Scott

Scott Medical and Healthcare College

## Autumn Term

## Term 1

# Science

## Year 11

**Name:** _____

**Tutor:** _____

*Care to Learn*

*Learn to Care*

GREENSHAW LEARNING TRUST

# Year 11 Homework Timetable

| | | | |
|---|---|---|---|
| **Monday** | English Task 1 | Option A Task 1 | Option C Task 1 |
| **Tuesday** | Sparx Science | Option B Task 1 | Sparx Maths |
| **Wednesday** | Sparx Maths | Science Task 1 | Option C Task 2 |
| **Thursday** | Option A Task 2 | Sparx Catch Up | Option B Task 2 |
| **Friday** | Science Task 2 | English Task 2 | |

**Sparx Science**
- **Complete 100% of their assigned homework each week**

**Sparx Maths**
- **Complete 100% of their assigned homework each week**

| Option A |
|---|
| Geography |
| History |
| Spanish |

| Option B |
|---|
| Geography |
| Psychology |
| Health and Social Care |

| Option C |
|---|
| Childcare |
| Drama |
| Psychology |
| Sport |

| Half Term 1 (8 weeks) - Year 11 | | |
|---|---|---|
| **Week / Date** | **Homework task 1<br>Cornell Notes** | **Homework task 2<br>Exam Question** |
| Week 1<br>2nd September 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |
| Week 2<br>9th September 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |
| Week 3<br>16th September 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |
| Week 4<br>23rd September 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |
| Week 5<br>30th September 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |
| Week 6<br>7th October 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |
| Week 7<br>14th October 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |
| Week 8<br>21st October 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |

| Half Term 2 (7 weeks) - Year 11 | | |
|---|---|---|
| **Week / Date** | **Homework task 1<br>Cornell Notes** | **Homework task 2<br>Exam Question** |
| Week 9<br>4th November 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |
| Week 10<br>11th November 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |
| Week 11<br>18th November 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |
| Week 12<br>25th November 2024 | **Mock Exams** | **Mock Exams** |
| Week 13<br>2nd December 2024 | **Mock Exams** | **Mock Exams** |
| Week 14<br>9th December 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |
| Week 15<br>16th December 2024 | Complete 1 page of retrieval quizzing | Complete the exam question.<br><br>Fill the remainder of the page with retrieval quizzing on your Red and Amber questions |

# WEEK 1 Questions (Cover and quiz) - Organisation 4

| Question | Answer |
|---|---|
| What do proteins do? | Proteins are used for growth and repair. |
| What food group is tested using Benedict's? | Simple sugars. |
| What colour do simple sugars turn Benedict's solution? | Simple sugars turn Benedict's from Blue to Brick Red. |
| What food group is tested using iodine? | Starch. |
| Where is lipase produced? | Stomach and pancreas. |
| What are the two factors that enzyme activity is affected by? | Temperature and pH. |
| Which organ system absorbs nutrients from food? | The digestive system. |
| Which organ absorbs water from undigested food? | The large intestine. |
| Which organ produces bile? | The liver. |
| What is the name of the theory that explains how enzymes work? | The lock and key theory of enzyme action. |
| Where is protease produced? | The pancreas. |
| What does the ethanol test indicate? | The presence of lipids. |
| In which organ are the products of digestion absorbed into the blood? | The small intestine. |
| Which organ uses acid to break down large insoluble molecules into smaller soluble molecules? | The stomach. |
| What is the lock and key mechanism? | The theory of enzyme action. |
| What do amino acids do? | They are used to form proteins. |
| What happens to enzymes at high temperatures? | They denature. |

**Date: 2nd September**

**Week 1 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 2nd September**

**Week 1 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**

Different parts of the human digestive system help to break down molecules of fat so that they can be absorbed into the body. **Describe how**. (6)

To gain full marks you should refer to:

- the enzyme and where the enzyme is produced
- the products of digestion
- any other chemicals involved.

