

Working scientifically - Explain how to change and control variables in an investigation, carry out practical work safely, record data accurately in tables and graphs, form conclusions using scientific ideas and evaluate work to suggest improvements.

BIOLOGY	CHEMISTRY	PHYSICS
<p><u>Genetics and Evolution</u></p> <p>Discuss how variations cause different animal behaviours and describe the structure of genetic information.</p> <p>Evaluate evidence for natural selection and suggest how biodiversity can be conserved.</p> <p><u>Plant Growth</u></p> <p>Model photosynthesis using a balanced symbol equation and explain how diffusion of gases, nutrients and starch production are important for plant growth.</p> <p>Describe the methods by which nitrogen is recycled in an ecosystem.</p>	<p><u>Making Materials</u></p> <p>Explain how modification of materials can change their physical properties and model the formation of materials using equations and particle diagrams.</p> <p>Discuss the human and environmental impact of pollutants and evaluate the recycling of different types of materials.</p> <p><u>Reactivity</u></p> <p>Interpret graphs of gas pressure, temperature and volume and use balanced equations to model a variety of chemical reactions.</p> <p>Construct energy level diagrams for to explain why reactions occur and compare the processes of oxidation and reduction.</p>	<p><u>Forcefields and Electromagnets</u></p> <p>Explain the formula relating gravity to mass and distance and explain examples of static electricity.</p> <p>Use equations relating power, current and voltage and interpret graphs of resistance.</p> <p>Explain the motor effect.</p> <p><u>Forces and Motion</u></p> <p>Use scale drawings to determine resultant forces and apply ideas about energy transfers and stores to a variety of situations.</p> <p>Calculate relative speed and explain how gears work using ideas about moments.</p> <p>Discuss the advantages and simple machines using</p>

On completion of these modules, Year 9 will then begin the Edexcel GCSE Science qualification.

Working scientifically - Explain how to change and control variables in an investigation, carry out practical work safely, record data

BIOLOGY	CHEMISTRY	PHYSICS
<p><u>Genetics and Evolution</u></p> <p>Interpret graphs of different types of variation and explain why variation can make classification difficult.</p> <p>Use a model to explain the relationship between DNA, chromosomes, genetic information and genes.</p> <p>Predict how changes in the environment can affect the distribution and abundance of a species and explain how natural selection can lead to evolution.</p> <p><u>Plant Growth</u></p> <p>Explain how different factors can affect the rate of photosynthesis and the adaptations of different parts of a plant.</p> <p>Explain how food production for humans can be</p>	<p><u>Making Materials</u></p> <p>Explain the properties of ceramics, composites and polymers in relations to the bonding and arrangement of atoms and classify chemical reactions as exothermic or endothermic.</p> <p>Suggest ways to reduce the greenhouse effect, including how a variety of materials can be recycled.</p> <p><u>Reactivity</u></p> <p>Explain changes in gas pressure and use results from displacement experiments to place metals into a reactivity series.</p> <p>Explain the energy changes in chemical reactions and relate metal extraction processes to the position of the metal in the reactivity series.</p>	<p><u>Forcefields and Electromagnets</u></p> <p>Explain the factors affecting gravity and how objects become charged.</p> <p>Describe current and investigate factors affecting resistance.</p> <p>Explain how currents can affect magnetic fields and describe the motor effect.</p> <p><u>Forces and Motion</u></p> <p>Calculate resultant forces, state the meaning of efficiency and describe factors which affect kinetic and gravitational potential energy.</p> <p>Calculate the value of speed using the gradients from a distance/time graph.</p> <p>Compare different types of levers using the equation for moments and use the equations relating work, force and distance.</p>

On completion of these modules, Year 9 will then begin the Edexcel GCSE Science qualification.

Working scientifically - Explain how to change and control variables in an investigation, carry out practical work safely, record data accurately in tables and graphs, form conclusions using scientific ideas and evaluate work to suggest improvements.

BIOLOGY**Genetics & Evolution**

Describe how variation is used and how adaptations increase the chances of survival which lead to natural selection.

Describe the relationship between DNA, chromosomes, genetic information and genes.

Plant Growth

Describe how the reactants and products of photosynthesis enter and leave a plant and describe the uses of glucose.

Explain why plants are important for humans and describe how changes in populations can have an impact on ecosystems.

Describe the key parts of the carbon cycle.

CHEMISTRY**Making materials**

Explain simply how the properties of ceramics, plastics and polymers make them suitable for their function.

Name examples of polymers and describe the impact of pollutant gases on the atmosphere.
Explain the advantages of recycling materials.

Reactivity

Describe how pressure in gases can be changed and being to organise metals into a reactivity series.

Describe differences between oxidation and reduction reactions and predict whether displacement reactions will occur.

PHYSICS**Forcefields and electromagnets**

Describe and use gravitational field strength in calculations and begin to explain ideas of attraction and repulsion in static electricity.

Compare current and voltage in series and parallel circuits and describe the relationship between current, voltage and resistance.

Describe uses of electromagnets and explain how their strength can be changed.

Forces and motion

Describe balanced and unbalanced forces on an object and describe a moment and how they can be changed.

Use an equation to calculate speed, interpret speed/time graphs and describe factors which affect speed.

Identify between useful and wasted energy and describe the factors that can affect work done.

On completion of these modules, Year 9 will then begin the Edexcel GCSE Science qualification.

Working scientifically - Explain how to change and control variables in an investigation, carry out practical work safely, record data accurately in tables and graphs, form conclusions using scientific ideas and evaluate work to suggest improvements.

BIOLOGY	CHEMISTRY	PHYSICS
<p><u>Genetics & Evolution</u></p> <p>Identify examples of inherited and environmental variation and state where genetic information is found in cells. Describe how changes in the environment can affect populations of organisms which can lead to natural selection or extinction.</p> <p><u>Plant Growth</u></p> <p>Simply describe the processes of respiration and photosynthesis in plants including how the products of these reactions can be tested for.</p> <p>State how crossbreeding of plants is used to support increases in human population and how human activity influences food webs.</p>	<p><u>Making materials</u></p> <p>Recall examples of materials which are conductors, insulators, ceramics and composites. Simply describe the use of crude oil in the production of materials and state the meaning of biodegradable. Describe how materials can be recycled.</p> <p><u>Reactivity</u></p> <p>Identify between chemical and physical changes and describe combustion and displacement reactions. Simply describe the reactions of metals with water and acid and recall how metals can be extracted from ores.</p>	<p><u>Forcefields and electromagnets</u></p> <p>Simply describe Earth's magnetic field, static electricity and electromagnets. Recall how voltage changes and switches affect current in a circuit and describe resistance.</p> <p><u>Forces and Motion</u></p> <p>Name examples of forces acting on moving and stationary object and recall how the distance an object moves is affected by force. Identify energy transfers in systems and describe speed and how levers work.</p>
On completion of these modules, Year 9 will then begin the Edexcel GCSE Science qualification.		