










Science Curriculum Map	
<p>Endeavour Federation Curriculum vision</p> 	<p>At the Endeavour Federation, we follow an adapted National Curriculum, with wellbeing central to everything we do. We offer a broad and balanced curriculum, with all students having the opportunity to study a range of subjects, following bespoke pathways. The study of these subjects, allows pupils to apply theoretical knowledge to the practical elements of the curriculum.</p> <p>We believe in all our students and have high expectations for their futures. A comprehensive package of both pastoral and learning support, delivered by highly trained staff, allows them to navigate their learning journeys and improve their life outcomes, becoming the best versions of themselves.</p>
<p>Science vision</p> 	<p>Our vision aims for students to develop a sound knowledge of a range of key scientific concepts which will be built on throughout the curriculum. A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils will be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They will be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, analyse causes, encourage creativity and problem solve.</p>



Careers (CEIAG)	Cultural Capital	Enrichment Opportunities	Preparing for life in modern Britain	Literacy and Communication
				

Curriculum 'at a glance'


	Autumn		Spring		Summer	
KS2 Year 1	Plants	Living things and their habitats	Properties and changes of materials	Rocks	Forces	Light and sound
KS2 Year 2	Animals, including humans	Electricity	Evolution and Inheritance	Earth and Space	States of matter	Researching Scientists and inventors
Year 7	Cells – the Building Blocks of Life	Mixing, Dissolving and Separating	Forces and their effects	Eating, Drinking, Breathing	Elements, compounds and reactions	Energy Transfers and sound
Year 8	Getting the energy Your Body Needs	Explaining Physical Changes	Exploring Contact and Non-Contact Forces	Looking at Plants and Ecosystems	Explaining Chemical Changes	Magnetism and Electricity
Year 9	Variation and Inheritance	Obtaining Useful Materials	Motion on Earth and in Space	Our Health and the Effects of Drugs	Using our Earth Sustainably	Waves and Energy Transfer
Year 10	Unit 2 – Chemistry and our Earth Investigate chemical reactivity and bonding	Unit 3 – Energy and Our universe Understand ionising radiation, its uses and sources	Unit 4 – Biology and our environment Investigate the relationships different organisms have with each other and their environment	Unit 2 – Chemistry and our Earth Investigate the factors involved in the rate of chemical reactions and the factors affecting the earth's environment	Unit 3 – Energy and our universe How electrical energy produced from different sources are transferred to homes and industry	Unit 4 – Biology and our environment Investigate the relationships different organisms have with each other and their environment
Year 11	Unit 1 - Principles of applied science – Biology	Unit 1 - Principles of applied science – Chemistry	Unit 1 - Principles of applied science – Physics	Course work catch up Unit 2 – Chemistry and our Earth Unit 3 – Energy and our universe Unit 4 – Biology and our environment		

KS2 Curriculum Planning Year 1– Science						
	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
<p>Weekly focus</p> <p><i>Core Knowledge, Skills and Concepts</i></p>   	<p>Plants</p> <ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal <p>Weekly Focus</p> <ol style="list-style-type: none"> Parts of Plants What Do Plants Need to Grow Well? What Have You Found Out? SC1 skills lesson Moving Water Pollination Fertilisation. Life Cycle 	<p>Living things and their habitats</p> <ul style="list-style-type: none"> recognise that living things can be grouped in a variety of ways explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics <p>Weekly Focus</p> <ol style="list-style-type: none"> Grouping living things Vertebrates/invertebrates Classification keys Habitats Environmental changes Plants Reproduce Mammals/Jane Goodall Metamorphosis Life Cycles Classifying Animals Linnaean System Microorganisms 	<p>Properties and changes of materials</p> <ul style="list-style-type: none"> compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic demonstrate that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda <p>Weekly Focus</p> <ol style="list-style-type: none"> Properties of Materials thermal conductors and insulators electrical conductors Dissolving Separating Mixtures Irreversible changes 	<p>Rocks</p> <ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter <p>Weekly Focus</p> <ol style="list-style-type: none"> Types of rocks Grouping rocks Fossils Mary Anning’s contribution to palaeontology. Soil Formation Permeability of different soils. 	<p>Forces</p> <ul style="list-style-type: none"> compare how things move on different surfaces notice that some forces need contact between 2 objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing. explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect <p>Weekly Focus</p> <ol style="list-style-type: none"> Pushes and pulls Speed with different surfaces Magnetic and non-magnetic Magnetic strength Magnetic poles Attract or repel Forces Gravity Air resistance Water resistance Friction Simple Mechanisms 	<p>Light and sound</p> <ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches use recognised symbols when representing a simple circuit in a diagram identify how sounds are made, associating some of them with something vibrating recognise that vibrations from sounds travel through a medium to the ear find patterns between the pitch of a sound and features of the object that produced it find patterns between the volume of a sound and the strength of the vibrations that produced it recognise that sounds get fainter as the distance from the sound source increases <p>Weekly Focus</p> <ol style="list-style-type: none"> Light and dark/How do we see? Reflective surfaces/Reflecting light Using mirrors Refraction Spectrum Colours Sun safety