Improvement Work: Different parts of the human digestive system help to break down molecules of fat so that they can be absorbed into the body. Describe how. (6)

# WEEK 2 Questions (Cover and quiz) - Chemical Change 2

| Question | Answer |
|---|---|
| In general, what is the pH of an alkaline solution? | Greater than 7 |
| What colour is litmus solution in acidic solutions? | Red |
| What name is given to substances that react with acids to form a salt and water only? | Bases |
| Which salt is formed when copper oxide reacts with sulfuric acid? | Copper sulfate |
| What type of solution has a pH of 7? | Neutral |
| Name the salt produced when sodium hydroxide reacts with hydrochloric acid. | Sodium chloride |
| What name is given to substances that are soluble bases? | Alkalis |
| Name a piece of apparatus used to measure volumes of liquid. | Measuring cylinder/ pipette/ burette |
| Name the separation method used to produce crystals from a solution. | Crystallisation |
| Name the acid needed to make ammonium nitrate. | Nitric acid |
| Which acid is needed to make copper sulfate? | Sulfuric acid |
| Which base is needed to make copper sulfate? | Copper oxide |
| What is the name of the salt formed from zinc oxide and hydrochloric acid? | Zinc chloride |
| Which gas is formed when dilute hydrochloric acid reacts with magnesium? | Hydrogen |
| Which gas is formed when dilute hydrochloric acid reacts with magnesium carbonate? | Carbon dioxide |
| What is the chemical test for hydrogen? | It gives a squeaky pop with a lighted splint |
| What is seen when magnesium is added to dilute sulfuric acid? | Effervescence/ fizzing/ bubbles |
| Which gas is produced when copper carbonate is added to dilute nitric acid? | Carbon dioxide |
| What is the chemical test for carbon dioxide? | It turns limewater milky. |
| What do we call the liquid that dissolves a solute to form a solution? | Solvent |

**Date: 9th September**

**Week 2 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 9th September**

**Week 2 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**

This question is about salts. Green copper carbonate and sulfuric acid can be used to produce blue copper sulfate crystals. Excess copper carbonate is added to sulfuric acid. Give three observations you would make. (3)

Improvement Work: Give three observations you would make. (3)

# WEEK 3 Questions (Cover and quiz) - Electricity 2

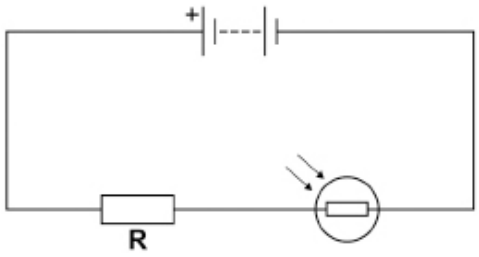
| Question | Answer |
|---|---|
| What is the definition of current? | The rate of flow of electrical charge, i.e. how much charge flows every second. |
| What is the relationship between charge current and time? | Q = I x t |
| What is the SI unit for Charge | Coulombs |
| What is the SI unit for current | Ampere |
| What is the SI unit for time | seconds |
| What can be said about the value of current at any point in a series circuit? | Current is the same at all points in a closed loop. |
| What is the equation linking potential difference, charge and energy (or work done)? | V = E / Q or V = W / Q |
| What is the SI unit for potential difference? | Volts |
| What is the SI unit for resistance? | Ohms |
| What equation should be used to calculate potential difference if current and resistance are known? | V = I x R |
| What is an ohmic conductor? | A conductor for which current and potential difference and directly proportional. Resistance remains constant as current changes. |
| State the condition required for resistance to remain constant, for an ohmic conductor? | Temperature must be constant |
| List four components for which resistance is not constant as current changes? | Filament lamp, diode, Thermistor, LDR |
| What happens to the resistance of a filament lamp as the temperature increases? | Resistance increases |
| Why does the resistance of a filament lamp increase as temperature increases? | Ions in metal have more energy, so vibrate more, causing more collisions with electrons as they flow through the metal, this leads to a greater resistance to current flow. |
| What is different about current flow through a diode? | The current only flows in one direction. Resistance is very high in the other direction, preventing current flow |
| What happens to the resistance of a thermistor as temperature increases? | The thermistor's resistance decreases. |
| Give two examples of when a thermistor may be used. | In a thermostat, to turn on a heater below a certain temperature.<br>In a freezer to turn on a cooler when the temperature becomes too high. |
| What happens to the resistance of a LDR as light intensity decreases? | The LDR's resistance increases. |

**Date: 16th September**

**Week 3 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 16th September**

**Week 3 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**




Explain what happens to the potential difference across resistor R as the light intensity decreases. (3)

Improvement Work: Explain what happens to the potential difference across resistor R as the light intensity decreases. (3)

