

# Subject Curriculum Information Pack



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# Curriculum Intent



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## **Curriculum statement:**

### **Science**

#### **Intent**

KS3– Our curriculum is a broad and balanced curriculum that promotes the joy of science amongst our young people through linked and discrete topics. It is a spiral curriculum that has been designed to ensure that content is sequential and develops in difficulty as a child moves through the school, with simpler content taught earlier and more difficult content taught later on. The curriculum builds up knowledge ready for Key Stage 4.

KS4– Our curriculum continues to spiral from key stage 3, revisiting and developing prior knowledge and understanding. It also builds upon the KS3 Curriculum intent with a joy of science key amongst our pupils. Pupils develop skills to question and critique and develop problem solving skills. Our pupils will learn how to use scientific language to articulate their thinking and engage with the wider world through a rounded knowledge of science. Tasks across both key stages enhance literacy and numeracy with these skills taught explicitly in relevant lessons. How science works skill are developed with multiple and repeated practice of the key skills across all key stages.

We value resilience and logical thinking. We expect our students to question their understanding of science and reflect upon real world situations.

# Year 7 Curriculum Assessment Map



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# Curriculum Assessment Map: Year 7 Science

	Autumn Term		Spring Term		Summer Term		
<b>Topic</b>	Working Scientifically Cell Biology 1 Atomic structure and the periodic table 1 Energy 1		Electricity 1 Inheritance, Variation and Evolution 1 Particle model of matter (chemistry) 1 Particle model of matter (physics) 1		Organisation 1 Particle model of matter (chemistry) 2 Space 1 Ecology 1		
<b>Key Learning</b>	<p><b>Working scientifically</b> You will be able to describe the scientific process and identify key variable in a scientific experiment. You will learn to describe and conduct experiments in a way that is safe and produces good quality findings.</p> <p><b>Cell Biology 1</b> You will look at cells, tissues and organs. You will be able to describe key parts of plant and animal cells and discuss how cells become specialized for certain jobs. You will prepare a microscope slide and use your knowledge to explain your findings.</p> <p><b>Atomic structure and the periodic table 1</b> You will look at the structure of an atom, identifying key parts. You will compare atoms with elements and compounds and represent the differences through pictures. You'll learn how to write word equations and list and explain some properties of different groups of elements from the periodic table.</p> <p><b>Energy 1</b> You will explore the different types of energy and give examples of them. You will learn how to represent energy movement through a diagram called a Sankey diagram and discuss how energy is dissipated through transfers.</p>		<p><b>Electricity 1</b> You'll be able to describe how we use coal to power our homes and look at alternatives to energy production such as renewable and non-renewable fuels, highlighting strength and weaknesses for each. You will be able to work out how much energy an appliance uses. And how much it costs.</p> <p><b>Inheritance, Variation and Evolution 1</b> In this topic you will learn about the male and female reproductive organs and about how fertilization happens. We'll explore the process of pregnancy and also find out about changes that a person experiences during puberty.