

[Science] [Year 7] Curriculum Map



YEAR 7	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Curriculum Content	<p>Composite 1: Understand the Safety and Skills required for working Practically in Science:</p> <p>Component 1: CC</p> <ul style="list-style-type: none"> Know how to stay safe in science Know the use for different types of lab equipment Know how to use a Bunsen burner Know how to read scales and take measurements <p>Component 2: CC</p> <ul style="list-style-type: none"> Know when results are accurate or precise Know how to identify and control risks in a lab Know how variables are used in scientific investigations Know how to present data in bar graphs and line graphs <p>Component 3: C</p> <ul style="list-style-type: none"> Know how to plan an investigation <p>Composite: Understand how Energy is stored and how it is transferred</p> <p>Component 1: C</p> <ul style="list-style-type: none"> Know how energy is stored in food and fuels and give examples of energy transformations Know other processes that involve energy transfer: changing motion, dropping an object, completing an electrical circuit, stretching a spring, metabolism of food, burning fuels <p>Component 2: CC</p> <ul style="list-style-type: none"> Know the differences between non-renewable and renewable energy and how electricity is produced using some of these energy types <p>Component 3: C</p> <ul style="list-style-type: none"> Know the difference between heat and temperature <p>Component 4: C</p> <ul style="list-style-type: none"> Know ways of reducing unwanted energy transfers Know how energy transfers by conduction Know how energy transfers by convection 	<p>Composite: Understand how the world around is made up of matter</p> <p>Component 1: Confidence</p> <ul style="list-style-type: none"> Know how particles make up everything around us Know how particles can be arranged to form a solid, liquid and gas. Know the differences and similarities between solids, liquids and gases <p>Component 2: Confidence</p> <ul style="list-style-type: none"> Know if you give particles enough energy you can change their state <p>Component 3: Confidence</p> <ul style="list-style-type: none"> Know and explain how solids melt into a liquid Know and explain how a liquid evaporates into a gas Know and explain how a gas turns back into a liquid Know how some substances can change from a solid to a gas <p>Component 4: Confidence</p> <ul style="list-style-type: none"> Know the difference between a physical and chemical change. <p>Composite: Understand the cell structure and function of living organisms</p> <p>Component 1: C</p> <ul style="list-style-type: none"> Know how the body is organised Know how microscopy techniques have developed over time Know the structure of animal and plant cells <p>Component 2: C</p> <ul style="list-style-type: none"> Know how cells become specialised in both animal and plant cells Know how cells divide to produce organs which are part of organ systems <p>Component 3: C</p>	<p>Composite: Know the Fundamentals of Force and Motion</p> <p>Component 1: C</p> <ul style="list-style-type: none"> Know what scalar and vector quantities are Know what happens to motion when forces are balanced and unbalanced Know Hooke's Law and apply it to how objects are squashed and stretched <p>Component 2: C</p> <ul style="list-style-type: none"> Know the difference between mass and weight and gravity <p>Component 3: C</p> <ul style="list-style-type: none"> Know the difference between contact and non-contact forces Know how friction and air resistance affect an object. <p>Composite: Understand that everything is made from atoms and how they react around us to make compounds</p> <p>Component 1: C</p> <ul style="list-style-type: none"> Know an element is made from one type of atom Know what makes up and atom <p>Component 2: C</p> <ul style="list-style-type: none"> Know that elements are split into metals and non-metals <p>Component 3: C</p> <ul style="list-style-type: none"> Know how these atoms can chemically join together to form compounds. <p>Composite: Understand how the body is organised and how cells become specialised.</p> <p>Component 1: C</p> <ul style="list-style-type: none"> Know how a multi cellular organism is organised Know the location and function of DNA within the cell <p>Component 2: C</p> <ul style="list-style-type: none"> Know that cells become specialised to form organs and carry out specific jobs <p>Component 3: C</p>	<p>Composite: Understand the properties of elements in the periodic table.