# WEEK 4 Questions (Cover and quiz) - Organisation 5

| Question | Answer |
|---|---|
| Which type of tumour can be described as a lump of cells that are not invading the body? | A benign tumour. |
| What key word explains how one factor influences another through a biological process? | A causal mechanism. |
| What key word describes a link or relationship between two factors? | A correlation |
| What is a non-communicable disease? | A disease which cannot be passed from one individual to another. |
| What is radiotherapy? | A method of treating cancer, where cancer cells are destroyed by targeted doses of radiation. |
| What is chemotherapy? | A method of treating cancer, where chemicals are used to either stop cancerous cells dividing, or to make them 'self-destruct'. |
| What is formed by uncontrolled cell division within the body? | A tumour. |
| What are risk factors? | Aspects of a person's lifestyle or environment that are linked to an increased rate of a disease. |
| Why are tumours contained in one place and do not invade other parts of the body? | Benign tumours. |
| What are cancer-causing agents called? | Carcinogens. |
| What diseases can alcohol cause? | Cirrhosis and liver cancer. |
| What are three substances present in the environment that can be risk factors? | Ionising radiation, UV light, second hand tobacco smoke. |
| What kind of tumours can spread around the body? | Malignant tumour cells (cancer). |
| What does a foetus exposed to smoke have restricted levels of? | Oxygen. |
| What are the two main methods of treating cancer? | Radiotherapy and chemotherapy. |
| What are three aspects of lifestyle that can be risk factors? | Smoking, lack of exercise, overeating, alcohol consumption. |
| What can cause cardiovascular disease including coronary heart disease, lung cancer, and lung diseases such as bronchitis and COPD? | Smoking. |
| Why is sperm not considered to be a tissue? | Sperm do not work together to perform a function. |
| Name three different carcinogens. | Tar, alcohol, ionising radiation. |
| What carcinogen is found in tobacco smoke? | Tar. |
| Which organ does alcohol damage? | The liver. |
| How can ionising radiation result in cancer? | The radiation penetrates the cells, damages the chromosomes and causes mutations in the DNA. |
| What do cancer cells do compared to normal cells? | They divide more rapidly and last longer. |
| What is the danger of a benign tumour? | They grow very quickly, and can put pressure on and damage organs. |
| How does diet directly affect your risk of developing diseases? | Through increased levels of cholesterol. |
| How does diet indirectly affect your risk of developing diseases? | Through obesity. |
| Which disease is obesity a strong risk factor for? | Type 2 diabetes. |
| When does a tumour form? | When cells divide uncontrollably. |

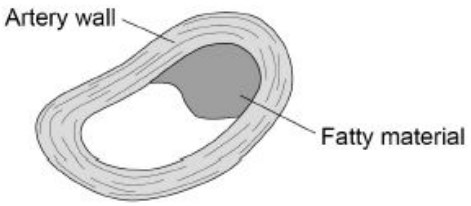
**Date: 23rd September**

**Week 4 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 23rd September**

**Week 4 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**

The diagram below shows a coronary artery of someone with CHD.




Explain how CHD can cause a heart attack. (3)

Improvement Work: Explain how CHD can cause a heart attack. (3)

# WEEK 5 Questions (Cover and quiz) - Chemical Changes 3

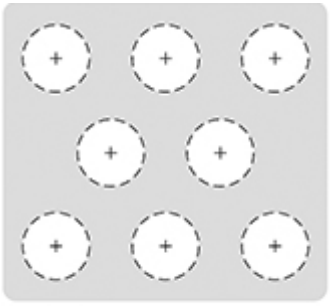
| Question | Answer |
|---|---|
| When Aluminium oxide is electrolysed what forms at the cathode? | Aluminium |
| Why is electrolysis used to extract aluminium from its ore? | Aluminium is more reactive than carbon. |
| Name the compound from which aluminium is extracted. | Aluminium oxide/ bauxite. |
| In electrolysis positive ions move towards the…? | Cathode (negative electrode) |
| In electrolysis negative ions move towards the…? | Anode (positive electrode) |
| Where does oxidation happen in electrolysis? | Anode (positive electrode) |
| Which electrode is connected to the negative terminal of an electricity supply? | Cathode (negative electrode) |
| Which electrode is connected to the positive terminal of an electricity supply? | Anode (positive electrode) |
| Which electrode would you expect to have bromine produced at? | Anode (positive electrode) |
| Where are hydrogen ions produced? | Cathode (negative electrode) |
| What is the name of the electrode that the negative ions move to? | Anode. |
| How do you test for chlorine gas? | bleaches litmus |
| What is produced at the anode (positive electrode) when lead bromide is electrolysed? | Bromine. |
| If a metal chloride is being electrolysed what gas will be produced? | Chlorine |
| What do we call a liquid, containing free moving ions, which is broken down by electricity in the process of electrolysis? | Electrolyte |
| Why can a molten or dissolved ionic compound conduct electricity? | Free moving ions. |
| What is oxidation? | gain of oxygen / loss of electrons |
| What is produced at the cathode (negative electrode) is the metal in the solution is more reactive than hydrogen? | Hydrogen. |
| Why is electrolysis an expensive way to extract metal from its ore? | Large amounts of energy needed. |
| What is produced at the cathode (negative electrode) when lead bromide is electrolysed? | Lead. |