		Classifying organisms in the local Habitat.				Making and changing shadows- making a shadow theatre 5. Sound Sound travels 6. Pitch string telephone 7. Sound proofing Making music
--	--	---	--	--	--	--



KS2 Curriculum Planning Year 2– Science						
	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
<p>Weekly focus</p> <p><i>Core Knowledge, Skills and Concepts</i></p>  	<p>Animals, including humans</p> <ul style="list-style-type: none"> describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey describe the changes as humans develop to old age identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans <p>Weekly Focus</p> <ol style="list-style-type: none"> Nutrition Skeleton(bones and function) Muscles Digestive system Teeth/tooth decay Food chains Human timeline/life expectancy Growth of babies/gestation periods 	<p>Electricity</p> <ul style="list-style-type: none"> identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches use recognised symbols when representing a simple circuit in a diagram 	<p>Evolution and Inheritance</p> <ul style="list-style-type: none"> recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution <p>Weekly Focus</p> <ol style="list-style-type: none"> Inheritance Adaptation Theory of Evolution Evidence for Evolution Evidence for Evolution in Humans Adaptation, Evolution and Human Intervention 	<p>Earth and Space</p> <ul style="list-style-type: none"> describe the movement of the Earth and other planets relative to the sun in the solar system describe the movement of the moon relative to the Earth describe the sun, Earth and moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky <p>Weekly Focus</p> <ol style="list-style-type: none"> Spherical Bodies The Planets (Inner and outer planets) Geocentric Versus Heliocentric Night and Day Night and Day International Movement of the moon 	<p>States of matter</p> <ul style="list-style-type: none"> compare and group materials together, according to whether they are solids, liquids or gases observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature <p>Weekly Focus</p> <ol style="list-style-type: none"> Solid, Liquid or Gas? Investigating Gases Heating and Cooling Water changing state Evaporation Investigation The Water Cycle 	<p>Scientists and inventors</p> <p>To research and find key information about different Scientists and inventors throughout history. Using books and ICT and to record this information to present their findings.</p> <p>Weekly Focus</p> <ol style="list-style-type: none"> <p>Stephen Hawking - will learn about the life and work of Stephen Hawking, and carry out an investigation into Hawking's theories on black holes.</p> <p>Libbie Hyman - will learn about Libbie Hyman, a zoologist whose work on invertebrates informs much of what we know about the characteristics and classification of these creatures.</p> <p>The DNA Race - will find out about the scientists who raced to prove the structure of DNA, and the controversies surrounding this discovery. They will learn about the role of DNA in inheritance, and create their own model of a DNA molecule.</p> <p>Alexander Fleming - will find out about Alexander Fleming and his discovery of penicillin, and will interpret data in a scatter graph to come to a conclusion about the effects of penicillin.</p> <p>Mary Leakey - will look at the evidence for human evolution, and will learn about Mary Leakey and her role in finding significant fossil evidence, and what her fossils prove about evolution.</p> <p>Steve Jobs - will find out about the life and work of Steve Jobs, and his development of new electronics and technologies.</p>