</p> <p><b>Particle model of matter (chemistry) 1</b> Here you will relate the features of the particle model to the properties of materials in different states and be able to experimentally show what factors affect whether a substance dissolves. You will explain the term density and how we can calculate it.</p> <p><b>Particle model of matter (physics) 1</b> In this topic you will look at the role that particles take in the process of heat transfer. You'll look at conduction, convection and radiation and explain factors that would affect how thermal energy is transferred.</p>		<p><b>Organisation 1</b> You will look at parts of the human body, finding out about how the skeleton and muscles work together and about how breathing enables us to take in as much oxygen as possible and get rid of carbon dioxide. You'll look at health factors that can affect our lungs and breathing.</p> <p><b>Particle model of matter (chemistry) 2</b> Through experiments you will find out about how to separate mixtures through a variety of different techniques. You'll use key terms such as soluble, solvent and solute in as you explain your findings. You will look at everyday uses of mixtures and how they are beneficial in the world around us.</p> <p><b>Space 1</b> In this topic you will find out about how we have day, night, seasons and years. You'll look at the solar system and orbits and find out about the forces acting on rockets as we seek to explore Space further. We'll discuss exoplanet planets and the big bang as we explore what's beyond our system.</p> <p><b>Ecology 1</b> In this topic you'll look at how living things depend on each other through exploring food chain and food webs. You'll look at how we can show this dependence through pyramids of number and pyramids of biomass. We will look at the human affect on the environment by exploring how toxins can accumulate.</p>		
<b>Skills across the year</b>	<p><b>Analyse</b> Analyse Patterns Discuss Limitations Draw Conclusions Present data</p>		<p><b>Communicate</b> Communicate ideas Construct explanations Critique claims Justify Opinions</p>		<p><b>Enquire</b> Collect data Devise questions Plan variables Test hypotheses</p>		<p><b>Solve</b> Estimate risks Examine consequences Review theories Interrogate sources</p>
<b>End points</b>	<p><b>Working scientifically</b> To be able to use apparatus safely To know that the independent variable is the thing we change To know that the dependent variable is the thing we measure To know that the control variables are the things we keep the same To be able to draw a bar chart using categoric data To be able to draw a line graph using continuous data To identify patterns to write a conclusion</p> <p><b>Cell Biology 1</b> Know that animal cells contain cell membrane, cytoplasm and nucleus</p>		<p><b>Electricity</b> To know that coal, oil and gas are non-renewable energy sources To know that renewable means that it is constantly replenished To know that wind and solar are examples of renewable energy To know that insulating a home will reduce fuel costs To be able to calculate energy costs using the formula <math>\text{cost} = \text{power (kW)} \times \text{time (hr)} \times \text{price (per kWh)}</math></p> <p><b>Inheritance Variation and Evolution 1</b> To know that the male reproductive organs consist of a penis and testes and the female reproductive organs consists of a vagina, ovaries and uterus.</p>		<p><b>Organisation 1</b> To be able to state that oxygen is taken in during breathing and enters the bloodstream whereas, carbon dioxide is given out. To be able to state the muscles work in antagonistic pairs To know that the skeleton helps with movements, support and protection. To know the parts of the respiratory system are: the nose and mouth, Trachea (windpipe), Bronchi, Bronchioles and Alveoli</p> <p><b>Particle model of matter (chemistry) 2</b></p>		