</p> <p>Component 1: C</p> <ul style="list-style-type: none"> Know how elements are organised in the periodic table according to their properties Know how the periodic table was developed <p>Component 2: C</p> <ul style="list-style-type: none"> Know that elements are metals and non-metals which have different properties. <p>Component 3: C</p> <ul style="list-style-type: none"> Know why elements are grouped according to their properties Know how the groups look at reactivity (group 1, 7 and 0) <p>Composite: Understand how substances are transported throughout the body</p> <p>Component 1: C</p> <ul style="list-style-type: none"> Know how and why substances move in and out of cells <p>Component 2: C</p> <ul style="list-style-type: none"> Know the process of diffusion and how and where it takes place i.e. gas exchange in the lungs <p>Component 3: C</p> <ul style="list-style-type: none"> Know how water moves in and out of cells through osmosis. <p>Component 4: C</p> <ul style="list-style-type: none"> Know how some substances require energy to move through active transport. 	<p>Composite: Understand the uses of acids and alkalis in real life applications.</p> <p>Component 1: CC</p> <ul style="list-style-type: none"> Know the concentration of solutions Know what the pH scale shows Know how to identify acidic and alkaline solutions <p>Component 2: CC</p> <ul style="list-style-type: none"> Know the uses of acids Know the uses of alkalis Know neutralisation reactions <p>Component 3: CC</p> <ul style="list-style-type: none"> Know which antacid tablet is the most effective at neutralizing acid <p>Composite: Understand the changes that occur in our body and how we create human life</p> <p>Component 1: CCC</p> <ul style="list-style-type: none"> Know the process of Puberty State the changes that occur during Puberty <p>Component 2: CCC</p> <ul style="list-style-type: none"> Know the functions of the different parts of the reproductive systems Know what fertilisation is Label a diagram of a sperm and egg cell Explain, using keywords, the different stages of fertilisation. Know fertilisation, implantation, ejaculation and ovulation Know the functions of the different structures involved in pregnancy. Know how the baby develops. <p>Component 3: CCC</p> <ul style="list-style-type: none"> Know how hormones control the menstrual cycle <p>Component 4: CCC</p> <ul style="list-style-type: none"> Know what chromosomes and genes are Know why our genes control what we look like Know how gender is determined <p>Component 5: CCC</p>	<p>Composite: Understand how forces act on the planets within the solar system and how we get seasons and day/night</p> <p>Component 1 : Confidence Courtesy</p> <ul style="list-style-type: none"> Know gravity force, weight = mass x gravitational field strength (g), on Earth g=10 N/kg, different on other planets and stars; gravity forces between Earth and Moon, and between Earth and Sun (qualitative only) <p>Component 2: Confidence</p> <ul style="list-style-type: none"> Know our Sun as a star, other stars in our galaxy, other galaxies <p>Component 3: Confidence</p> <ul style="list-style-type: none"> Know the seasons and the Earth's tilt, day length at different times of year, in different hemispheres <p>Component 4: Confidence</p> <ul style="list-style-type: none"> Know the light year as a unit of astronomical distance

	<ul style="list-style-type: none"> Know how energy transfers by radiation 	<ul style="list-style-type: none"> Know the process of photosynthesis and how substances are transported in a plant 	<ul style="list-style-type: none"> Know specific examples of organ systems within an animal and plant i.e. digestive, skeletal, reproductive system, breathing system and endocrine system. Know how organs are adapted to carry out their functions within these systems. <p>Component 4: C</p> <ul style="list-style-type: none"> Know what a unicellular organism Know the structure of an amoeba vs a euglena. 		<ul style="list-style-type: none"> Describe the different plant reproductive structures Explain how plant reproduction happens Compare and contrast human and plant reproduction 	