	<p>5. Puberty Changes in old age</p> <p>6. Circulatory system Transporting water and nutrients</p> <p>7. Healthy lifestyle/exercise Drugs and Alcohol</p>	<p>Weekly Focus</p> <ol style="list-style-type: none"> 1. Electricity Electrical Appliances 2. Electrical Circuits 3. Conductors and Insulators 4. Simple circuits using switches Investigating Switches 5. Major discoveries in electricity Circuit symbols 6. Voltage 7. Electricity investigation 				<p>David Attenborough - will learn about the life and work of David Attenborough and create a documentary about a living thing of their choice.</p> <p>CSI- will learn about how CSI technicians use scientific techniques to analyse evidence and prove or disprove theories. They will use chromatography to analyse the ink used in a spelling test and use this evidence to support their own theories.</p> <p>5. Margaret Hamilton Mission to the Moon - will find out about Margaret Hamilton and her invention of the software and computer code that enabled Apollo 11 to go the Moon. They will research into her achievements completing a timeline about her life.</p> <p>Neil deGrasse Tyson The Solar System - will look at the classification of planets and create fact files on the planets in our solar system through finding out about Neil deGrasse Tyson's role in the reclassification of Pluto.</p> <p>6. Eva Crane – The children will explore the Eva Crane's research into bees and will play a game about the life cycle of bees.</p> <p>Stephanie Kwolek - will investigating the hardness of materials and consider Stephanie Kwolek's invention of Kevlar. Furthermore, they will learn about Leonardo da Vinci's ideas about the proportions of the human body seen in his work The Vitruvian Man.</p> <p>7. Leonardo Da Vinci - will measure their height, arm span and other measurements to see whether da Vinci's theories about proportion were accurate.</p> <p>Stonehenge - will find out about the scientific theories surrounding the construction of Stonehenge. They will explore the evidence that suggests that Stonehenge could have been used as an astronomical calendar, and develop their own theories based on this evidence.</p>
--	---	--	--	--	--	---