# Curriculum Assessment Map: Year 7 Science

	<p>Know that plant cells contain cell membrane, cytoplasm, nucleus, vacuole, cell wall and chloroplasts.</p> <p>Know that the basic definition of a cell is the basic unit of life</p> <p>Be able to use and label a microscope to focus on a slide.</p> <p><b>Atomic structure and the periodic table 1</b></p> <p>To know an atom is the smallest whole unit of matter, elements are made up of 1 type of atom and compounds are 2 or more different types of atom which are chemically joined together.</p> <p>To know how to use the periodic table to identify groups, periods, metals and non-metals.</p> <p>To know metals are conductors and non-metals insulators.</p> <p><b>Energy 1</b></p> <p>To know that the different types of energy are Nuclear, Gravitational Potential Energy, Elastic Potential Energy, Kinetic Energy, Thermal, Light, Sound, Electrostatic, Magnetic and Chemical.</p> <p>To know the difference between useful and waste energy.</p> <p>Be able to use the efficiency equation.</p>	<p>To know that the male gamete is the sperm and the female gamete is the egg.</p> <p>To know that fertilization is the fusing of gametes.</p> <p>To know that pollen and an ovum are the gametes in plant fertilization.</p> <p>To know body changes during puberty such as genital growth, body hair, voice deepens (boys) and breast growth, body hair, start of menstruation (periods) (girls).</p> <p><b>Particle model of matter (chemistry) 1</b></p> <p>To know that the particles of a solid are arranged in a regular pattern, tightly packed together with no gaps.</p> <p>To know that the particles of a liquid are arranged in an irregular pattern, tightly packed together with some small gaps</p> <p>To know that the particles of a gas are arranged randomly and spread out.</p> <p>To know that solid particles can only vibrate, liquid particles can move around each other and gas particles move randomly in all directions.</p> <p>To know the terms melting means a solid turning into a liquid, freezing means a liquid turning into a solid, condensing means a gas turning into a liquid and boiling means a liquid turning into a gas.</p> <p><b>Particle model of matter (physics) 1</b></p> <p>To know that heat moves from hot areas to cold areas.</p> <p>To know that a conductor lets heat move easily through the material.</p> <p>To know that an insulator does not let heat move easily through the material.</p> <p>To know that solids transfer energy through conduction, liquids and gases through convection and that no particles are needed for radiation.</p>	<p>To know that a pure substance contains only one type of element or compound.</p> <p>To know that impure substances are mixtures that can be separated.</p> <p>To know the filtration separates an insoluble solid from a liquid</p> <p>To know that distillation separates liquids</p> <p>To know that crystallisation separates a soluble solid from a liquid</p> <p><b>Space 1</b></p> <p>To know that gravity is different on different planets</p> <p>To know that gravity affects weight but not mass</p> <p>To know that the Earth is just one planet within our solar system, and that all the planets in the system orbit the sun.</p> <p>To be able to name the 8 planets as: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune</p> <p>To know the Earths motion causes day and night and the seasons</p> <p><b>Ecology 1</b></p> <p>To be able to correctly draw a food chain starting with a producer and moving towards a primary consumer, secondary consumer and tertiary consumer.</p> <p>To know that predators eat and hunt other animals and that prey are eaten and hunted by other animals.</p> <p>To know that the population is the amount of organisms in an ecosystem and can be represented in a pyramid of numbers or a pyramid of biomass</p>
<p><b>Informal (formative) Assessment</b></p>	<p>GRIT and Live Marking</p> <p>Think Pink sheets</p>	<p>GRIT and Live Marking</p> <p>Think Pink sheets</p>	<p>GRIT and Live Marking</p> <p>Think Pink sheets</p>
<p><b>Formal (summative) Assessment</b></p>	<p>Two 45 minute tests on:</p> <p>Working Scientifically and Cell Biology 1</p> <p>Atomic structure and the periodic table 1 and Energy 1</p>	<p>Two 45 minute tests on:</p> <p>Electricity 1 and Inheritance, Variation and Evolution 1</p> <p>Particle model of matter (chemistry) 1 and Particle model of matter (physics) 1</p>	<p>Two 45 minute tests on:</p> <p>Organisation 1 and Particle model of matter (chemistry) 2</p> <p>Space 1 and Ecology 1</p>

# Year 8 Curriculum Assessment Map



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# Curriculum Assessment Map: Year 8 Science