<p>Prior knowledge and skills (from previous year / key stage)</p>	<p>Students should know from KS2:</p> <p>Composite: Investigation skills</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations <p>Composite: Understand how Energy is stored and how it is transferred</p> <ul style="list-style-type: none"> observe that some materials change state when they are heated or cooled, and measure or research the temperature at 	<p>Students should know from KS2:</p> <p>Composite: Matter</p> <p>In KS2:</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 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 	<p>Students should know from KS2:</p> <p>Composite: Know the Fundamentals of Force and Motion</p> <p>In KS2</p> <ul style="list-style-type: none"> 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>Composite: Atoms, elements and compounds</p> <ul style="list-style-type: none"> Students will have looked at different materials and their properties they will now look at what makes up those material in terms of atoms. <p>Composite: Body organisation</p> <ul style="list-style-type: none"> Various systems will have been looked at such as circulatory system, digestive system so students will have some knowledge on how we have systems within the body 	<p>Students should know from KS2:</p> <p>Composite: Understand the properties of elements in the periodic table.</p> <ul style="list-style-type: none"> compare and group together everyday materials on the basis of their properties <p>Composite: Understand how substances are transported throughout the body</p> <ul style="list-style-type: none"> Students will have studied how the blood transports substances around the body via the circulatory system. describe the ways in which nutrients and water are transported within animals, including humans 	<p>Students should know from KS2:</p> <p>Composite : Acids and Alkalis</p> <ul style="list-style-type: none"> 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>Composite: Reproduction CCC</p> <ul style="list-style-type: none"> 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 notice that animals, including humans, have offspring which grow into adults <p>In KS3:</p> <ul style="list-style-type: none"> Students will have already started looking at body systems and the processes 	<p>Students should know from KS2;</p> <p>Composite: 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>which this happens in degrees Celsius (°C)</p> <ul style="list-style-type: none"> Exploring how energy can change a solid into a liquid into a gas. 	<p>how mixtures might be separated, including through filtering, sieving and evaporating</p> <ul style="list-style-type: none"> 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>Composite: Understand the cell structure and function of living organisms</p> <ul style="list-style-type: none"> identify and name a variety of common animals describe and compare the structure of a variety of common animals identify and describe the basic structure of a variety of common flowering plants 	<p>that work together to carry out everyday life.</p>			
<p>Core Knowledge Organiser content</p>	<p>Core questions with answers will be given to students at the beginning of each unit.</p>	<p>Core questions with answers will be given to students at the beginning of each unit.</p>	<p>Core questions with answers will be given to students at the beginning of each unit.</p>	<p>Core questions with answers will be given to students at the beginning of each unit.</p>	<p>Core questions with answers will be given to students at the beginning of each unit.</p>	<p>Core questions with answers will be given to students at the beginning of each unit.</p>
<p>Assessment Objectives</p>	<p>AO1: Demonstrate knowledge and Knowing of: 1) scientific ideas 2) scientific techniques and procedures. AO2: Apply knowledge and Knowing of: 1) scientific ideas 2) scientific enquiry, techniques and procedures. AO3: Analyse information and ideas to: 1a) interpret</p>	<p>AO1: Demonstrate knowledge and Knowing of: 1) scientific ideas 2) scientific techniques and procedures. AO2: Apply knowledge and Knowing of: 1) scientific ideas 2) scientific enquiry, techniques and procedures. AO3: Analyse information and ideas to: 1a) interpret 1b) evaluate 2a) make judgements</p>	<p>AO1: Demonstrate knowledge and Knowing of: 1) scientific ideas 2) scientific techniques and procedures. AO2: Apply knowledge and Knowing of: 1) scientific ideas 2) scientific enquiry, techniques and procedures. AO3: Analyse information and ideas to:</p>	<p>AO1: Demonstrate knowledge and Knowing of: 1) scientific ideas 2) scientific techniques and procedures. AO2: Apply knowledge and Knowing of: 1) scientific ideas 2) scientific enquiry, techniques and procedures. AO3: Analyse information and ideas to:</p>	<p>AO1: Demonstrate knowledge and Knowing of: 1) scientific ideas 2) scientific techniques and procedures. AO2: Apply knowledge and Knowing of: 1) scientific ideas 2) scientific enquiry, techniques and procedures.</p>	<p>AO1: Demonstrate knowledge and Knowing of: 1) scientific ideas 2) scientific techniques and procedures. AO2: Apply knowledge and Knowing of: 1) scientific ideas 2) scientific enquiry, techniques and procedures.</p>