Year 7 Curriculum Planning – Science						
	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
<p>Weekly focus</p> <p><i>Core Knowledge, Skills and Concepts</i></p> 	<p><u>Cells – the Building Blocks of Life</u></p> <p>This unit is about the structure and function of specialised plant and animal cells, organisation in multicellular organisms, different types and adaptations of unicellular organisms and how plants and humans are adapted to reproduce. They will explore linked processes, including diffusion, pollination, seed dispersal, menstruation and fertilisation. They will consider environmental factors in discussing the role of insects and reasons for their demise.</p> <p>Weekly Focus</p> <ol style="list-style-type: none"> 1. Comparing plant and animal cells. Describing cells. 2. Understanding unicellular organisms 3. Organisation in multicellular organisms Comparing flowering plants 4. Knowing how pollination leads to fertilisation 5. The challenges facing pollinators. Formation and dispersal of seeds. 6. Dispersal of fruit seeds, The male reproductive system 7. The female reproductive system, fertility, puberty and how the foetus develops 	<p><u>Mixing, Dissolving and Separating</u></p> <p>This unit will extend and further develop their ideas on separation from KS2 – for example revisiting the use of sieving and developing this to include filtration. New separation techniques – chromatography and distillation – are introduced. Students investigate dissolving, consider solubility and apply the Law of Conservation of Mass. They are asked to apply their knowledge of changes of state and of solubility to explain their uses. Students are introduced to ideas about atoms, compounds and mixtures, including the use of simple circle models.</p> <p>Weekly Focus</p> <ol style="list-style-type: none"> 1. Working safely in a laboratory Recording experiments Recognising materials, substances and elements 2. understanding water Dissolving Separating mixtures 3. Dissolving and evaporating Extracting salt Understanding distillation 4. what is air made of? Exploring chromatography 5. Using chromatography 6. Finding the best solvent 7. modelling mixtures and separation 	<p><u>Forces and their effects</u></p> <p>This unit is about ideas of forces, friction, movement and speed. They will learn how to represent the location, size and direction of forces using arrows. They will meet situations in which forces are balanced and others in which they are unbalanced. They will also learn to identify reaction forces. The students will consider the effects that forces have – stretching, compressing, turning around a fulcrum, causing changes in speed or direction. They will learn that movement continues at the same speed and in the same direction unless a force acts. In analysing the force of friction, they will consider where it is desirable, where it is unwanted and how it can be increased or reduced. They will have the opportunity to investigate the effect of streamlining in order to develop their understanding of water and air resistance. The concept of speed will be explored and students will learn and practise the method for calculating it. This chapter offers a number of opportunities for students to relate hands-on experience to slightly more abstract ideas. They will use a range of thinking and personal skills to help their learning and support their peers.</p> <p>Weekly Focus</p> <ol style="list-style-type: none"> 1. Discovering and measuring forces. Understanding weight on other planets. Exploring the effects of forces 2. understanding stretch and compression 	<p><u>Eating, Drinking, Breathing</u></p> <p>This unit is about the human digestive system and breathing system; about the role of each of the organs involved and the way that each organ is adapted to its particular function. They will learn more about a healthy diet and the consequences of not having one, and about the effects of some lifestyle choices and diseases on the breathing system. They will also learn about the links between the digestive system, breathing system and circulatory system and study how the products of digestion and breathing are exchanged in our bodies. They will also start to learn about how we use some of the products of breathing and digestion to generate energy.</p> <p>Weekly Focus</p> <ol style="list-style-type: none"> 1. Exploring a healthy diet Testing foods Comparing energy needs 2. Exploring Obesity and starvation Deficiency diseases Understanding the Human Digestive System Understanding the start of digestion 3. the role of digestive organs Introducing enzymes The role of bacteria 4. How we breathe Measuring breathing 5. Evaluating gas exchange in Humans Investigating Diffusion 6. Exploring the effects of disease and lifestyle 	<p><u>Elements, compounds and reactions</u></p> <p>This unit is about the ideas of atoms, elements and compounds, and ways that scientists represent them using symbols and formulas. They will learn how scientists have developed the Periodic Table and will start to learn about its groups, patterns and trends. Various elements are explored with regard to their different chemical and physical properties. Students will learn how to understand chemical reactions in terms of a rearrangement of atoms and how to represent these using circle diagrams, formulas and equations. They will study metals, non-metals and oxides. This unit offers a number of opportunities for students to investigate materials and reactions at first hand and use evidence to construct explanations. They explore evidence that reactions have occurred and how the properties of materials determine their applications.</p> <p>Weekly Focus</p> <ol style="list-style-type: none"> 1. Identifying metalloids Discovering the origin of metals 2. Choosing elements for a purpose 3. Combining elements Using models to understand chemistry 4. Understanding what happens when an element burns Observing how elements react in different ways 5. Identifying the special features of carbon Understanding oxidation 6. Investigating carbonates Explaining changes 	<p><u>Energy Transfers and sound</u></p> <p>This unit is about how energy makes things happen, can be stored and transferred in many different ways. They will learn about useful and useless energy transfers. Students will learn about burning of fuels and how different fuels store and transfer different amounts of energy.</p> <p>They will be about to understand that sound energy is transmitted by waves being passed on by air particles. They will learn how echos occur, how the ear works and how animals can communicate with sounds that we can not hear.</p> <p>Weekly Focus</p> <ol style="list-style-type: none"> 1. Exploring energy transfers Understanding potential energy and kinetic energy Doing work 2. Looking at dynamos Understanding elastic potential energy 3. Knowing the difference between heat and temperature Thinking about fuels 4. Investigating fuels 5. Exploring sound Describing sound Measuring the speed of sound 6. Understanding how sounds travels through materials Learning about the reflection and absorption of sound Hearing sounds 7. Understanding factors affecting hearing Finding out about sounds we cannot hear




			<p>Hooke's Law</p> <p>3.friction</p> <p>The benefits of friction</p> <p>4.air and water resistance</p> <p>Streamlining</p> <p>Forces and motion</p> <p>5.how forces affect speed and direction</p> <p>speed calculations</p> <p>6.turning forces</p> <p>moments</p>			
--	--	--	---	--	--	--

