

Curriculum Overview: Year 10 Trilogy Science

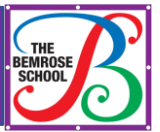
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Topics covered → Biology</p> <p>Unit 2- Organisation of the circulatory and respiratory system.</p> <ul style="list-style-type: none"> • Structure of the heart and lungs. • Structure of blood vessels. • Blood • Diffusion of gases. • Coronary heart disease • Effects of smoking and drinking on the body. • Cancer <p>Biology Unit 2- Organisation of plants.</p> <ul style="list-style-type: none"> • Organs and tissues of plants. • Structure of a leaf. • Stomata • Transpiration • Translocation. <p>Physics Unit 2 – Electricity</p> <ul style="list-style-type: none"> • Calculating current, charge and potential difference. • Parallel and series circuits. • Components of a circuit. 	<p>Topics covered →</p> <p>Chemistry Unit 2 – Structure and Bonding</p> <ul style="list-style-type: none"> • Elements, mixtures and compounds. • States of matter • Ionic bonding • Properties of ionic compounds • Covalent bonding • Properties of simple covalent molecules • Properties of giant covalent molecules • Metallic bonding • Properties of metallic bonding • Nanotechnology 	<p>Topics covered →</p> <p>Biology unit 3 – Infection and Response.</p> <ul style="list-style-type: none"> • Pathogens and disease • How do diseases spread and how can we prevent this? • How do we treat diseases? • Immune system response to infection • Vaccinations • Drug development • Ethics of animal testing. <p>Chemistry unit 4 - Chemical changes</p> <ul style="list-style-type: none"> • Reactivity series • Displacement reaction • Extraction by carbon • Thermal decomposition • Acids, alkalis and neutral solutions • Strength of acids • Making salts required practical. 	<p>Topics covered →</p> <p>Physics unit 2 - Electricity in the home.</p> <ul style="list-style-type: none"> • Wiring a plug. • Insulation of electrical equipment. • Grounding • Fuse boxes. • National grid. <p>Biology unit 4 - Photosynthesis</p> <ul style="list-style-type: none"> • Structure of the leaf. • Photosynthesis word and symbol equations. • Limiting factors for photosynthesis. • Increasing crop yields. • Photosynthesis (pond weed) required practical. 	<p>Topics covered →</p> <p>Physics Unit 3 - Particle model of matter.</p> <ul style="list-style-type: none"> • Solids, liquids and gases • Transition processes between states. • Internal energy and cooling curves. • Density • Density required practical. <p>Chemistry unit 5 - Energy changes</p> <ul style="list-style-type: none"> • Endothermic and exothermic reactions. • Energy level profiles • Temperature change required practical. • Calculating bond energy <p>Physics unit 4 - Atomic structure.</p> <ul style="list-style-type: none"> • Structure of the atom • History of the atomic model. • Alpha, beta and gamma radiation production. • Hazards of radiation. 	<p>Topics covered →</p> <p>Chemistry unit 2 – Quantitative Chemistry.</p> <ul style="list-style-type: none"> • Molecular formula • Calculating relative formula mass of a compound • Conservation of mass • Concentration in terms of g/dm^3 • Converting between volume units. <p>Higher only</p> <ul style="list-style-type: none"> • Calculating moles. • Calculating concentration in mol/dm^3 • Limiting factors.

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<ul style="list-style-type: none"> Resistance. Resistance in a wire required practical. IV characteristics of components required practical. 		<ul style="list-style-type: none"> Electrolysis of molten ionic compounds Electrolysis of solutions Electrolysis of aluminum 		<ul style="list-style-type: none"> Half life of radioactive materials Contamination and irradiation. Uses of radiation. 	
Assessments – Week before Christmas holidays (Autumn 2 term)	Assessments – Week before Christmas holidays (Autumn 2 term)	Assessments – Week before Easter holidays (Spring 2 term)	Assessments – Week before Easter holidays (Spring 2 term)	Assessments – Summer 2 term – full paper 1 mock exam	Assessments – Summer 2 term - full paper 1 mock exam
<p>Links to prior learning</p> <ul style="list-style-type: none"> cells, data analysis, blood and circulatory system. Renewable and non-renewable energy. Series and parallel circuits. <p>Stretch and Challenge Enquiry</p> <p>How do my choices effect the environment and lead to global warming?</p> <p>How do my choices affect my health?</p> <p>Why are governments moving away from using fossil fuels?</p>	<p>Links to prior learning</p> <ul style="list-style-type: none"> elements, compounds and molecules. Atoms <p>Stretch and Challenge Enquiry.</p> <p>Where does a material get its properties?</p> <p>What are superconductors and why are they being used more in newly developed technology?</p>	<p>Links to prior learning</p> <ul style="list-style-type: none"> Acids and Alkalis Reactivity series. Solids, liquids and gases. Transitions between states of matter. White blood cell role (B2) <p>Stretch and Challenge Enquiry</p> <p>Why did people have to isolate when they had been in contact with the covid virus even if they felt well?</p> <p>Why do we need to take an entire course of antibiotics?</p> <p>Where do the metals we use in life come from?</p>	<p>Links to prior learning</p> <ul style="list-style-type: none"> Electrical circuits Electrical current and hazards Photosynthesis Structure of the leaf (B2) <p>Stretch and Challenge Enquiry</p> <p>Why do farmers put plants in polytunnels or greenhouses?</p> <p>Why do birds not get electrocuted when they sit on electric power cables in the sky?</p>	<p>Links to prior learning</p> <ul style="list-style-type: none"> Endo and exothermic reactions. Cooling curves (P1 and KS3) Density Atom structure (C1) <p>Stretch and Challenge Enquiry</p> <p>Why do we put salt on the pavement when it is icy?</p> <p>What happened in Chernobyl and why was it so dangerous?</p> <p>Why does the bath water level go up when I get in it?</p>	<p>Links to prior learning</p> <ul style="list-style-type: none"> elements, compound and mixtures. Converting between unit. <p>Stretch and Challenge Enquiry</p> <p>Why does the mass of a can of fizzy pop “go down” when left open and does it really “go down”?</p>

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Equipment Needed	Wider Reading and websites	Family activities
Pen, Pencil, ruler, calculator.	Kay Science → https://www.kayscience.com/ SENECA → https://app.senecalearning.com/dashboard/courses/add?Price=Free Science Journals for Kids → https://www.sciencejournalforkids.org/	Watch the news. Beat the Parent – make flashcards and compete with your child. Who can get the most correct answers? Support your child using Educake for home learning.

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