

Curriculum Intent

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.

Specialist Centre Programme of study – Year 10

Subject: Science



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 Diffusion and Surface area Diffusion in action	Food webs Predator and prey graphs Ecological Sampling techniques RP: Quadrats Distribution patterns Pyramids of biomass and trophic levels 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 Mini Quiz Carbon Cycle Water cycle	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) Particle model - density and states RP: Calculating density Changes of state Heating and temperature Pressure in gases Mini Quiz Specific heat capacity RP: Investigating specific heat capacity Latent heat	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 Measuring the rate of reaction Factors affecting rates of reaction Drawing rates of reaction graphs RP: Factors affecting rates of reaction Catalysts Mini Quiz Reversible reactions Word equations and conservation of mass (D only)	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 Life Cycle Assessment

		Biodiversity and human impact	Heating and cooling graphs		Relative Formula Mass (D only) Atom economy (D only) Percentage Yield (D only) Reacting Masses (D only) Calculating mass of a solute RP: Titrations Part 1 RP: Titrations Part 2 Calculating gas volume from relative Calculating gas volumes from	Reduce, Reuse, Recycle NPK Fertilisers
Skills	Spotting errors (random, systematic, zero errors) Identifying trends in data from graphs. Independent, dependent and control	Creating own hypothesis Writing a method for ecological techniques Calibrating apparatus Categoric or continuous x-intercepts Median/Mode Scattergraph Using a scale Use and explain sampling techniques	Drawing magnetic fields. Calculating half-life Using a manual or digital scale	Draw electrical circuits and circuit symbols. Using and rearranging equations Naming apparatus Using a manual or digital scale Sketch graph Suggest explanations for the conclusion	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 these Tangents	Writing instructions Evaluating theories of how the atmosphere has changed Describing the effect of different factors on chemical processes e.g. Haber process Suggest explanations for the conclusion
Assessment	End of topic assessment	AP1 assessment	End of topic assessment	AP2 assessment	End of topic assessment	EOY exam