Year 8 Curriculum Planning – Science




	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
<p>Weekly focus</p> <p><i>Core Knowledge, Skills and Concepts</i></p>  	<p><u>Getting the energy Your Body Needs</u></p> <p>1.Exploring the human skeleton Analysing the skeleton Understanding the role of skeletal joints</p> <p>2. Investigating muscle strength Analysing muscle strength Examining interacting muscles</p> <p>3. Exploring problems with the skeletal system Understanding how our muscles get energy</p> <p>4. Investigating respiration Analysing adaptations for respiration</p> <p>5.Interrogating links between respiration and body systems Exploring respiration in sport</p> <p>6. Understanding anaerobic respiration Investigating fermentation</p> <p>7. Comparing aerobic and anaerobic respiration</p>	<p><u>Explaining Physical Changes</u></p> <p>1. Using particles to explain matter Understanding solids Exploring Brownian motion</p> <p>2. Understanding liquids and gases Changing state Understanding evaporation</p> <p>3. Exploring thermal expansion. Making sense of models</p> <p>4. Explaining density of solids and liquids Explaining the density of gases</p> <p>5. Explaining concentration and pressure Exploring diffusion</p> <p>6. Conserving mass Deciding between physical and chemical changes</p> <p>7. Explaining the properties of mixtures. Using particle models</p>	<p><u>Exploring Contact and Non-Contact Forces</u></p> <p>1. Understanding magnetic fields Investigating static charge</p> <p>2. Explaining static charge Understanding electric fields Applying what we know about electrostatics</p> <p>3. Exploring gravity on Earth Applying our understanding of gravity to space travel</p> <p>4. Exploring pressure on a solid surface Calculating pressure</p> <p>5. Exploring pressure in a liquid Explaining floating and sinking</p> <p>6. Exploring pressure of a gas Working with pressure</p>	<p><u>Looking at Plants and Ecosystems</u></p> <p>1. Understanding the importance of plants Exploring how plants make food Looking at leaves</p> <p>2. Exploring the role of stomata Investigating photosynthesis</p> <p>3. Exploring the movement of water and minerals in plants Investigating the importance of minerals to plants</p> <p>Making food differently</p> <p>4. Transferring energy Exploring the importance of insects</p> <p>Looking at other examples of interdependence</p> <p>5. Interacting with the environment Keeping a balance</p> <p>6. Understanding the effects of toxins in the environment Living together</p>	<p><u>Explaining Chemical Changes</u></p> <p>1.Exploring acids Exploring alkalis Using indicators</p> <p>2.Using universal indicator Exploring neutralisation Explaining neutralisation</p> <p>3.Understanding salts Exploring the reactions of acids with metals Exploring the reactions of acids with carbonates</p> <p>4.Investigating the effectiveness of antacids Understanding the importance of acids and alkalis</p> <p>5.Exploring combustion Understanding combustion and the use of fuels</p> <p>6.Exploring the effects of burning Understanding acid rain</p>	<p><u>Magnetism and Electricity</u></p> <p>1.Finding out the history of magnets Exploring magnetic materials</p> <p>2.Testing the strength of magnets Describing the Earth's magnetic field</p> <p>3.Investigating electromagnetism Using electromagnetism</p> <p>4.Exploring D.C. motors Investigating batteries</p> <p>5.Describing electric circuits Energy in circuits</p> <p>6.Explaining resistance Investigating factors affecting resistance</p> <p>7.Explaining circuits using models</p>

Year 9 Curriculum Planning – Science

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
<p>Weekly focus</p> <p><i>Core Knowledge, Skills and Concepts</i></p>	<p><u>Variation and Inheritance</u></p> <p>1.Exploring differences</p> <p>2.Looking closer at variation Exploring the causes of variation</p>	<p><u>Obtaining Useful Materials</u></p> <p>1.Obtaining metal ores Decomposing metal carbonates</p> <p>2.Displacement reactions</p>	<p><u>Motion on Earth and in Space</u></p> <p>1.Drawing a distance–time graph Explaining a distance–time graph</p>	<p><u>Our Health and the Effects of Drugs</u></p> <p>1.Exploring types of drugs. Understanding the impact of smoking</p>	<p><u>Using our Earth Sustainably</u></p> <p>1.Understanding our atmosphere Exploring the effects of human activity</p> <p>2.Understanding the global warming debate</p>	<p><u>Waves and Energy Transfer</u></p> <p>1.Making waves Exploring light waves</p> <p>2.Explaining properties of light waves Exploring the ray model</p>




