Science Department year group overview

2020

What is our departmental intent?
To inspire in our students a scientific curiosity that will enable them to question ideas and spot fake news and to develop an understanding our increasingly complex world that will give them the ability to make safe, prosperous and sensible decisions about the science based choices that they will make in their lives.
To provide the knowledge and skills that will allow our students to become independent learners and enter quaternary science courses and then be successful in them. To be aware and inspired by the employment opportunities within the world of science. To be able to analyse data to make valid conclusions based upon it and to be able to process and link information in a logical way.
Skills developed
Maths – Changing the subject of an equation. Percentages and ratios. Standard form. Tangents and rates. Metric prefixes.
Practical skills – to be able to use common laboratory equipment safely and accurately.
Literacy - To be able to communicate abstract ideas and use modelling to illustrate their ideas and understanding.

Subject: Science			Year group: 7	
Term	**Topics**	**What most pupils will learn** (prior assessment may alter starting point & content)	**Key skills used**	**How will this learning be assessed?** **1. Self / peer assessment,** **2. Teacher marking** **3. Summative assessment**
Term 1	Being a scientist	All students start the year with the same topic so that students can safely work in a Science lab.	Students become familiar with and select and use equipment correctly.	Peer assessment and Teacher marking. No summative assessment as this is a practical unit.
Terms 2 - 6	Due to the pressure of the use of practical equipment the students rotate around the topics in a unique order	**Biology –** You and your body – Cells, tissues and organs What makes you you? – Reproduction and genetics Plants – Plant biology and introduction to photosynthesis **Chemistry –** Particles – An introduction into particulate theory and states of matter Elements and compounds – What are differences and relationships between elements and compunds? Chemical reactions – Simple reactions and word equations. **Physics –**	Students develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. In addition they should develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them Students are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future. Mathematical skills, including graph construction skills are developed throughout the year.	Peer assessment tasks are included at varying frequencies throughout the units. Each unit has a 'Badger type assessment' mid unit which uses a level ladder scaffold to produce a piece of extended writing which takes one lesson + homework to complete.

		Use the force – What are forces? Electrifying – An introduction to electricity and circuits		Following teacher marking the students spend a further lesson completing enhancing the work in green pen. The teacher records the level achieved on Go 4 Schools. And the end of each unit there is an end of topic assessment using 'real' questions from testbase. The level from this assessment is also recorded on Go 4 Schools.

Learning overview for (subject): Science			**Year group: 8**	
Term	**Key topics / scheme of work**	**What most pupils will learn** (prior assessment may alter starting point & content)	**Key skills used**	**How will this learning be assessed?** **1. Self / peer assessment,** **2. Teacher marking** **3. Summative assessment**

Terms 1- 6	Due to the pressure of the use of practical equipment the students rotate around the topics in a unique order	**Biology –** Staying alive – Life processes and introduction to respiration Healthy living – The relationship between lifestyle and health Ecology – Relationships and webs in the living world **Chemistry –** Magnificent metals – Developing a more complex understanding of reactions and an introduction to symbol equations **Physics –** Energy transfers – An introduction to the Joule and closed systems The Earth and beyond – Astronomy including our solar system Moving around – An introduction to moments and mechanics **Biology and Physics crossover –** See it, hear it – The biology of seeing and hearing & the propagation and transfer of sound and light waves	Same as Year 7 but encompassing different essential areas of Biology, Chemistry and Physics to prepare them and give them foundations to build on at GCSE. Mathematical skills are further developed and symbol equation formation in Chemistry introduced. STEM careers are integrated into this year and a whole school trip to Drusilla's zoo park in October is run as a Science/Career day joint project. (may be postponed until later in 2021 due to coronavirus)	Assessment policy is identical to Year 7 with the Mid topic assessment and End of topic assessment GCSE equivalent levels formally recorded by class teachers