**Date: 30th September**

**Week 5 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 30th September**

**Week 5 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**



Sodium metal

Explain why sodium metal conducts electricity when solid. (2)

Improvement Work: Explain why sodium metal conducts electricity when solid. (2)

# WEEK 6 Questions (Cover and quiz) - Atomic Structure 2

| Question | Answer |
|---|---|
| Why do unstable nuclei give out radiation? | Unstable nuclei undergo decay to become more stable.<br>As they release radiation their stability increases. |
| What is the name of the process in which an unstable nucleus gives out radiation to become more stable? | Radioactive decay |
| Define the activity of an unstable nucleus. | Activity is the rate of decay of a source of unstable nuclei. |
| What is the unit of radioactive activity? | Becquerel (Bq) |
| What is a count rate? | The number of radioactive decays per second for a radioactive source. |
| Give an example of a detector that may be used to measure count-rate. | Geiger-Muller tube |
| State four types of nuclear radiation. | Alpha particles, Beta particles, Gamma rays, Neutrons. |
| What are the constituents of an alpha particle? | Two protons and two neutrons.<br>It is the same as a helium nucleus. |
| What is the range of an alpha particle through air? | A few centimetres (normally in the range of 2-10cm) |
| What will stop beta radiation from passing through a point? | A thin sheet of aluminium<br>Several metres of air |
| What will stop gamma radiation from passing through a point? | Several centimetres of lead<br>A few metres of concrete |
| What type of radiation is most ionising? | Alpha radiation |
| What type of radiation is least ionising? | Gamma radiation |
| State any changes to mass or charge that occur due to the emission of a gamma ray? | Both mass and charge remain unchanged. |
| Describe the nature of radioactive decay | Random |
| Define the half-life of a radioactive isotope. | The time it takes for the number of unstable nuclei in a substance to halve.<br>The time it takes for the count rate from a sample to fall to half its initial level. |
| What is radioactive contamination? | The presence of unwanted radioactive nuclei on other materials. |
| What is irradiation? | The process of exposing a material to nuclear radiation.<br>The material does not become radioactive. |
| Why is it important for the results of studies on the effects of radiation to be published and shared with other scientists? | To allow the findings to be independently checked (peer review) |
| Give 4 sources of background radiation? | Rocks, Cosmic rays from space, Nuclear weapons testing, nuclear accidents |
| How should background radiation be dealt with in calculations? | Background count should be subtracted from any readings before calculations. |
| What is the unit used to measure radiation dosage? | Sieverts(Sv) |
| How many millisieverts are equal to 1 sievert? | 1000 mV is equal to 1 sievert |
| Why might the radiation dosage that different people experience differ? | Some occupations involve working with radiation.<br>Background radiation differs with location |
| What determines how dangerous a particular radioactive isotope is? | The half-life of the isotope. |
| What is absorbed by a uranium nucleus that causes it to undergo fission? | A neutron |

**Date: 7th October**

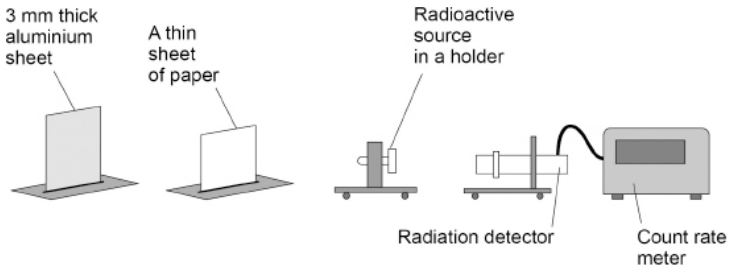
**Week 6 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 7th October**

**Week 6 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**

A teacher wants to demonstrate that the radioactive source emits alpha, beta and gamma radiation.

The figure below shows the equipment the teacher has.