	Autumn Term	Spring Term	Summer Term	
<b>Topic</b>	<p>Organisation 2</p> <p>Atomic structure and the periodic table 2</p> <p>Forces 1</p> <p>Forces 2</p>	<p>Inheritance, variation and evolution 2</p> <p>Particle model of matter (physics 2)</p> <p>Chemical and energy changes 1</p> <p>Electricity 2</p>	<p>Bioenergetics 1</p> <p>Chemistry of the atmosphere 1</p> <p>Magnetism 1</p> <p>Waves 1</p>	
<b>Key Learning</b>	<p><b>Organisation 2</b></p> <p>What makes a balanced diet? How does the body use the nutrients provided? In this topic you'll also find out about our digestive system, what each part does and the role of enzymes as you break down your food and what happens if you don't have a good diet.</p> <p><b>Atomic structure and the periodic table 2</b></p> <p>In this topic you will revisit atoms, elements and compounds. You will identify how we know if a chemical reaction has taken place and be able to place chemicals in order of reactivity. You'll find out about different types of reaction such as combustion, thermal decomposition and reversible reactions.</p> <p><b>Forces 1</b></p> <p>In this topic, you will name and label different forces acting on objects. You will draw diagrams that show forces and explain the affects of forces such as friction, water resistance and air resistance. You will investigate the relationship between the length of a spring and the force applied to it.</p> <p><b>Forces 2</b></p> <p>Here you will work out speed and represent motion through distance-time graphs. You will look at how forces can change the speed and find out how much energy (or work) it takes to move an object. You'll explore a simple machine called a lever and how they can help us.</p>	<p><b>Inheritance, variation and evolution 2</b></p> <p>What is DNA is and who discovered it? What is a mutation is and how they come about. You will explain what chromosomes are and identify how many chromosomes humans have. We will look at variation and how it is affected by both genetics and the environment in which we live. We'll also look at how plants and animals are adapted to survive and how extinction has and can occur.</p> <p><b>Particle model of matter (physics 2)</b></p> <p>In this topic you explore the topic of pressure, calculating it mathematically and explaining how we can increase or decrease gas pressure and explain how pressure changes in different places. You'll also look at how pressure can be useful to us. (Pneumatics.)</p> <p><b>Chemical and energy changes 1</b></p> <p>What are acids and alkalis and how can we identify them. What happens if they mix and react together? What is a catalyst? In this topic you will experiment to find out about different types of experiment and properties of different materials that can be useful to us. You will look at how resources are taken from the earth and how we can slow down the rate they are running out.</p> <p><b>Electricity 2</b></p> <p>You will learn how to draw and construct electrical circuits to do simple jobs. You will be able to explain how they work by using key terms such and current and voltage and describe how different circuits have a different affect on current and voltage. You will work out key information by using equations.</p>	<p><b>Bioenergetics 1</b></p> <p>How to plants make their own food? How do cells release energy. In this topic you will learn about photosynthesis and respiration. What is needed? What is produced? What factors affect the rate of them happening?</p> <p><b>Chemistry of the atmosphere 1</b></p> <p>What is the internal structure of the Earth? Why are there different types of rock? How ere they formed? How has the Earth changed over time? What is the impact of the greenhouse effect? BY looking at past and present can we make a difference to our planets future?</p> <p><b>Magnetism 1</b></p> <p>Through experiments you will find out what a magnet is. You will draw a magnetic field and be able to say what happens there. You will create an electromagnet and test for how you can make it stronger.</p> <p><b>Waves 1</b></p> <p>In this topic you will explain what types of waves exist and describe differences between light and sound waves. You will describe how sound waves travel and identify key parts. We will relate both sound and light waves to the human body as we explore the structure of the eye and ear. You will explore what waves exist beyond what we can see and hear.</p>	
<b>Skills across the year</b>	<p><b>Analyse</b></p> <p>Analyse Patterns</p> <p>Discuss Limitations</p> <p>Draw Conclusions</p> <p>Present data</p>	<p><b>Communicate</b></p> <p>Communicate ideas</p> <p>Construct explanations</p> <p>Critique claims</p> <p>Justify Opinions</p>	<p><b>Enquire</b></p> <p>Collect data</p> <p>Devise questions</p> <p>Plan variables</p> <p>Test hypotheses</p>	<p><b>Solve</b></p> <p>Estimate risks</p> <p>Examine consequences</p> <p>Review theories</p> <p>Interrogate sources</p>
<b>End points</b>	<p><b>Organisation 2</b></p> <p>To know that a balanced diet contains carbohydrates, proteins, fats, vitamins, minerals and water</p> <p>To know that the digestive system is made up of: The mouth, oesophagus, stomach, pancreas, small intestine, large intestine and rectum.</p> <p>To know that the small intestine has a large surface area for maximum absorption of nutrients</p> <p>To know that enzymes chemically break down food</p>	<p><b>Inheritance, variation and evolution 2</b></p> <p>To know that we inherit characteristics from our parents through our DNA</p> <p>To know that adaptations are ways that animals and plants are specialized to live and survive in their habitats</p> <p>To know that extinction is when all organisms in a species dies out</p> <p>To know that fossils can be used as evidence for evolution</p> <p>To know that an organisms that is the most adapted to survive is more likely to reproduce and pass on its genes.</p>	<p><b>Bioenergetics 1</b></p> <p>To know that plants need light and water for photosynthesis</p> <p>To know that plants make their own glucose through photosynthesis</p> <p>To know that animals and plants use glucose to release energy through respiration</p> <p><b>Chemistry of the atmosphere 1</b></p> <p>To know that rocks can either be igneous, metamorphic or sedimentary</p> <p>To know that earthquakes are created when tectonic plates rub together</p>	