Learning overview for Science			**Year group: Year 9**	
Term	**Key topics / scheme of work**	**What most pupils will learn** (prior assessment may alter starting point & content)	**Key skills used**	**How will this learning be assessed?** 1. **Self / peer assessment,** 2. **Teacher marking** 3. **Summative assessment**
Terms 1 - 6	In Year 9 students have two Science teachers who teach all the subject specialisms between them. Consequently the students take the units B1 and 2, C1 and 2 and P1 and 2 in a different order.	**Biology –** **B1: You and your genes** What is the genome and what does it do? How is genetic information inherited? How can and should gene technology be used? **B2: Keeping healthy** What are the causes of disease? How do organisms protect themselves against pathogens? How can we prevent the spread of infection? How can lifestyle, genes and the environment affect my health? How can we treat disease? **Chemistry –** **Chapter C1: Air and water** How has the Earth's atmosphere changed over time, and why? Why are there temperature changes in chemical reactions?	Biology Preparation and observation of plant and animal slides using a light microscope. Extraction of DNA from plant material. Be able to explain the process of protein synthesis. Construct diagrams to explain patterns of genetic inheritance. Discuss the risks, benefits and ethical issues associated with gene technology. Culture microorganisms on agar safely. Measure recovery rate following exercise. Understand the implications of Antibiotic resistance on human health. Describe the development of novel medicines, including the use of placebos. Chemistry – Produce cooling curves from students experimental data. Use the particle model to explain changes of state.	Each module has two common peer assessed tasks – 12 in total for year. These are described and listed in the feedback and marking document. Each module has a Mid unit assessment and End of topic assessment which are teacher marked. These tasks are composed of 'real' GCSE questions from OCR exambuilder. The students are awarded equivalent GCSE grades, and these grades are recorded in the Science spreadsheet. The marked scripts should be found in

		What is the evidence for climate change, why is it occurring? How can scientists help improve the supply of potable water? **Chapter C2: Chemical patterns** How have our ideas about atoms developed over time? What does the Periodic Table tell us about the elements? How do metals and non-metals combine to form compounds? How are equations used to represent chemical reactions? **Physics –** **Chapter P1: Radiation and waves** What are the risks and benefits of using radiations? What is climate change and what is the evidence for it? How do waves behave? **P2: Sustainable energy** How much energy do we use? How can electricity be generated?	Describe the application of catalytic converters, low sulphur fuel and gas scrubbers to improve air quality. Investigate chemical reactions to determine if they are exo or endo thermic and draw reaction profiles for these. Investigate models of climatic change. Describe the scientific processes involved in making water potable. Identify unknown gases. Physics – Investigate the intensity of radiation as the distance from the source is changed. Investigate the absorption, transmission and reflection of electromagnetic radiations. Discuss the risks and benefits of technologies that use EM radiations. Investigate waves using a ripple tank. Use the wave speed equation. Investigate the reflection and refraction of light using ray boxes. Investigate the effects of insulation on the rate of cooling. Calculate energy, and use this to calculate the cost of using electric devices. Be able to describe how electricity is generated. Discuss the risks and benefits of different methods of generating electricity.	the back of the students books and a record of individual progress across the modules should be located inside the front cover of the students books. All teacher marked work should have student DIT in green pen on them.

Learning overview for (subject): Science			**Year group: 10**	
Term	**Key topics / scheme of work**	**What most pupils will learn** (prior assessment may alter starting point & content)	**Key skills used**	**How will this learning be assessed?** **1. Self / peer assessment,** **2. Teacher marking** **3. Summative assessment**

