where are the menstrual hormone made?	
What does progesterone do?	
What is the menstrual cycle?	
What does LH do?	

Look, Cover, Write, Check

Question	Answer
	Chemical messengers
	Through the bloodstream.
What is homeostasis?	
	A monthly cycle during which a woman's body gets ready for pregnancy.
What are the four menstrual hormones?	
Where are the menstrual hormone made?	
	It travels to the ovaries and causes an egg to mature.
	It causes the lining of the uterus to build up.
What does LH do?	
What does progesterone do?	

Describe how hormones control the menstrual cycle.

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_____

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(5)

Due Date:	**Friday, 28th June 2024**
Student Number:	
Name:	

Y10 Triple T6 W4 P3 - Static & Charge

Question	Answer
What is the difference between an insulator and a conductor?	An insulator is something that doesn't transfer electricity or heat, while a conductor does.
Describe the charge of protons, electrons and neutrons.	Protons have a positive charge, electrons have a negative charge and neutrons have a zero charge.
Describe how static electricity is generated.	When two insulators are rubbed together, friction causes electrons to transfer from one insulator to the other.
How are objects discharged?	The charged insulator needs to touch a conductor, which allows the electrons to flow through causing a spark.
What is current?	The rate of flow of charge.
What are the units of current?	Amps (A)
What is the difference between conventional current and electron flow?	The electricity in conventional current travels from the positive terminal of the battery to the negative terminal. Electron flow travels from the negative terminal to the positive terminal.
What equation relates charge and current?	Charge = Current x Time
What are the units of charge?	Coulombs (C)
What are the conditions needed for current to flow?	• A cell/battery, • a complete circuit.

Look, Cover, Write, Check

Question	Answer
What is the difference between an insulator and a conductor?	
Describe the charge of protons, electrons and neutrons.	
Describe how static electricity is generated.	
How are objects discharged?	
What is current?	
What are the units of current?	
What is the difference between conventional current and electron flow?	
What equation relates charge and current?	
What are the units of charge?	
What are the conditions needed for current to flow?	

Look, Cover, Write, Check

Question	Answer
What are the conditions needed for current to flow?	
	Amps (A)
	Protons have a positive charge, electrons have a negative charge and neutrons have a zero charge.
What is the difference between conventional current and electron flow?	
	The rate of flow of charge.
	The charged insulator needs to touch a conductor, which allows the electrons to flow through causing a spark.
What are the units of charge?	
	An insulator is something that doesn't transfer electricity or heat, while a conductor does.
Describe how static electricity is generated.	
What equation relates charge and current?	

Exam Questions

Q1 A student investigates static electricity using a plastic ruler.

i. Explain in terms of electrons why the plastic ruler is not normally charged.

_____

_____

[2]

ii. Explain in terms of electrons why the ruler becomes charged when the student rubs it with a cloth.

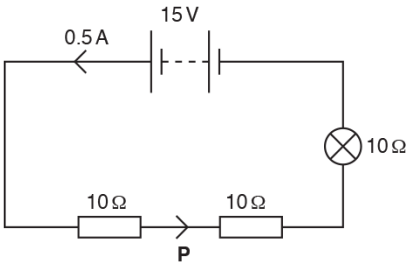
_____

_____

_____

[2]

Q2 What is the current at point **P** in the circuit?



A 0.5 A
B 7.5 A
C 15.0 A
D 20.5 A

Due Date:	**Friday, 5th July 2024**
Student Number:	
Name:	

Y10 Triple T6 W5 C4 – Reactivity of Group 1, 7 and 0

Question	Answer
What is the name of group 1?	Alkali metals.
What is the name of group 7?	Halogens.
What makes group 1 metals reactive?	They want to **lose 1 electron** and form a full outer shell.
What makes group 7 reactive?	They want to **gain 1 electron** and form a full outer shell.
Describe the trend in reactivity of group 1.	As you go **down group 1, reactivity increases.**
Why do group 1 elements become more reactive down the group?	Atomic radii increases, the electrostatic attraction becomes weaker so it is **easier to lose an electron**.
Describe the trend in reactivity of group 7.	As you go **down group 7, reactivity decreases.**
Why do group 7 elements become less reactive down the group?	Atomic radii increases, the electrostatic attraction becomes weaker so it is **harder to gain an electron**.
What does 'inert' mean?	Unreactive
Why are group 0 inert?	They already have a full outer shell therefore they do not want to lose or gain electrons.

Look, Cover, Write, Check

Question	Answer
What is the name of group 1?	
What is the name of group 7?	
What makes group 1 metals reactive?	
What makes group 7 reactive?	
Describe the trend in reactivity of group 1.	
Why do group 1 become more reactive down the group?	
Describe the trend in reactivity of group 7.	
Why do group 7 become less reactive down the group?	
What does 'inert' mean?	
Why are group 0 inert?	

Look, Cover, Write, Check

Question	Answer
	Alkali metals.
	Halogens.
What makes group 1 metals reactive?	
Why are group 0 inert?	
	As you go down the group, reactivity increases.
Why do group 1 elements become more reactive down the group?	
	As you go down the group, reactivity decreases.
	Atomic radii increases, the electrostatic attraction becomes weaker so it is **harder to gain an electron**.
	Unreactive
What makes group 7 reactive?	