# Curriculum Assessment Map: Year 8 Science

	<p><b>Atomic structure and the periodic table 2</b> To know an atom is the smallest whole unit of matter, elements are made up of 1 type of atom and compounds are 2 or more different types of atom which are chemically joined together. To be able to label reactants and products in an equation To know that the signs of a chemical reaction includes: colour change, temperature change fizzing and precipitate.</p> <p><b>Forces 1</b> To know that a force arrow represents the size and direction of a force To know that friction is created when 2 surfaces rub against each other. To know that friction, air resistance and water resistance will slow down an object To explain that a spring stretches by the same amount each time you add the same sized force</p> <p><b>Forces 2</b> To know that to calculate speed you need to know the distance travelled and the time taken. To know that acceleration means to speed up To know a flat line on a distance-time graph means an object is not moving, a diagonal line shows an object moving at a constant speed and that a curved line shows an object speeding up or slowing down. To know that work done refers to the amount of energy transferred when an object is moved.</p>	<p><b>Particle model of matter (physics 2)</b> To know how to calculate pressure using the formula: Pressure = Force/Area To know that large surface areas reduce pressure and small surface areas increase pressure To know that gases cause pressure when the particles collide with the walls of the container.</p> <p><b>Chemical and energy changes 1</b> To know that substances can be classified as acids (pH 0-6), alkalis (pH 8-14) or neutral (pH 7) and that an indicator can be used to show which it is. To know that chemical reactions can either give out or take in heat To understand that recycling is important because we are running out of certain resources such as copper.</p> <p><b>Electricity 2</b> To be able to draw a circuit diagram using symbols that contains: wires, switches, bulbs and cells To know that current is the flow of electricity To be able to make a working circuit using equipment and measure current using an ammeter and potential difference using a voltmeter. To be able to use and rearrange the formula: Potential Difference = Current x Resistance</p>	<p>To know that volcanoes release magma from under the earth's surface To know that 78% of the Earth's atmosphere is Nitrogen and 21% of the atmosphere is Oxygen and the remaining 1% is made up of Carbon Dioxide and other gases. To know that carbon dioxide is increasing global warming</p> <p><b>Magnetism 1</b> To know that magnets have north and south poles. To know that like poles will repel each other and opposite poles will attract each other To know that the earth has a magnetic field To know an electromagnet can be made by wrapping coils of wire around a metal core</p> <p><b>Waves 1</b> To know that a large amplitude produces a louder sound and a high frequency produces a higher pitched sound To know that Sound is caused by vibrations and travels as waves To know that we hear by sound waves vibrating our eardrum and moving through the ears structure To know that we can see objects by light bouncing off the object and entering our eyes To know that light can be reflected in a mirror. To know the parts of the electromagnetic spectrum are: Radio Waves, Microwaves, Infra-red, Visible light, Ultraviolet, X-Rays and Gamma Rays.</p>
<p><b>Informal (formative) Assessment</b></p>	<p>GRIT and Live Marking Think Pink sheets</p>	<p>GRIT and Live Marking Think Pink sheets</p>	<p>GRIT and Live Marking Think Pink sheets</p>
<p><b>Formal (summative) Assessment</b></p>	<p>Two 45 minute tests on: Organisation 2 and Atomic structure and the periodic table 2 Forces 1 and Forces 2</p>	<p>Two 45 minute tests on: Inheritance, Variation and Evolution 2 and Particle model of matter (physics) 2 Chemical and energy changes 1 and Electricity 2</p>	<p>Two 45 minute tests on: Bioenergetics 1 and Chemistry of the atmosphere 1 Magnetism 1 and Waves 1</p>

# Year 9 Curriculum Assessment Map



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# Curriculum Assessment Map: Year 9 Science