	<p>1b) evaluate 2a) make judgements 2b) draw conclusions</p>	<p>2b) draw conclusions</p>	<p>1a) interpret 1b) evaluate 2a) make judgements 2b) draw conclusions</p>	<p>1a) interpret 1b) evaluate 2a) make judgements 2b) draw conclusions</p>	<p>AO3: Analyse information and ideas to: 1a) interpret 1b) evaluate 2a) make judgements 2b) draw conclusions</p>	<p>AO3: Analyse information and ideas to: 1a) interpret 1b) evaluate 2a) make judgements 2b) draw conclusions</p>
<p>Vocabulary / Key Subject Terminology</p>	<p>Component: Practical skills Independent variable, Dependant Variable, Control Variable, Hypothesis, Accuracy, Precision</p> <p>Component: Energy Energy, transformations, wasted, electricity, thermal, sound, temperature, fossil fuels</p>	<p>Keywords: Matter Particles, energy, bonds, vibrate, melting, freezing, condensing, sublimation</p> <p>Component: Cells Cells, Tissue, Organ, Microscope, cell membrane, cell, wall, vacuole, nucleus, chloroplast, magnify, specimen. Cell division, photosynthesis, diffusion</p>	<p>Components: Forces and motion Vectors, Scalars, balanced, unbalanced, newton, hookes, elasticity, air resistance, friction, mass, gravity, weight</p> <p>Component: Atoms, elements and compounds Atoms, Elements, Compounds, Mixture, Properties, Physical, Chemical</p> <p>Component: Organisation and specialised cells Tissue, Organ, Specialised, red blood cells, sperm cell, egg cell, palisade cell Amoeba, euglena, multicellular, unicellular, adaptations</p>	<p>Component: Periodic Table Metals, non-metals, groups, periods, properties, compounds, reaction, chemical, reactivity</p> <p>Component : Transport Diffusion, particles, concentration, osmosis, active transport, energy</p>	<p>Component: Acids and Alkalis Acid Alkali Base Solution Neutralisation pH scale Salts</p> <p>Component: Reproduction Puberty Fertilisation Reproduction Fertilisation Ovulation Menstrual Genes Chromosomes Implantation Gametes</p>	<p>Component: Space Planets, gravity, mass , night, day, axis, seasons, forces, newtons</p>

Assessment 1	End of unit tests will marked with personalised feedback	End of unit tests will marked with personalised feedback	End of unit tests will marked with personalised feedback	End of unit tests will marked with personalised feedback	End of unit tests will marked with personalised feedback	End of unit tests will marked with personalised feedback
Assessment 2	Core questions to recall prior knowledge will be tested at the beginning of each lesson and self-assessed by the student.	Core questions to recall prior knowledge will be tested at the beginning of each lesson and self-assessed by the student. AP1 assessment point	Core questions to recall prior knowledge will be tested at the beginning of each lesson and self-assessed by the student.	Core questions to recall prior knowledge will be tested at the beginning of each lesson and self-assessed by the student. AP2 assessment point	Core questions to recall prior knowledge will be tested at the beginning of each lesson and self-assessed by the student.	Core questions to recall prior knowledge will be tested at the beginning of each lesson and self-assessed by the student. AP3 assessment point
Cross Curricular Links with other Faculties	Maths skills – graphs, calculations English – literacy skills – focusing on keywords, tier 3 vocabulary, connectives, SPAG, synonyms,	Maths skills – graphs, calculations English – literacy skills – focusing on keywords, tier 3 vocabulary, connectives, SPAG, synonyms,	Maths skills – graphs, calculations English – literacy skills – focusing on keywords, tier 3 vocabulary, connectives, SPAG, synonyms,	Maths skills – graphs, calculations English – literacy skills – focusing on keywords, tier 3 vocabulary, connectives, SPAG, synonyms,	Maths skills – graphs, calculations English – literacy skills – focusing on keywords, tier 3 vocabulary, connectives, SPAG, synonyms, History – disease in history, vaccinations Spanish- body parts	Maths skills – graphs, calculations English – literacy skills – focusing on keywords, tier 3 vocabulary, connectives, SPAG, synonyms, History – disease in history, vaccinations Spanish- body parts
Extra-Curricular Offer						