1(a). Look at the table. It shows information about the Group 7 elements. Complete the table.

Element	Formula	Colour	State at room temperature
Fluorine	F_2	pale yellow	gas
Chlorine	Cl_2	.....	.....
Bromine	Br_2	brown	liquid
Iodine	I_2	grey	.....

[3]

(b). The Group 7 elements exist as simple molecules. Fluorine boils at −188 °C. Explain why fluorine has a low boiling point.

_____

_____

_____

_____**[2]**

(c). The elements in Group 0 (the noble gases) are unreactive. Explain why, in terms of their electronic configurations.

_____

_____

_____

_____**[2]**

Due Date:	**Friday, 12th July 2024**
Student Number:	
Name:	

Y10 T6 W6 P3 – Electricity

Question	Answer
Define 'current'	The rate of flow of charge.
Define 'potential difference'	The difference of electrical potential (energy) between two points in a circuit.
How does current behave in a series circuit?	Current is the same at every point in a series circuit.
How does potential difference behave in a series circuit?	Potential difference is shared between the components in a series circuit.
How does current behave in a parallel circuit?	Current splits between the loops in a parallel circuit.
How does potential difference behave in a parallel circuit?	Potential difference is not shared between the loops in a parallel circuit.
What is the relationship between resistance and current?	An increase in resistance leads to a decrease in current.

Look, Cover, Write, Check

Question	Answer
Define 'current'	
Define 'potential difference'	
How does current behave in a series circuit?	
How does potential difference behave in a series circuit?	
How does current behave in a parallel circuit?	
How does potential difference behave in a parallel circuit?	
What is the relationship between resistance and current?	

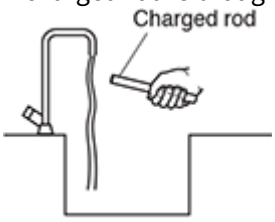
Look, Cover, Write, Check

Question	Answer
Define 'current'	
Define 'potential difference'	
	Current is the same at every point in a series circuit.
	Potential difference is shared between the components in a series circuit.
How does current behave in a parallel circuit?	
	Potential difference is not shared between the loops in a parallel circuit.
	An increase in resistance leads to a decrease in current.

Exam Question:

This question is about electrostatic charges.

A charged rod is brought towards a gentle stream of water from a tap.



i. Write down the conditions needed for charge to flow through a conductor.

[2]

ii. Calculate the charge that flows past a point in a circuit with a 5.0 A current for five minutes.

Answer = ... C **[4]**

Due Date:	**Friday, 19th July 2024**
Student Number:	
Name:	

Y10 T6 W7 - P3 Resistance and Resistors

Question	Answer
What is resistance?	Resistance is a measure of **how difficult it is for current to flow through a component**.
What are the units for resistance?	**Ohms (Ω)**
How is resistance, current and potential difference related?	Potential different = Current x Resistance
What causes resistance?	The collisions of electrons with positive ions.
Describe the relationship between resistance and temperature in a thermistor.	As temperature increases resistance decreases.
Describe the relationship between resistance and light intensity in an LDR.	As light intensity increases resistance decreases.
What does LDR stand for?	Light dependent resistor
Where are LDRs used?	Street lights, screen lighting for your mobile phone
Where are thermistors used?	Thermostats / ovens
How do you find the total resistance in a series circuit?	Add up all the individual resistances in the circuit.

Look, Cover, Write, Check:

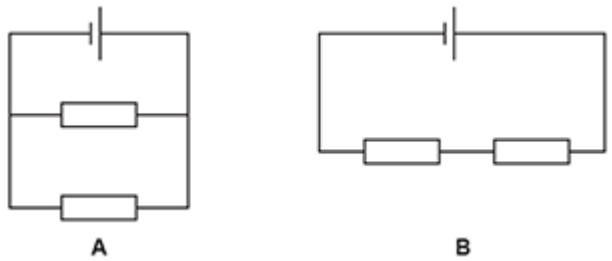
Question	Answer
What is resistance?	
What are the units for resistance?	
How is resistance, current and potential difference related?	
What causes resistance?	
Describe the relationship between resistance and temperature in a thermistor.	
Describe the relationship between resistance and light intensity in an LDR.	
What does LDR stand for?	
Where are thermistors used?	
Where are LDRs used?	
How do you find the total resistance in a series circuit?	

Look, Cover, Write, Check:

Question	Answer
	Resistance is a measure of how difficult it is for current to flow through a component.
	Ohms (Ω)
How is resistance, current and potential difference related?	
What causes resistance?	
Describe the relationship between resistance and temperature in a thermistor.	
Describe the relationship between resistance and light intensity in an LDR.	
	Light dependent resistor
	Thermostats / ovens
	Street lights, screen lighting for your mobile phone
How do you find the total resistance in a series circuit?	

Q1.

A student builds two electrical circuits. Each circuit uses identical cells and identical fixed resistors.



Explain why circuit **A** has a lower total resistance than circuit **B**.

_____

_____

_____ **[2]**

A student investigates the resistance of a filament lamp.

i. Explain why the resistance of a filament lamp increases when current increases.

_____

_____

_____

[2]