	Autumn Term	Spring Term	Summer Term
<b>Topic</b>	Cell Biology Atomic Structure and the Periodic Table Energy Organisation	Energy Changes Particle Model of Matter Infection and Response Chemistry of the Atmosphere	Electricity Bioenergetics Rate and Extent of Chemical Change
<b>Key Learning</b>	<p><b>Cell Biology</b> Cells are the basic unit of all forms of life. In this section we explore how structural differences between types of cells enables them to perform specific functions within the organism. These differences in cells are controlled by genes in the nucleus. For an organism to grow, cells must divide by mitosis producing two new identical cells. If cells are isolated at an early stage of growth before they have become too specialised, they can retain their ability to grow into a range of different types of cells. This phenomenon has led to the development of stem cell technology. This is a new branch of medicine that allows doctors to repair damaged organs by growing new tissue from stem cells.</p> <p><b>Atomic Structure and the Periodic Table</b> The periodic table provides chemists with a structured organisation of the known chemical elements from which they can make sense of their physical and chemical properties. The historical development of the periodic table and models of atomic structure provide good examples of how scientific ideas and explanations develop over time as new evidence emerges. The arrangement of elements in the modern periodic table can be explained in terms of atomic structure which provides evidence for the model of a nuclear atom with electrons in energy levels.</p> <p><b>Energy</b> The concept of energy emerged in the 19th century. The idea was used to explain the work output of steam engines and then generalised to understand other heat engines. It also became a key tool for understanding chemical reactions and biological systems. Limits to the use of fossil fuels and global warming are critical problems for this century. Physicists and engineers are working hard to identify ways to reduce our energy usage.</p> <p><b>Organisation</b> In this section we will learn about the human digestive system which provides the body with nutrients and the respiratory system that provides it with oxygen and removes carbon dioxide. In each case they provide dissolved materials that need to be moved quickly around the body in the blood by the circulatory system. We will also learn how the plant's transport system is dependent on environmental conditions to ensure that leaf cells are provided with the water and carbon dioxide that they need for photosynthesis</p>	<p><b>Energy Changes</b> Energy changes are an important part of chemical reactions. The interaction of particles often involves transfers of energy due to the breaking and formation of bonds. Reactions in which energy is released to the surroundings are exothermic reactions, while those that take in thermal energy are endothermic. Interactions between particles can produce heating or cooling effects that are used in a range of everyday applications. Some interactions between ions in an electrolyte result in the production of electricity. Cells and batteries use these chemical reactions to provide electricity. Electricity can also be used to decompose ionic substances and is a useful means of producing elements that are too expensive to extract any other way.</p> <p><b>Particle Model of Matter</b> The particle model is widely used to predict the behaviour of solids, liquids and gases and this has many applications in everyday life. It helps us to explain a wide range of observations and engineers use these principles when designing vessels to withstand high pressures and temperatures, such as submarines and spacecraft. It also explains why it is difficult to make a good cup of tea high up a mountain!</p> <p><b>Infection and Response</b> Pathogens are microorganisms such as viruses and bacteria that cause infectious diseases in animals and plants. They depend on their host to provide the conditions and nutrients that they need to grow and reproduce. They frequently produce toxins that damage tissues and make us feel ill.</p> <p><b>Chemistry of the Atmosphere</b> The Earth's atmosphere is dynamic and forever changing. The causes of these changes are sometimes man-made and sometimes part of many natural cycles. The problems caused by increased levels of air pollutants require scientists and engineers to develop solutions that help to reduce the impact of human activity.</p>	<p><b>Electricity</b> Electric charge is a fundamental property of matter. Many circuits are powered with mains electricity, but portable electrical devices must use batteries of some kind. The fundamentals of electromagnetism were worked out by scientists of the 19th century. Power stations have a limited lifetime. If we all continue to demand more electricity this means building new power stations in every generation – but what mix of power stations can promise a sustainable future?</p> <p><b>Bioenergetics</b> Plants harness the Sun's energy in photosynthesis in order to make food. Animals and plants use this oxygen to oxidise food in a process called aerobic respiration which transfers the energy that the organism needs to perform its functions. Conversely, anaerobic respiration does not require oxygen to transfer energy. During vigorous exercise the human body is unable to supply the cells with sufficient oxygen and it switches to anaerobic respiration. This process will supply energy but also causes the build-up of lactic acid in muscles which causes fatigue.</p> <p><b>Rate and Extent of Chemical Change</b> Chemical reactions can occur at vastly different rates. Chemical reactions can be sped up, slowed down and may also be reversible and therefore the effect of different variables needs to be established in order to identify how to maximise the yield of a desired product. Understanding energy changes that accompany chemical reactions is important for this process. In industry, chemists and chemical engineers determine the effect of different variables on reaction rate and yield of product. Whilst there may be compromises to be made, they carry out optimisation processes to ensure that enough product is produced.</p>

