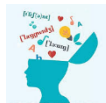


Programme of Study - Science

We want our students to be knowledgeable, curious learners who are able to apply their learning to the real world. We want our students to be able to use scientific language confidently, plan and run investigations to test scientific theories and be able to critically analyse data and evidence provided to them. Our curriculum prepares our learners to better understand the world they live in and make informed and wise choices. The Oasis Science Curriculum prepares students with the fundamental knowledge needed to pursue a range of careers from medicine, to engineering, from astrophysics to careers in geo science.

Year 10



Oasis Academy Brislington: Curriculum

Year 10						
Rationale/ narrative	The units in Year 10 build on the knowledge and skills that students have acquired in Year 9. As in Year 9, students will complete an assessment at the end of October covering just the content in Autumn 1. At the end of December, students will complete an AP1 assessment which will test them on the content covered in Autumn 1 and Autumn 2. This cycle will repeat in the Spring and Summer terms.					
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Human Biology	Plant Biology	Nuclear Physics, Radiation and Magnetism	Electricity and Astrophysics	Reacting Substances	Humans and the Earth
Content	Aerobic respiration Anaerobic respiration Fermentation The lungs The heart Blood vessels and blood flow Composition of blood Cardiovascular diseases Mini Quiz Disease data 1 Disease data 2 Digestion Enzymes RP: Testing for food groups RP: pH and Enzymes Reaction rates in the body Diffusion Kidneys and the function (Triple only) Kidneys and ADH (Triple only)	Food webs Predator and prey graphs Ecological Sampling techniques RP: Quadrats Distribution patterns Pyramids of biomass and trophic levels Decomposers (Triple only) Plant cells, tissues and organs Osmosis RP: Osmosis 1 RP: Osmosis 2 Active transport Transpiration & Translocation Transpiration investigation Photosynthesis RP: Photosynthesis Using glucose and nitrogen in plants Limiting factors (Triple only)	Atomic physics Radioactive decay The three types of decay Nuclear equations Half life Half life calculations Contamination and Irradiation Uses of radiation Background radiation Evaluating hazards Radiation Exam Questions Mini Quiz (needs to be updated) Nuclear Fission and Fusion (Triple only) Particle model - density and states RP: Calculating density Changes of state Heating and temperature Pressure in gases Work done and pressure (Triple only)	Electrical Circuits Introduction Calculating current Current in circuits Potential Difference in circuits Resistance in circuits RP: Factors affecting resistance Ohm's Law Light Dependent Resistors Thermistors RP: investigating non-ohmic conductors Mini Quiz Mains electricity and AC & DC Plugs Power calculations Work done calculations Equations practice National Grid and Transformers	Exothermic and endothermic reactions RP Temperature Changes Reaction profiles Bond energies Chemical cells and voltage Rechargeable and non-rechargeable batteries Fuel Cells (Triple only) Half equations for fuel cells (Triple only) Measuring the rate of reaction Factors affecting rates of reaction Drawing rates of reaction graphs RP: Factors affecting rates of reaction Catalysts Mini Quiz	The Early Earth's Atmosphere Theories of the atmosphere The Greenhouse Effect Effects of global warming Reducing our carbon footprint The Harmful Effects of Combustion Resources used by humans Sustainable development Potable Water Desalination Evaluating potable water methods RP Analysing water samples Waste Water Sewage Treatment Mini Quiz Phytomining and bioleaching

	<p>Dissections and Data (Triple only) Diffusion and Surface area Diffusion in action</p>	<p>Inverse square law (Triple only) Mini Quiz Tropisms (Triple only) Plant hormones (Triple only) RP: Germination 1 (Triple only) RP: Germination 2 (Triple only) Carbon Cycle Water cycle Decay (Triple only) Biogas generators (Triple only) RP: Decay part 1 (Triple only) RP: Decay part 2 (Triple only) Biodiversity and human impact Maintaining biodiversity Food security (Triple only)</p>	<p>Calculating Pressure (Triple only) Pressure at different depths (Triple only) Floating and sinking (Triple only) The Atmosphere (Triple only) Mini Quiz Specific heat capacity RP: Investigating specific heat capacity Latent heat Heating and cooling graphs</p>	<p>Transformers structure and equation (Triple only) Transformers power equation (Triple only) Solar System (Triple only) Life Cycle of a star (Triple only) Orbits (Triple only) Orbits 2 (Triple only) Red Shift and Expanding Universe (Triple only) The Big Bang Theory (Triple only) Dark Mass and Dark Energy (Triple only) Black bodies (Triple only) Radiation and the Earth (Triple only)</p>	<p>Reversible reactions Chatelier Principle (Triple only) Factors affecting equilibrium (Triple only) Word equations and conservation of mass (D only) Relative Formula Mass (D only) Atom economy (D only) Percentage Yield (D only) Reacting Masses (D only) Calculating mass of a solute Calculating moles in a solution (Triple only) Using titration to calculate concentration (Triple only) RP: Titrations Part 1 RP: Titrations Part 2 Explaining concentration (Triple only) Calculating gas volume from relative formula mass (Triple only) Calculating gas volumes from balanced equations (Triple only)</p>	<p>Life Cycle Assessment Reduce, Reuse, Recycle Ceramics (Triple only) Polymers (Triple only) Thermosetting and thermosetting polymers (Triple only) Glass (Triple only) Reducing our human impact (Triple only) The Haber process 1 (Triple only) Conditions graphs (Triple only) The Haber process 2 (Triple only) NPK Fertilisers</p>
Skills	<p>Spotting errors (random, systematic, zero errors) Identifying trends in data from graphs. Independent, dependent and control</p>	<p>Creating own hypothesis Writing a method for ecological techniques Calibrating apparatus Categoric or continuous x-intercepts Median/Mode Scattergraph Using a scale</p>	<p>Drawing magnetic fields. Calculating half-life Using a manual or digital scale</p>	<p>Draw electrical circuits and circuit symbols. Using and rearranging equations Naming apparatus Using a manual or digital scale Sketch graph</p>	<p>Drawing graphs Drawing lines of best fit Calculating rates of reaction Calculations involving moles, mass and Mr Stating the resolution Spotting anomalies and reasons for</p>	<p>Writing instructions Evaluating theories of how the atmosphere has changed Describing the effect of different factors on chemical processes e.g. Haber process</p>