Describe a method the teacher could use. (6)

Improvement Work: Describe a method the teacher could use. (6)

# WEEK 7 Questions (Cover and quiz) - Inheritance 3

| Question | Answer |
|---|---|
| What is selective breeding? | A process where humans breed plants and animals for desired characteristics. |
| Describe the process of selective breeding. | Parents with the desired characteristic are chosen form the population, they are bred together and the offspring with the desired characteristic are bred together. This continues over many generations until all the offspring show the desired characteristic. |
| What problem can selective breeding lead to? | Selective breeding can lead to ‘inbreeding’ where some breeds are particularly prone to disease or inherited defects. |
| Give three characteristics that have been selectively bred in plants. | Disease resistance in food crops, large or unusual flowers, size and taste in fruit. |
| What characteristics have been selectively bred in animals? | Animals which produce more meat or milk, domestic animals with a gentle nature. |
| What is genetic engineering? | A process which involves modifying (changing) the genome of an organism to give a desired characteristic. |
| What traits do GM (genetically modified) crops have? | Improved resistance to insect attack or herbicides, improved crop yield, produce bigger and better fruit. |
| Why are genes transferred into the cells of organisms in the early stages of their development? | So that the organisms develop with desired characteristics. |
| During genetic engineering, what is used to transfer the desired gene into the new organism? | A vector. |
| During genetic engineering, what is used to 'cut out' the gene so it can be transferred? | Enzymes. |
| What is usually used as a vector during genetic engineering? | A bacterial plasmid or virus. |
| What are the two main industries that could benefit from genetic engineering? | Medicine and agriculture. |
| What are the potential benefits of genetic engineering in medicine? | It can make large quantities of pure medicines (e.g. insulin), it may be able to cure some genetic disorders. |
| What are the potential benefits of genetic engineering in agriculture? | It can improve growth rates in plants and animals, increase crop yield, produce crops that grow in extreme conditions, increase pest/disease resistance in crops. |
| What are the concerns about genetic engineering? | Insects may become pesticide resistant if they eat pesticide forming GM crops, GM plants and animals may spread into the wildlife, GM crops, it could lead to unethical human engineering. |
| Why are antibiotic-resistant bacteria a problem? | They survive and reproduce, so the population of the resistant strain rises. The resistant strain will then spread because people are not immune to it and there is no effective treatment for it. |
| Describe how to reduce the development of antibiotic-resistant bacteria. | Doctors should not prescribe antibiotics inappropriately, patients should complete their course of antibiotics, agriculture should restrict the use of antibiotics. |
| Why must patients complete their course of antibiotics? | So all the bacteria are killed and none survive to mutate and form resistant strains. |
| When should doctors not prescribe antibiotics? | When treating non-serious or viral infections. |
| Give two pieces of evidence used to support Darwin's theory of evolution by natural selection. | Changes shown in the fossil record and the evolution of antibiotic resistant bacteria. |
| Which scientist came up with the theory of evolution by natural selection? | Darwin. |

**Date: 14th October**

**Week 7 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 14th October**

**Week 7 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**

The cat breeder wants to use selective breeding so that all new kittens have grey tail tips.
Describe the process of selective breeding the cat breeder could use. (3)

Improvement Work: Describe the process of selective breeding the cat breeder could use. (3)

# WEEK 8 Questions (Cover and quiz) - Chemical Changes 4

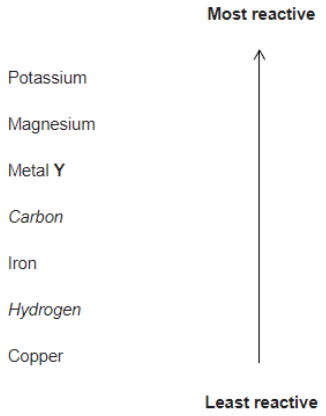
| Question | Answer |
|---|---|
| What is reduction? | loss of oxygen / Gain in electrons |
| What is an ore? | Metal compound in a rock. |
| What is aluminium oxide mixed with to lower its boiling point? | molten cryolite |
| Ionic compounds need to be either _____or _____ to be electrolysed | Molten or dissolved in water |
| Why do ionic compounds need to be molten or dissolved to conduct? | Ions (i.e. charge carriers) must be free to move. |
| What does OIL RIG stand for? | Oxidation is Loss, Reduction is Gain |
| When Aluminium oxide is electrolysed what forms at the anode? | Oxygen |
| If metal sulphate is being electrolysed what gas will be produced? | Oxygen |
| Predict the products of electrolysis of copper sulphate solution | Positive electrode: Oxygen gas; Negative electrode: Copper. |
| Are hydrogen ions reduced or oxidised at the electrodes? | Reduced |
| How are metals, less reactive than carbon, extracted from their ores? | Reduction with carbon. |
| How do you test for oxygen gas? | Relights a glowing splint |
| What solution have you electrolysed if you get hydrogen gas, chlorine gas and sodium hydroxide produced? | Sodium chloride solution (brine) |
| Which state do ionic compounds not conduct electricity? | Solid |
| Why do the carbon anodes need replacing regularly? | They gradually decay away (due to reacting with the oxygen) |
| How many electrons does an aluminium ion gain at the cathode? | Three |
| How many electrons do oxygen ions lose at the anode? | Two |