# Curriculum Assessment Map: Year 9 Science

Skills across the year	<b>Analyse</b> Analyse Patterns Discuss Limitations Draw Conclusions Present data	<b>Communicate</b> Communicate ideas Construct explanations Critique claims Justify Opinions	<b>Enquire</b> Collect data Devise questions Plan variables Test hypotheses	<b>Solve</b> Estimate risks Examine consequences Review theories Interrogate sources
<b>End points</b>	<ul style="list-style-type: none"> <li>Identify cells and the use of microscopy</li> <li>Understand cells differentiate and divide</li> <li>State the uses of stem cells</li> <li>Describe the exchanging of substances</li> <li>Define the terms atoms, elements and compounds</li> <li>Understand how mixtures can be separated</li> <li>Describe electronic structure</li> <li>Recall the history of the periodic table</li> <li>Identify trends in groups of the periodic table</li> <li>Identify energy stores and systems</li> <li>Use the specific heat capacity equation</li> <li>Identify ways to reduce waste energy</li> <li>Classify energy resources as renewable and non-renewable</li> <li>Define the terms cell, tissue, organ, organ system and organism</li> <li>Describe common food tests</li> <li>Explain the role of enzymes in the digestive system</li> <li>Identify the role of the lungs and heart in the respiratory system and circulatory system</li> <li>State common non-communicable diseases and risk factors</li> <li>Describe how plants are organised</li> </ul>	<ul style="list-style-type: none"> <li>Define the terms exothermic and endothermic</li> <li>Draw energy level diagrams</li> <li>Draw the particle diagrams for the three states of matter</li> <li>Use the density equation</li> <li>Describe how you would find the density of an irregular shaped object</li> <li>Interpret heating and cooling curves</li> <li>Name the four types of pathogen</li> <li>Identify common communicable diseases</li> <li>Identify how the body prevents and fights diseases</li> <li>Describe preclinical drugs testing</li> <li>State the stages of the evolution of the atmosphere</li> <li>Identify the greenhouse gases</li> <li>Describe the effects of climate change</li> <li>Describe the greenhouse effect</li> <li>Identify common atmospheric pollutants and their effects</li> </ul>	<ul style="list-style-type: none"> <li>Draw simple circuit diagrams and recognise common components</li> <li>Describe how you would investigate how the length of the wire affects resistance</li> <li>Interpret I-V graphs</li> <li>Use equations to calculate current, potential difference, power, charge and resistance</li> <li>Know the properties of series and parallel circuits</li> <li>Know the potential difference and frequency of UK mains supply</li> <li>Know the colours of each wire in a UK plug</li> <li>Explain how transformers are used in the national grid</li> <li>Write the word equation for photosynthesis and respiration</li> <li>Know the limiting factors for photosynthesis</li> <li>Know the uses of glucose</li> <li>Describe the experiment to measure the effect of light intensity on the rate of photosynthesis</li> <li>Identify and describe factors that affect rate of reaction in terms of collision theory</li> <li>Measure and calculate rates of reaction</li> <li>Identify when a reaction is reversible</li> <li>Define equilibrium</li> </ul>	
<b>Informal (formative) Assessment</b>	GRIT and Live Marking DIRT for mock exams Think Pink sheets	GRIT and Live Marking DIRT for mock exams Think Pink sheets	GRIT and Live Marking DIRT for mock exams Think Pink sheets	GRIT and Live Marking DIRT for mock exams Think Pink sheets
<b>Formal (summative) Assessment</b>	Two 45 minute tests on: Cell Biology Atomic Structure and the Periodic Table Energy Organisation	Two 45 minute tests on: Energy Changes Particle Model of Matter Infection and Response Chemistry of the Atmosphere	Two 45 minute tests on: Electricity Bioenergetics Rate and Extent of Chemical Change	



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