



Curriculum map – Year 8 Science

YEAR 7	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
TOPIC(s)	Waves Nutrition and Digestion	Nutrition and Digestion Pure and Impure Substances	Space and Pressure Organs Systems	Organ Systems Chemical Reactions	Magnetism and Particle Theory Inheritance	Inheritance Chemistry of the earth

<p>What students will know</p>	<p><u>Waves</u> Waves can be transverse or longitudinal Superposition Sound waves sound needs a medium to travel, Waves transfer energy. They are useful in our everyday lives. Light waves travelling through a vacuum. Light can be: absorbed, scattered, reflected or refracted at a surface. How to draw a ray diagram. How lenses work <u>Digestion and Nutrition</u> The content of a healthy and balanced human diet. Calculating energy requirements. The consequences of imbalances in the diet.</p>	<p><u>Nutrition and Digestion</u> The tissues and organs of the human digestive system. Photosynthesis <u>Pure and Impure Substances</u> Acids and alkalis and neutralisation reactions, The pH scale Reactions of acids with metals. The concept of a pure substance Diffusion in terms of the particle model Simple techniques for separating mixtures.</p>	<p><u>Space and Pressure</u> The sun is a star There are other stars in our galaxy and there are other galaxies within the universe. A light year is a measure of distance The seasons are caused by the Earth's tilt. How to calculate weight. The effects of gravity Pressure in the atmosphere and liquids Buoyancy What is Brownian motion? <u>Organ Systems</u> The structure and functions of the human skeleton, How Joints aid movement How muscles and bones interact Antagonistic muscles</p>	<p><u>Organ Systems</u> Structure and function of the lungs Breathing rate and exercise Describe how asthma might affect an individual Analyse and explain the effect of smoking on health. <u>Chemical Reactions</u> Mass is conserved. Metals have different reactivities. Metals react with oxygen and some react with acids. How to test for gases. Using a pH metre, UI or litmus paper. Exothermic and endothermic reactions</p>	<p><u>Magnetism and Particle Theory</u> Simple magnetic theory How to plot magnetic field lines Earth's and its magnetism The effect of a current in a wire How to make electromagnets and the factors that affect their strength DC motors. How temperature affects the movement of particles Changing state <u>Inheritance</u> Inherited and environment variation What is DNA and where can it be found The difference between continuous and discontinuous data</p>	<p><u>Inheritance</u> Adaptations of organisms How plants and animals compete for resources Natural selection and extinction Maintaining biodiversity <u>Chemistry of the earth</u> The Earth is made of 4 main parts The crust is split into tectonic plates Rocks can be put into 3 categories All rocks are part of a rock cycle. Acid rain and its formation Fossil fuels formation and uses Renewable and non-renewable energy resources Ceramics, polymers and composites Carbon cycle Greenhouse gases and global warming Earth's atmosphere</p>
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<p>What students will be able to do</p>	<p><u>Waves</u> Explain observations where sound is reflected, transmitted or absorbed Explain how sound travels. Describe the amplitude and frequency of a wave. Use and explain ray diagrams. Explain how we observe colour. Describe how lenses may be used to correct vision.</p> <p><u>Nutrition and Digestion</u> Describe the effects of unbalanced diets. Calculate food requirements for a healthy diet.</p>	<p><u>Nutrition and Digestion</u> Describe how organs and tissues are adapted for digestion. Describe how digestion occurs.</p> <p><u>Pure and Impure Substances</u> Identify the best indicator to distinguish between solutions. Determine the pH of a solution. Explain and describe neutralisation reactions. Explain how substances dissolve. Use chromatography to identify unknown substances in mixtures. Choose suitable techniques to separate a mixture.</p>	<p><u>Space and Pressure</u> Describe the solar system Describe a galaxy Explain the seasons Calculate weight Calculate pressure Explain changes in pressure in liquids and the atmosphere Explain Brownian motion</p> <p><u>Nutrition and Digestion</u> Identify parts and functions of the skeletal system. Explain how joints and muscles aid with movement Calculate the force exerted by muscles</p>	<p><u>Nutrition and Digestion</u> Identify parts and functions of the lungs Describe how asthma, smoking and exercise affect the respiratory system.</p> <p><u>Chemical Reactions</u> Use particle diagrams Construct word and balanced chemical equations. Explain the impact and prevention of metal oxidation. Describe how to extract metals from an ore. Identify gases produced by a chemical reaction. Determine pH of a substance. Identify exothermic and endothermic reactions</p>	<p><u>Magnetism and Particle Theory</u> Explain how magnets interact with other objects Plot magnetic field lines using different methods Describe Earth's magnetic field State that current causes an electromagnetic effect in a wire Explain how to make and manipulate the strength of an electromagnet Explain how a simple motor functions Explain how temperature affects the movement of particles in different states of matter</p> <p><u>Inheritance</u> Describe the difference between inherited and environmental variation Describe the structure of DNA Explain the difference between continuous and discontinues data</p>	<p><u>Inheritance</u> How organism are adapted to their environment and how this aids in competition for resources Explain Darwin's theory of natural selection</p> <p><u>Chemistry of the earth</u> Name and describe the different structures of the Earth. State the effects caused by moving tectonic plates. Explain the rock cycle Explain the formation and effects of acid rain Evaluate renewable and non-renewable energy resources Give a use and explanation for some ceramics, polymers and composite materials. Explain the carbon cycle and describe how human activities affect it. Explain the human impact of global warming</p>
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YEAR 7	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
Assessment	Core questions assessment.	Core questions assessment.	Core questions assessment.	Core questions assessment.	Core questions assessment.	Core questions assessment.
Beyond the classroom	<p><u>Waves</u> Research how long it takes for light to reach other planets in our solar system. BBC Bitesize, lesson materials on google classroom.</p> <p><u>Nutrition and Digestion</u> Research about different types of diets from around the world and those of different religious groups. The beneficial and detrimental impacts of different types of diets. BBC Bitesize, lesson materials on google classroom.</p>	<p><u>Nutrition and Digestion</u> Research about different types of diets from around the world and those of different religious groups. The beneficial and detrimental impacts of different types of diets. BBC Bitesize, lesson materials on google classroom.</p> <p><u>Pure and Impure Substances</u> Research acids used/contained in food, alkalis found in cleaning materials. The acid bath murders carried out by John Haigh. BBC Bitesize, lesson materials on google classroom.</p>	<p><u>Space and Pressure</u> Look at satellites like the Hubble telescope, other planets in different galaxies.</p> <p><u>Organs Systems</u> Look at different organ systems like the nervous system.</p>	<p><u>Organ Systems</u> Look at different organ systems like the nervous system.</p> <p><u>Chemical Reaction</u> How are fireworks made? How are displacement reactions used in rail replacement?</p>	<p><u>Magnetism and Particle Theory</u> Research how animals use magnetic fields to navigate, research how early sea-travel used loadstone to navigate. BBC Bitesize, lesson materials on google classroom.</p> <p><u>Inheritance</u> Research different ways human have used genetic engineering e.g. mice with humans on their backs.</p>	<p><u>Inheritance</u> Research different ways human have used genetic engineering e.g. mice with humans on their backs. <u>Chemistry of the earth</u> Why is the sky blue?</p>