  	<p>3.Learning about selective breeding Finding out how organisms survive 4.Exploring why siblings are different Looking inside the nucleus 5.Extracting DNA Exploring human chromosomes 6.Passing on genes Looking at cloning 7.Learning about extinction</p>	<p>Using carbon to extract iron 3. Using carbon to extract other metals Explaining issues with metal extraction 4.Understanding exothermic reactions Comparing endothermic and exothermic reactions 5.Explaining ceramics and their properties Matching properties of ceramics to their uses 6.Explaining natural polymers Using man-made polymers Explaining natural composites 7.Using metal and ceramic-based composites Using plastic-based composites</p>	<p>2.Describing relative motion Understanding equilibrium 3.Exploring equilibrium Understanding a gravitational field 4.Applying ideas about gravitational fields Looking at motion in the Solar System 5.Describing stars and galaxies Explaining the effects of the Earth's orbital motion 6.Measuring distances in the Universe</p>	<p>2.Considering the dangers of cannabis Understanding the effects of alcohol 3.Understanding the effects of other drugs Exploring addiction 4.Understanding how diseases are spread Exploring the body's defences 5.Exploring microbes Investigating the growth of bacteria 6.Understanding antibiotics Understanding vaccination</p>	<p>Understanding how carbon is recycled 3.Exploring damage to the Earth's resources Considering the importance of recycling 4.Understanding the structure of the Earth Exploring igneous rocks 5.Studying sedimentary rocks Using metamorphic rocks 6.Understanding the rock cycle</p>	<p>3.Understanding energy transfer by light Exploring coloured light 4.Understanding fuels and energy Explaining conduction and radiation 5.Quantifying energy transfers</p>
---	---	--	--	--	--	--

Year 10 Curriculum Planning – Science

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
<p>Weekly focus</p> <p><i>Core Knowledge, Skills and Concepts</i></p>   	<p>Unit 2 – Chemistry and our Earth (Investigate chemical reactivity and bonding) In this unit you will: A investigate chemical reactivity and bonding B investigate how the uses of chemical substances depend on their chemical and physical properties C investigate the factors involved in the rate of chemical reactions D understand the factors that are affecting the Earth and its environment</p> <p>1. -Atoms and atomic structure and the periodic table 2. Types of bonding 3 Group 1 and Group 7 – Properties and trends 4. Physical properties and uses of chemicals, word equations and chemical equations</p>	<p>Unit 3 – Energy and Our universe (Understand ionising radiation, its uses and sources) In this unit you will: A understand ionising radiation, its uses and sources B know how electrical energy produced from different sources can be transferred through the National Grid to homes and industry C know the components of the Solar System, the way the Universe is changing and the methods we use to explore space.</p> <p>1. Ionising radiation 2. Radioactive decay and half life 3. Uses of ionising radiation 4. Nuclear fission 5. Safety in nuclear reactors 6 Nuclear Fusion</p>	<p>Unit 4 – Biology and our environment (investigate the relationships different organisms have with each other and their environment) In this unit you will: A investigate the relationships that different organisms have with each other and with their environment B demonstrate an understanding of the effects of human activity on the environment and how these effects can be measured C explore the factors that affect human health</p> <p>1. Variation 2. Evolution 3. Interdependence 4. Classification and Keys 5. Agriculture and ecosystems 6. Transportation and ecosystems</p>	<p>Unit 2 – Chemistry and our Earth (Investigate the factors involved in the rate of chemical reactions and the factors affecting the earth's environment) In this unit you will: A investigate chemical reactivity and bonding B investigate how the uses of chemical substances depend on their chemical and physical properties C investigate the factors involved in the rate of chemical reactions D understand the factors that are affecting the Earth and its environment</p> <p>1. Rates of reaction – Concentration, pressure and surface area. 2.. Rates of reaction – Temperature of catalysts 3. Industrial Processes - Yield and atom economy</p>	<p>Unit 3 – Energy and our universe (Know how electrical energy produced from different sources are transferred to homes and industry) In this unit you will: A understand ionising radiation, its uses and sources B know how electrical energy produced from different sources can be transferred through the National Grid to homes and industry C know the components of the Solar System, the way the Universe is changing and the methods we use to explore space.</p> <p>1. Power- The National Grid, Transformers 2. A journey into our solar system The Universe, solar system and stars 3. Optical Telescopes and Other Telescopes 4.Space Telescopes and Space Probes and Robots</p>	<p>Unit 4 – Biology and our environment (Investigate the relationships different organisms have with each other and In this unit you will: A investigate the relationships that different organisms have with each other and with their environment B demonstrate an understanding of the effects of human activity on the environment and how these effects can be measured C explore the factors that affect human health</p> <p>1. How fertilisers affect ecosystems Pesticides and ecosystems 2. Pollution indicators Lichen, Freshwater shrimps and algae 3.Reducing the effects of pollution 4. Infectious disease diseases 5. Vaccination and Antibiotics 6. Lifestyle, environment and diseases 7. Physical activity keeps the body healthy</p>

