The Bemrose School Curriculum

Curriculum Overview: Year 11 Trilogy Science (Prioritised for Success)

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics covered → **Biology unit 7 –** Ecology • Populations and communities • Biotic and abiotic factors • Sampling • Sampling required practical • Carbon and material cycling • Human impacts. • Food webs and chains. **Physics unit 5 –**elasticity • Elastic energy store • Hookes law • Hookes Law required practical. **Physics unit 7 –** magnets • Magnetic forces • Electromagnets • Magnetic field lines • Uses of magnets • Permanent and induced magnets • The motor effect. • Fleming left hand rule (HT only)	**Topics covered →** **Biology unit 6 –** DNA and genetics • Reproduction. • Meiosis • DNA and chromosomes. • Inheritance. • Recessive and dominant alleles. • Inherited diseases • Sex determination • Variation • Natural selection • Evolution • Genetic modification • Selective breeding • Extinction and fossils • Antibiotic resistant bacteria • Classification **Chemistry unit 8 –** Chemical analysis • Gas tests • Chromatography required practical. **Chemistry unit 9 -** Chemistry of the Atmosphere • Composition of the atmosphere. • Evolution of the	**Topics covered →** **Physics Unit P5** – Forces • Contact and non-contact forces. • Resultant force • Terminal velocity • Stopping distances. • Scalars and vectors • Calculating work done and GPE. • Acceleration. • Newtons 1st and 2nd laws. • Forces required practical. **Biology unit 5 –** Homeostasis and response • Homeostasis of the body. • Human nervous system. • Reflex arc / response time required practical. • Endocrine system • Hormone secretion and use in the body. • Controlling blood glucose levels. • Hormones and reproduction. • Contraception • Infertility treatments	**Topics covered →** **Chemistry Unit 8 –** Organic chemistry • Crude oil formation. • Fractional distillation. • Alkanes • Supply and demand • Cracking • Alkenes **Physics Unit P5** – Forces • Velocity time graphs • Distance-time graphs	**Topics covered →** Revision	**Topic covered →** Revision

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Physics unit 8 – waves • Longitudinal and transverse waves. • EM spectrum • Uses of the EM spectrum	atmosphere • Greenhouse gases and greenhouse effect. • Human impact on the atmosphere • Climate change and carbon footprint. • Atmospheric pollutants. **Chemistry unit 10 –** Resources • Material use and production. • Life cycle assessments. • Potable water • Water treatment cycle • Distillation required practical • Extraction techniques (HT only)	(HT only) • Feedback systems (HT only) **Chemistry unit 6** – rates and extent of chemical reactions. • What are reactions and how does this link to collision theory? • How can we speed up chemical reactions? • Sodium thiosulphate required practical. • What are the economics of speeding up reactions? • Reversible reactions • What is dynamic equilibria? (HT only)			
Assessment Paper 1 mock – October - November	**Assessment** Paper 1 mock – October - November	**Assessment** Paper 2 mock – February	**Assessment** Paper 2 mock – February	**Assessment** GCSE Exams	**Assessment** GCSE Exams

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Links to prior learning - Food chains and webs - Predators and prey - Springs and elastic energy stores. - Magnetic fields and solenoids. **Stretch and Challenge Enquiry** Where does your food come from? Is it local? What impact does it have one the environment? How does a Maglev train in Japan work? How are waves used to treat cancer? Why do I get a sunburn and how can I prevent this?	**Links to prior learning** - DNA structure - Adaptations and variation - Climate change and global warming. - Recycling **Stretch and Challenge Enquiry** Why is it ethical to recycle plastics? Should food be packaged in plastics?	**Links to prior learning** - Friction and gravity. - reproduction - specialised cells. **Stretch and Challenge Enquiry** How are cars designed to absorb forces and keep us safe in a crash? Why are hormones so important to women menstruating? Why do we put bread in a proving draw to make it rise faster? Why are some methods of making chemicals not used even though they work?	**Links to prior learning** - What are fossil fuels and how are they made? - Fractional distillation (C1) - Acceleration (P5) **Stretch and Challenge Enquiry** Why can companies not sell single use plastic straws anymore?	**Links to prior learning** Consolidation of GCSE knowledge. **Stretch and Challenge Enquiry** Working towards knowing the GCSE mastery criteria.	**Links to prior learning** Consolidation of GCSE knowledge. **Stretch and Challenge Enquiry** Working towards knowing the GCSE mastery criteria
Equipment Needed	**Wider Reading**			**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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