Terms 1 - 6	In Year 10 students have two or three Science teachers who teach all the subject specialisms between them. Consequently the students take the units B3 and 4, C3 and 4 and P3 and 4 in a different order.	**Biology –** **B3: Living together – food and ecosystems** What happens during photosynthesis? How do producers get the substances they need? How are organisms in an ecosystem interdependent? How are populations affected by conditions in an ecosystem? **B4: Using food and controlling growth** What happens during cellular respiration? How do we know about mitochondria and other cell structures? How do organisms grow and develop? Should we use stem cells to treat damage and disease? **Chemistry -** **C3: Chemicals of the natural environment** How are the atoms held together in a metal? How are metals with different reactivities extracted? What are electrolytes and what happens during electrolysis? Why is crude oil important as a source of new materials?	Biology – Carry out starch tests on leaves that have had CO_2 removed from the atmosphere in which they were growing. Investigate effects of substrate concentration, temperature and pH on enzyme activity. Use the Lock and key model to explain and make predictions about enzyme activity. Investigate rate of photosynthesis by collecting gas or counting bubbles from pondweed. Investigate diffusion using drops of ink in water and in agar in Petri dishes. Investigate diffusion across a partially permeable membrane using starch suspension in dialysis tubing in a beaker of water; compare adding iodine solution inside versus outside the tubing. Investigate the effect of solute concentration on osmosis using potato cylinders in sugar solution. Observe stomata using a light microscope. Use a food web as a model to explain interdependence in a community. Investigate the distribution and abundance of organisms in an ecosystem. Investigate the amount of energy released from different foods, by burning them under a boiling tube of water where: energy (kJ) = mass of water (kg) × change in temperature (°C) × 4.2 kJ/kg(°C). Investigate mitosis using a microscope to look at stained cells from onion root tip. Chemistry – Use the model of metal structure to explain properties of metals. Investigate the reactivity of different metals with water and dilute acid. Investigate the reactivity of Zn, Fe and Cu by heating each metal with oxides of each of the other two metals.	Each module has two common peer assessed tasks – 12 in total for year. These are described and listed in the feedback and marking document. Each module has a Mid unit assessment and End of topic assessment which are teacher marked. These tasks are composed of 'real' GCSE questions from OCR exambuilder. The students are awarded equivalent GCSE grades, and these grades are recorded in the Science spreadsheet. The marked scripts should be found in the back of the students books and a record of individual progress across the modules should be located inside the front cover of the students books. All teacher marked work should have student DIT in green pen on them.

		C4: Material choices How is data used to choose a material for a particular use? How do bonding and structure affect properties of materials? Why are nanoparticles so useful? What happens to products at the end of their useful life? **Physics –** **P3: Electric circuits** What determines the current in an electric circuit? How do series and parallel circuits work? What determines the rate of energy transfer in a circuit? What are magnetic fields? How do electric motors work? **P4: Explaining motion** What are forces? How can we describe motion?	Investigate what type of substances are electrolytes. Investigate the effects of concentration of aqueous solution, current, voltage on the electrolysis of sodium chloride. Recognise cracking as a positive application of science, to reduce extraction of crude oil and so conserves oil reserves. Practical investigation of a range of materials leading to classification into categories. Testing properties of simple covalent compounds, giant ionic and giant covalent substances, metals and polymers. Identify patterns in data related to polymers and allotropes of carbon. Discuss the potential benefits and risks of developments in nanotechnology. Investigating the factors needed for rusting of iron or corrosion of other metals and the effectiveness of corrosion prevention. Use life-cycle assessments to compare the sustainability of products and processes. Physics Design and construct electric circuits to investigate the electrical properties of range of circuit components. Use d.c. series circuits, including potential divider circuits to investigate the behaviour of a variety of components. Design and construct electric circuits to use a sensor for a particular purpose. Compare the power consumption of a variety of devices and relate it to the current passing through the device. Use plotting compasses to map the magnetic field near a permanent bar magnet.	

		What is the connection between forces and motion? How can we describe motion in terms of energy transfers?	Investigate the relationship between the number of turns on a solenoid and the strength of the magnetic field. Investigate the motor effect for a single wire in a magnetic field and apply the principles to build a simple electric motor. Explain how Newton's discovery of the universal nature of gravity is an example of the role of imagination in scientific discovery. Use a variety of methods to measure distances, speeds and times and to calculate acceleration. Compare methods of measuring the acceleration due to gravity. Use mathematical and computational models to make predictions about the motion of moving objects. Investigate the use of crumple zones to reduce the stopping forces. Describe and explain examples of how application of Newton's laws of motion has led developments in road safety. Measure the work done and calculate the efficiency. Be able to recall and use equations to calculate missing values of speed, distance, force, mass, acceleration, KE, GPE, power, current, resistance, work done, potential difference, current, final speed, initial speed, time, magnetic field strength, length of conductor and current in primary or secondary coils.	