**Date: 21st October**

**Week 8 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 21st October**

**Week 8 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**




Give the method and conditions used to extract metal **Y** from a compound of metal **Y**. (2)

Improvement Work: Give the method and conditions used to extract metal Y from a compound of metal Y. (2)

# WEEK 9 Cover and quiz
# Use your blue mock sheet for your retrieval practice this week.

**Date: 4th November**

**Week 9 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 4th November**

**Week 9 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions on your blue sheet.**

Describe the similarities and differences between benign tumours and malignant tumours. (4)

Improvement Work: Describe the similarities and differences between benign tumours and malignant tumours. (4)

# WEEK 10 Cover and quiz
# Use your blue mock sheet for your retrieval practice this week.

**Date: 11th November**

**Week 10 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

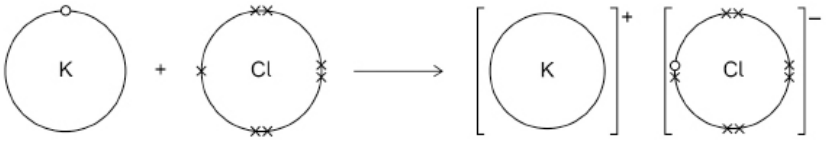
**Date: 10th November**

**Week 10 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions on your blue sheet.**

**Figure 1** shows what happens to the electrons in the outer shells when a potassium atom reacts with a chlorine atom.

The dots (o) and crosses (×) represent electrons.

**Figure 1**




Describe what happens when a potassium atom reacts with a chlorine atom to produce potassium chloride. Answer in terms of electrons. (4)

Improvement Work: Describe what happens when a potassium atom reacts with a chlorine atom to produce potassium chloride. (4)

# WEEK 11 Cover and quiz

# Use your blue mock sheet for your retrieval practice this week.

**Date: 18th November**

**Week 11 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 18th November**

**Week 11 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**

The image shows three metal blocks. The blocks are not labelled.

One block is a permanent magnet, one is iron and one is aluminium.

Describe how another permanent magnet can be used to identify the blocks. (3)

Improvement Work: Describe how another permanent magnet can be used to identify the blocks. (3)

# WEEK 12 Questions (Cover and quiz) - Forces 3

| Question | Answer |
|---|---|
| Newton's second law can be expressed as an equation. Write down the equation. | Resultant force = mass x acceleration |
| What is the equation linking acceleration, change in velocity and time? | acceleration = change in velocity / time |
| What is the SI unit of velocity? | metres per second |
| What is the SI unit of acceleration? | metres per second per second \| metres per second squared |
| Write down the definition of inertia. | The tendency of objects to continue in their state of rest or of uniform motion. |
| What is Newton's first law of motion? | No resultant force => no change in motion (object carries on moving at constant speed or remains stationary) |
| What is Newton's second law of motion? | If there is a resultant force, then the object's velocity will change (either speed or direction of motion), i.e. it will accelerate or decelerate. |
| What is Newton's third law of motion? | When two bodies interact, they apply forces to one another that are equal in magnitude and opposite in direction |
| What is the acceleration of an object in free fall on the earth's surface? | 9.81 metres per second squared |
| When a parachutist first jumps out of an aeroplane, is the resultant force large, small, or zero? | LARGE - weight much bigger than drag force. |
| As the parachutist's speed increases, does the resultant force increase or decrease? | DECREASE - drag force increases as speed increases but weight remains constant. |
| When the parachutist reaches top speed, is the resultant force large, small, or zero? | ZERO - drag force equal to weight so the parachutist stops accelerating. |
| What is the maximum speed reached by an object called? | Terminal velocity |
| How can the maximum speed of objects be increased? | Make them more streamlined to reduce drag; increase force supplied by the engine. |
| What is the equation linking momentum, mass and velocity? | Momentum = mass x velocity |
| What is the symbol equation linking momentum, mass and velocity? | p = m x v |
| What are the units of momentum? | kgm/s |
| What is the law of conservation of momentum? | Total momentum before an event = total momentum after the event, in a closed system. |
| What is meant by a closed system? | A system in which no matter can enter or escape. |