	<p>5.Properties of ionic and covalent substances</p> <p>6. Physical and chemical properties, Fractional Distillation Suitability of substance for their uses</p> <p>7. Concentration investigation Particles size investigation</p>	<p>7. Investigating electrical circuits</p>		<p>4.. Our changing atmosphere and oceans</p> <p>5. The effect of human activity</p> <p>6. Sustainable development – choice and solutions</p>	<p>5. The changing universe - Waves of the EM Spectrum Red shift</p> <p>6. Cosmic Microwave Background Radiation, The Death of Stars</p> <p>7 The origin of the universe: The Big bang</p>	
--	---	---	--	---	--	--

Year 11 Curriculum Planning – Science

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
<p>Weekly focus</p> <p><i>Core Knowledge, Skills and Concepts</i></p>   	<p>Unit 1 - Principles of applied science</p> <p>In this unit pupils will: explore cells, organs and genes, explore the roles of the nervous and endocrine systems in homeostasis and communication, explore atomic structure and the periodic table, explore substances and chemical reactions, explore the importance of energy stores, energy transfers and energy transformations, explore the properties and applications of waves in the electromagnetic spectrum.</p> <p>1. Cells – Structure and function 2. Specialised cells 3.Organs an organ system 4. DNA and Chromosomes 5 Monohybrid inheritance 6.Homostasis, with examples 7. How nerves carry information</p>	<p>Unit 1 – Principles of applied Science</p> <p>1. Atomic structure, Isotopes and relative atomic mass 2. The periodic table, Electronic configurations 3.Elements, Compounds and Mixtures 4.Neutralisation reactions 5. Acids and Salts, Equations for neutralisation reactions 6 Acids and metals, acids and Carbonates 7. Hazards of acids and bases</p>	<p>Unit 1 – Principles of applied Science</p> <p>1. Energy and it’s uses 2. Energy transformations and transfers 3.Thermal energy transfer. Measuring energy 4.Energy for everything, sources of renewable energy 5. Wave Characteristics Electromagnetic Spectrum and its uses <u>6. Assessment</u> <i>Mock exam past paper taken from Pearson’s</i></p>	<p>Teacher to analyse pupil data and assess which units’ pupils need to complete/achieve a higher grade.</p> <p>Unit 2 – Chemistry and our Earth Unit 3 – Energy and our universe Unit 4 – Biology and our environment</p> <p>This information should be included in T&L files</p>	<p><i>Revision sessions</i></p> <p><i>Intervention sessions</i></p> <p><i>Final Exam – BTEC LEVEL 1 /2 Principles of Applied Science</i></p> <p>Recap on learning Completing missing units (if any) Signing paperwork ready to be sent to the examiners.</p>	