Learning overview for Biology **In Year 11 students will all be taught by a specialist teacher as a discrete subject**			**Year group: 11**	
Term	**Key topics / scheme of work**	**What most pupils will learn** (prior assessment may alter starting point & content)	**Key skills used**	**How will this learning be assessed?** **1. Self / peer assessment,** **2. Teacher marking** **3. Summative assessment**
Term 1	B5 first half	**B5: The human body – staying alive** How do substances get into, out of and around our bodies? How does the nervous system help us respond to changes? How do hormones control responses in the human body?	Observe a dissection of a mammalian heart to observe atria, ventricles and valves. Describe in detail the structure of the human circulatory system, including its relationships with the gaseous exchange system, the digestive system and the excretory system. Describe in detail the structure and function of the human respiratory system. Describe some of the substances transported into and out of the human body in terms of the requirements of cells, including oxygen, carbon dioxide, water, dissolved food molecules and urea Investigate the effect of surface area:volume ratio on diffusion of dye into agar cubes	Each module has two common peer assessed tasks – 8 in total for year. These are described and listed in the feedback and marking document. Each module has a Mid unit assessment and End of topic assessment which are teacher marked. These tasks are composed of 'real' GCSE questions from OCR exambuilder. There are questions interleaved with previous content that has been delivered in modules 1 – 6.
Term 2	B5 second half	**B5: The human body – staying alive** Why do we need to maintain a constant internal environment? What role do hormones play in human reproduction? What can happen when organs and control systems stop working?	Compare skin temperature and core body temperature under different conditions. Model the control of temperature by trying to keep a beaker of water at 40°C using just a Bunsen burner (single effector) compared to a Bunsen burner and ice (antagonistic effectors). Describe the role of hormones in human reproduction, including the control of the menstrual cycle.	

			Explain how insulin controls the blood sugar level in the body and compare type 1 and type 2 diabetes and explain how they can be treated.	The students are awarded equivalent GCSE grades, and these grades are recorded in the Science spreadsheet. The marked scripts should be found in the back of the students books and a record of individual progress across the modules should be located inside the front cover of the students books. All teacher marked work should have student DIT in green pen on them.
Term 3	B6 first half	**B6: Life on Earth – past, present and future** How was the theory of evolution developed? How does our understanding of biology help us classify the diversity of organisms on Earth?	Explain the theory of evolution by natural selection as a scientific explanation modified in light of new observations and ideas. Describe the impact of developments in biology on classification systems, including the use of DNA analysis to classify organisms.	
Term 4	B6 second half	**B6: Life on Earth – past, present and future** How is biodiversity threatened and how can we protect it? Revision	Discus the impacts of science on biodiversity, including negative impacts and potential solutions. Appreciate the decisions made in the context of the protection and conservation of biodiversity. Measure living and non-living indicators to assess the effect of pollution on organisms.	
Term 5	Revision		Extended answer practise. Command word practise. Graph construction practise.	