**Date: 25th November**

**Week 12 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 25th November**

**Week 12 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**

Describe a method to investigate how the temperature changes when different masses of ammonium nitrate are dissolved in water. You do not need to write about safety precautions. (6)

Improvement Work: Describe a method to investigate how the temperature changes when different masses of ammonium nitrate are dissolved in water. (6)

# WEEK 13 Questions (Cover and quiz) - Homeostasis 1

| Question | Answer |
|---|---|
| Name three internal conditions in the body that are controlled. | Temperature, water level, blood glucose concentration. |
| What is the definition of homeostasis? | The regulation of the internal conditions of a cell or organism to maintain optimum conditions in response to internal or external changes. |
| Why do the internal conditions of a cell or organism need to be maintained? | To maintain optimal conditions for enzyme actions and cell functions. |
| Which two types of responses are used in homeostasis? | Nervous and chemical response. |
| What are the three main features of a control centre? | Receptors, coordination centres and effectors. |
| What do receptors do? | Detects changes in the internal or external environment. |
| What do coordination centres do? | They receive and process information from receptors. |
| What do effectors do? | They bring about responses to stimuli. |
| What keyword refers to a change in the internal or external environment that can be detected by receptors? | Stimulus. |
| Which type of neuron connects a receptor to a coordination centre? | A sensory neuron. |
| Which type of neuron connects a coordination centre to an effector? | A motor neuron. |
| What are the two types of effector? | Muscles and glands. |
| What is a nerve? | A bundle of neurones. |
| What is the central nervous system made up of? | The brain and the spinal cord. |
| What is a reflex reaction? | An automatic response that does not involve conscious thought. |
| List the parts of a reflex arc in order. | Stimulus, receptor, sensory neuron, relay neurone (coordination centre), motor neurone, effector, response. |
| What are the three types of neurons? | Sensory neuron, relay neurone, motor neurone. |
| What connects a sensory neuron to a motor neuron? | A relay neurone. |
| What is a reflex arc? | The pathway of structures involved in an automatic (reflex) reaction. |
| What is the junction between two neurones called? | A synapse. |
| What name is given to chemicals that diffuse across a synapse? | Neurotransmitters |
| Which two organ systems are involved in homeostasis? | The nervous system and the endocrine system. |
| Which part of the body releases hormones? | Glands. |
| How are hormones carried around the body? | In the blood. |
| What is a hormone? | A chemical messenger that is carried in the blood and affects a target organ (or organs). |
| Which body system involved in homeostasis causes fast, short lasting responses? | The nervous system. |

**Date: 2nd December**

**Week 13 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

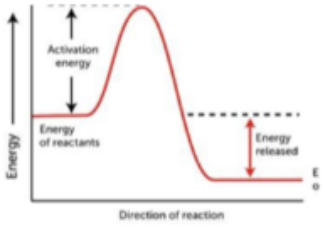
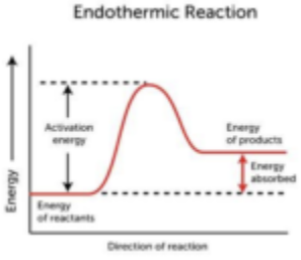
**Date: 2nd December**

**Week 13 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**

A student investigated whether using the right hand or the left hand had an effect on reaction time. The student only tested right-handed people. Describe a method for the student's investigation. Include details of the test you would use for reaction time. (4)

Improvement Work: Describe a method for the student's investigation.

# WEEK 14 Questions (Cover and quiz) - Energy Changes

| Question | Answer |
|---|---|
| Write down the definition of an exothermic reaction. | A reaction in which energy is transferred to the surroundings. |
| Write down the definition of activation energy. | The minimum amount of energy that particles must have to react. |
| Write down the definition of an endothermic reaction. | A reaction which absorbs energy from its surroundings, |
| If the energy required to break bonds is greater than the energy released by making bonds, is the reaction endothermic or exothermic? | Endothermic |
| If the temperature of products is lower than the temperature of the reactants, is the reaction endothermic or exothermic? | Endothermic |
| If the energy required to break bonds is less than the energy released by making bonds, is the reaction endothermic or exothermic? | Exothermic |
| If the temperature of products is greater than the temperature of the reactants, is the reaction endothermic or exothermic? | Exothermic |
| Reaction A: Temperature at the start is 22°C, at the end 28°C. What type of reaction is this? | Exothermic |
| Reaction B: Temperature at the start is 22°C, at the end 14°C. What type of reaction is this? | Endothermic |
| How would you measure whether an endothermic reaction had occurred? | Use a thermometer. Reaction is endothermic if temperature goes down. |
| How would you measure whether an exothermic reaction had occurred? | Use a thermometer. Reaction is exothermic if temperature goes up. |
| Is the chemical reaction that takes place when baking a cake endothermic or exothermic? | Endothermic |
| What needs to be done to make an endothermic reaction happen? | Heat the reactants. |
| Is combustion endothermic or exothermic? | Exothermic |
| Do sports injury packs use an endothermic or exothermic reaction? | Endothermic |
| Do handwarmers use an endothermic or exothermic reaction? | Exothermic |
| Is thermal decomposition endothermic or exothermic? | Endothermic |
| Sketch the reaction profile for an exothermic reaction. |  |
| Sketch the reaction profile for an endothermic reaction. |  |