Learning overview for (subject): Chemistry **In Year 11 students will all be taught by a specialist teacher as a discrete subject.**			**Year group: 11**	
Term	**Key topics / scheme of work**	**What most pupils will learn** (prior assessment may alter starting point & content)	**Key skills used**	**How will this learning be assessed?** **1. Self / peer assessment,** **2. Teacher marking** **3. Summative assessment**
Term 1	C5 first half	**C5: Chemical analysis** How are chemicals separated and tested for purity?	Recall the particle model and relate this to changes of state. Observe fractional distillation of crude oil and relate this an industrial scale. Use the particle model to explain the idea of a pure substance.	Each module has two common peer assessed tasks – 8 in total for year. These are described and listed in the feedback and marking document. Each module has a Mid unit assessment and End of topic assessment which are teacher marked. These tasks are composed of 'real' GCSE questions from OCR exambuilder. There are questions interleaved with previous content that has been
Term	C5 second half	**C5: Chemical analysis** How are the amounts of substances in reactions calculated? How are amounts of chemicals in solution measured?	Comparison of theoretical and actual yield from the preparation of an organic compound or a salt. Making and testing predictions. Carrying out investigations. Analysing and evaluating data. Using measuring apparatus. Safe handling of chemicals. Using data to make quantitative predictions about yields and using them to calculate actual yields. Be able to calculate Ar and Mr and empirical formulae. Use arithmetic computation, ratio, percentage and multistep calculations throughout quantitative chemistry.	

Term 3	C6 first half	**C6: Making useful chemicals** What useful products can be made from acids? How do chemists control the rate of reactions?	Complete acid-base titrations using the appropriate measuring apparatus, and measuring pH. Justify a technique in terms of precision, accuracy and validity of data to be collected and minimising risk. Use of range and mean when processing titration results and analysis of data.	delivered in modules 1 – 6. The students are awarded equivalent GCSE grades, and these grades are recorded in the Science spreadsheet. The marked scripts should be found in the back of the students books and a record of individual progress across the modules should be located inside the front cover of the students books. All teacher marked work should have student DIT in green pen on them.
Term 4	C6 second half	**C6: Making useful chemicals** What factors affect the yield of chemical reactions? Revision	Calculate yield from experimental or given data. Investigate reversible reactions and explain dynamic equilibrium. Make predictions from data and graphs about yield. Consider the risks and costs of producing chemicals at an industrial scale.	
Term 5	Revision		Extended answer practise. Command word practise. Graph construction practise.	

Learning overview for (subject): Physics **In Year 11 students will all be taught by a specialist teacher as a discrete subject**			**Year group:**	
Term	**Key topics / scheme of work**	**What most pupils will learn** (prior assessment may alter starting point & content)	**Key skills used**	**How will this learning be assessed?** **1. Self / peer assessment,** **2. Teacher marking** **3. Summative assessment**
Term 1	P5 first half	**P5: Radioactive materials** What is radioactivity?	Explain how the development of the nuclear model of the atom is an example of how scientific explanations become accepted. Observing a demonstration of radioactive isotopes. Use dice throwing as a random event to model radioactive decay. Plot graphs to illustrate half-life and interpret activity-time graphs to find the half-life of radioactive materials Complete radioactive decay equations. Be able to describe the three types of radioactive emissions.	Each module has two common peer assessed tasks – 8 in total for year. These are described and listed in the feedback and marking document. Each module has a Mid unit assessment and End of topic assessment which are teacher marked. These tasks are composed of 'real' GCSE questions from OCR exambuilder. There are questions interleaved with previous content that has been delivered in modules 1 – 6.
Term	P5 second half	**P5: Radioactive materials** How can radioactive materials be used safely?	Describe the risks and benefits of using electromagnetic radiations? Interpret data to show the penetration properties of ionising radiations. Discuss ideas about correlation and cause in the context of links between ionising radiation and cancer.	
Term 3	P6 first half	**P6: Matter – models and explanations** How does energy transform matter? How does the particle model explain the effects of heating?	Describe a method to measure the density of regular or irregular objects. Measure the specific heat capacity of a range of substances.	

			Measure the latent heat of fusion of a substance in the solid state and the latent heat of vaporisation of a substance in the liquid state. Show that the same amount of work always results in the same temperature rise. Collect data, plot and interpret graphs that show how the temperature of a substance changes when heated by a constant supply of energy. Use the particle model to explain familiar or unfamiliar phenomena and make predictions.	The students are awarded equivalent GCSE grades, and these grades are recorded in the Science spreadsheet. The marked scripts should be found in the back of the students books and a record of individual progress across the modules should be located inside the front cover of the students books. All teacher marked work should have student DIT in green pen on them.
Term 4	P6 second half	**P6: Matter – models and explanations** How does the particle model relate to materials under stress? Revision	Investigate the force-extension properties of a variety of materials, identifying those that obey Hooke's law, those that behave elastically, and those that show plastic deformation and represent this graphically. Recall how to calculate the work done by a spring. Be able to select and apply the relationship between energy stored, spring constant and extension for a linear system: energy stored in a stretched spring.	
Term 5	Revision		Extended answer practise. Command word practise. Graph construction practise.	

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To inspire in our students a scientific curiosity that will enable them to question ideas and spot fake news and to develop an understanding our increasingly complex world that will give them the ability to make safe, prosperous and sensible decisions about the science based choices that they will make in their lives.

To provide the knowledge and skills that will allow our students to become independent learners and enter quaternary science courses and then be successful in them. To be aware and inspired by the employment opportunities within the world of science. To be able to analyse data to make valid conclusions based upon it and to be able to process and link information in a logical way.

Skills developed

Maths – Changing the subject of an equation. Percentages and ratios. Standard form. Tangents and rates. Metric prefixes.

Practical skills – to be able to use common laboratory equipment safely and accurately.

Literacy - To be able to communicate abstract ideas and use modelling to illustrate their ideas and understanding.

KS3 Science Learning Journey

Year 7

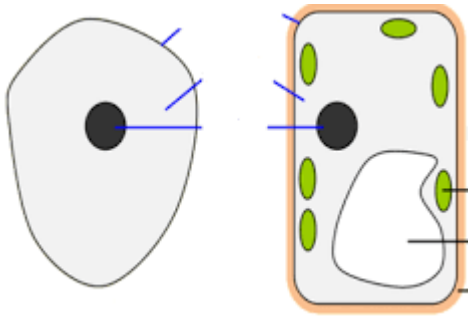
You will have 3 lessons of Science a week, probably with two Science teachers

Being a scientist
Learning how to select and use equipment correctly.

You and your body
Learning about cells tissues and organ systems.

What makes you you?
Human reproduction and genetics

Plants
Plant biology and an introduction to photosynthesis

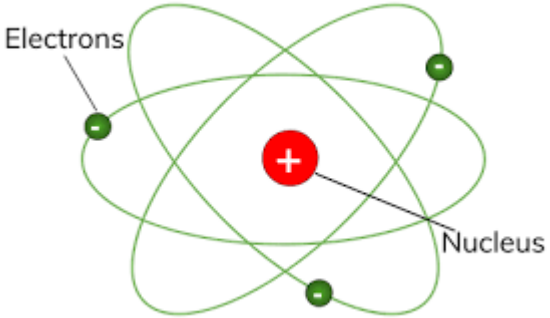


Year 8

Particles
An introduction into particulate theory and states of matter

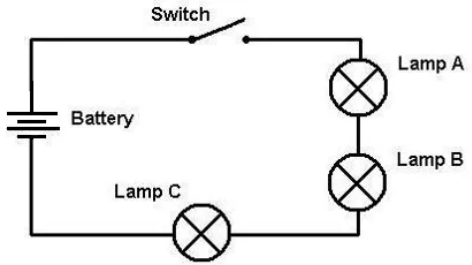
Elements and compounds
What are the differences and relationship between elements and compounds?

Chemical reactions
Learning about simple reactions and writing word equations



Use the force
What are forces?