**Date: 9th December**

**Week 14 Task 1 - Complete 1 page of retrieval quizzing and RAG rate the questions**

**Date: 9th December**

**Week 14 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing on your Red and Amber questions.**

Sodium atoms react with chlorine atoms to produce sodium chloride (NaCl). Describe what happens when a sodium atom reacts with a chlorine atom. Write about electron transfer in your answer. (4)

Improvement Work: Describe what happens when a sodium atom reacts with a chlorine atom. (4)

# WEEK 15 Questions (cover and quiz) - Ecology 2

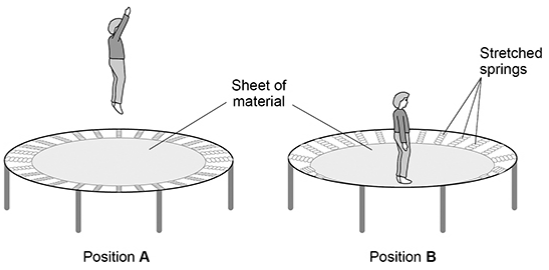
| Question | Answer |
|---|---|
| What is an adaptation? | A feature that enables an organism to survive in the conditions it normally lives in. |
| What are three different groups of adaptations? | Structural, behavioural or functional |
| Give examples of conditions in an extreme environment. | High temperature, high pressure, high salt concentration. |
| What sort of organisms live in environments with high temperatures, pressure and/or salt concentrations? | Extremophiles. |
| Give an example of an extremophile? | Bacteria living in deep sea vents. |
| What is biomass? | The amount of biological material in an organism. |
| What type of organisms are producers? | Photosynthetic organisms. |
| What do food chains represent? | Feeding relationships within a community. |
| What type of organism is always at the start of a food chain? | A producer |
| Which molecule is synthesised by green plants and algae? | Glucose. |
| Which process do algae and green plants use to produce biomass? | Photosynthesis. |
| What do primary consumers eat? | Producers. |
| What do secondary consumers eat? | Primary consumers. |
| What do tertiary consumers eat? | Secondary consumers. |
| What is a predator? | A consumer that eats other animals. |
| What keyword means 'a consumer that is eaten by another consumer'? | Prey. |
| How do the numbers of predators and prey vary in a stable community | They rise and fall in cycles. |
| Give two experimental methods used by ecologists to determine the distribution and abundance of species in an ecosystem. | Transects and quadrats. |
| What technique would you use to measure the abundance of a species in an ecosystem? | A quadrat. |
| What technique would you use to measure the distribution of a species in an ecosystem? | A transect. |
| What do decomposers do? | Break down waste and dead animal and plant material. |
| Name three materials that cycle through an ecosystem. | Carbon, nitrogen, water. |
| Name three processes that take place in the carbon cycle. | Respiration, photosynthesis, decomposition, combustion, feeding. |
| What processes are involved in the water cycle? | Evaporation and precipitation. |
| Describe the role of microorganisms in the carbon cycle? | They return carbon to the atmosphere as carbon dioxide and mineral ions to the soil. |

**Date: 16th December**

**Week 16 Task 1 - 1 Page of retrieval quizzing - do not use full sentences**

**Date: 16th December**

**Week 16 Task 2 - Complete the exam question then fill the remainder of the page with retrieval quizzing. Use full sentences for the exam question, but not the quiz.**




A trampoline is made from a sheet of material held in place by stretched springs.

Position A shows the child's maximum height above the trampoline. Position B shows the lowest position reached by the child when landing on the trampoline.

Describe the changes to the stores of energy of the child, springs and surroundings as the child moves from position A to position B. (4)

Improvement Work: Describe the changes to the stores of energy of the child, springs and surroundings as the child moves from position A to position B. (4)