Electrifying
An introduction into electricity and circuits



KS3 Science Learning Journey

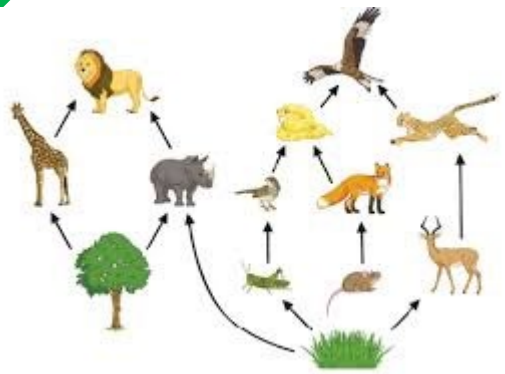
Year 8

You will have 3 lessons of Science a week, probably with two Science teachers

Staying alive
Life processes and an introduction to cellular respiration

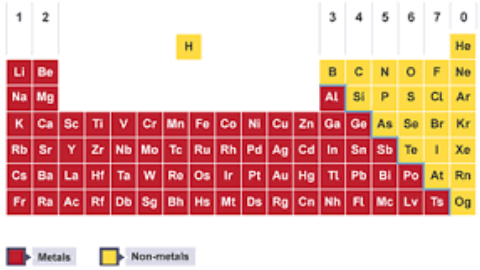
Healthy living
Studying the relationship between lifestyle and health

Ecology
Relationships and webs in the living world



Year 9

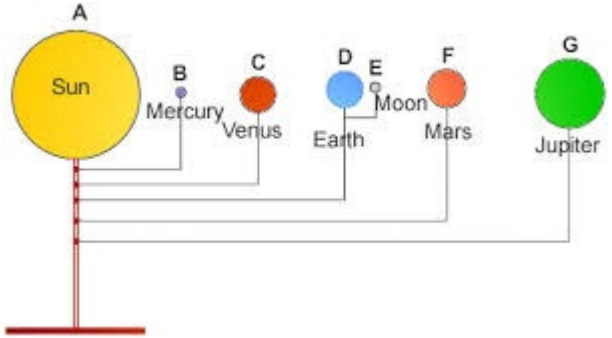
Magnificent metals
Developing an more complex understanding of reactions and an introduction into writing symbol equations



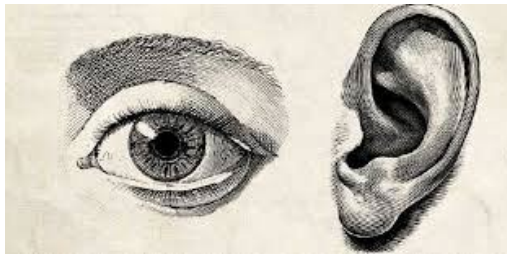
Energy transfers
An introduction to the joule and closed systems

The Earth and beyond
Astronomy, including our solar system

Moving around
An introduction to moments and mechanics



Biology/Physics crossover – See it, hear it
The biology of seeing and hearing & the propagation and transfer of sound and light waves



GCSE Science Learning Journey

Year 9

Two teachers will teach you the 3 different specialisms

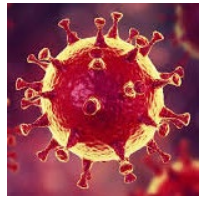
Biology

B1: You and your genes

What is the genome and what does it do?
How is genetic information inherited?
How can and should gene technology be used?

B2: Keeping healthy

What are the causes of disease?
How do organisms protect themselves against pathogens?
How can we prevent the spread of infection?
How can lifestyle, genes and the environment affect my health?
How can we treat disease?



Chemistry

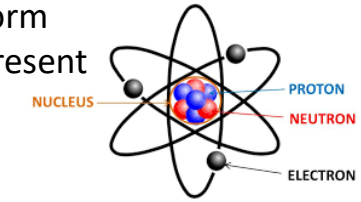
Year 10

Chapter C1: Air and water

How has the Earth's atmosphere changed over time, and why?
Why are there temperature changes in chemical reactions?
What is the evidence for climate change, why is it occurring?
How can scientists help improve the supply of potable water?

Chapter C2: Chemical patterns

How have our ideas about atoms developed over time?
What does the Periodic Table tell us about the elements?
How do metals and non-metals combine to form compounds? How are equations used to represent chemical reactions?



Physics

P1: Radiation and waves

What are the risks and benefits of using radiations?
What is climate change and what is the evidence for it?
How do waves behave?

P2: Sustainable Energy

How much energy do we use?
How can electricity be generated?

GCSE Science Learning Journey

Biology

Year 10

Three teachers will teach you the 3 different specialisms

B3:Living together – food and ecosystems

What happens during photosynthesis?
How do producers get the substances they need?
How are organisms in an ecosystem interdependent?
How are populations affected by conditions in an ecosystem?

B4:Using food and controlling growth

What happens during cellular respiration?
How do we know about mitochondria and other cell structures?
How do organisms grow and develop?
Should we use stem cells to treat damage and disease?

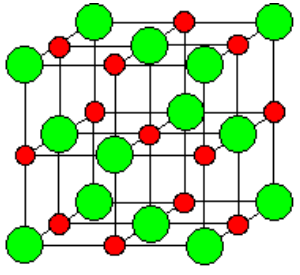
Chemistry

C3: Chemicals of the natural environment

How are the atoms held together in a metal?
How are metals with different reactivities extracted?
What are electrolytes and what happens during electrolysis?
Why is crude oil important as a source of new materials?

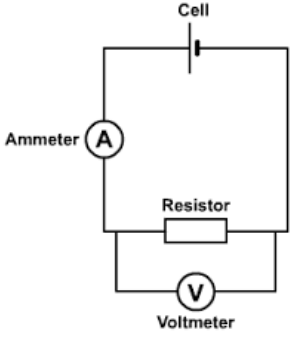
C3: Material choices

How is data used to choose a material for a particular use?
How do bonding and structure affect properties of materials?
Why are nanoparticles so useful?
What happens to products at the end of their useful life?



Year 11

Physics

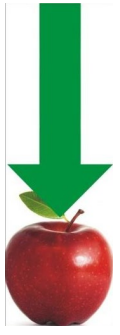


P4:Electric circuits

What determines the current in an electric circuit?
How do series and parallel circuits work?
What determines the rate of energy transfer in a circuit?
What are magnetic fields?
How do electric motors work?

P5: Explaining Motion

What are forces?
How can we describe motion?
What is the connection between force and motion?
How can we describe motion in terms of energy transfers?



GCSE Science Learning Journey

Year 11

In Year 10 and 11 you will study either Combined Science or Triple Science.

You will have one teacher for each specialism

Biology

B5: The human body – staying alive

How do substances get into, out of and around our bodies?
How does the nervous system help us respond to changes?
How do hormones control responses in the human body?
Why do we need to maintain a constant internal environment?
What roles do hormones play in human reproduction?
What can happen when organs and control systems stop working?

B6: Life on Earth – past, present and future

How was the theory of evolution developed?
How do sexual and asexual reproduction affect evolution?
How does our understanding of biology help us classify the diversity of organisms on Earth?
How is biodiversity threatened and how can we protect it?

Chemistry

C5: Chemical analysis

How are chemicals separated and tested for purity?
How are the amounts of substances in reactions calculated?
How do chemists find the composition of unknown substances?
How are amounts of chemicals in solution measured?

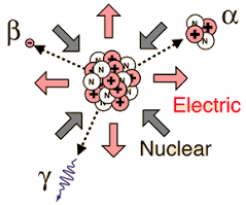
C6: Making useful chemicals

What useful products can be made from acids?
How do chemists control the rates of reactions?
What factors affect the yield of chemical reactions?
How are chemicals made on an Industrial scale?

Physics

P5: Radioactive materials

What is radioactivity?
How can radioactive materials be used safely?
How can radioactive materials be used to provide energy?



P6: Matter – Models and explanations

How does energy transform matter?
How does the particle model explain the effects of heating?
How does the particle model relate to materials under stress?
How does the particle model relate to pressure in fluids?
How can scientific models help us to understand the big bang?

Triple Science – 3 separate GCSE's in Biology, Chemistry and Physics

or

Combined Science – a double award GCSE