Oasis Academy Brislington: Curriculum

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.

Programme of study – Year 9

Subject: Science

Year 9						
Rationale/ narrative	Year 9 is an opportunity to build on topics learnt in Year 7 and 8 as well as prepare students to tackle more difficult concepts in the curriculum. The programme of study is made up of two units of Chemistry, two of Physics and finishes with two units of Biology. Topics have been grouped together because we feel that they sequence well with each other. Students will take an assessment at October half term that assesses just the content from Autumn 1. At the end of December, students will then complete their AP1 assessment that tests them on all content covered during Autumn 1 and Autumn 2. This process is repeated for Spring and Summer terms.					
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Topic	**Chemistry Fundamentals**	**Investigative Chemistry**	**Energy and Waves**	**Forces**	**Cell Biology**	**Communicable diseases**
Content	Changing states of matter Atoms and elements Compounds and formulae Pure substances and solutions Separation techniques RP: Chromatography Changing Atomic Theories Protons, Neutrons and Electrons Electron configuration Isotopes and relative atomic mass The periodic table The modern periodic table Mini Quiz Metals and non-metals Uses of metals Alkali metals Halogens Noble Gases	Ionic bonding part 1 Ionic bonding part 2 Properties of ionic bonding Covalent bonding Properties of covalent structures Giant covalent structures Nanoparticles (Triple only) Metallic Bonding Comparing and contrasting types of bonding Word and symbol equations Balancing equations Conservation of mass Metals and oxygen Metals and acid Metals and water Acids and bases Neutralisation RP: Soluble Salts	Types of energy and energy transfers Open and closed systems Insulation Non-renewable resources Renewable resources Comparison of energy resources Work done Power Efficiency calculations Gravitational potential energy Kinetic energy Elastic potential energy RP: Relationship between force and extension Mini Quiz Introduction to waves Waves equation Measuring speed of sound Measuring period of a wave	Scalar and vector quantities Types of forces Weight Resultant forces Vector diagrams Speed and velocity Circular motion Distance time graphs Acceleration and deceleration Velocity time graphs Terminal Velocity Newton's first law Newton's second law RP: Investigate Newton's Second Law of motion Newton's third law Stopping distances Energy transfers in stopping Magnets Magnetic fields	Types of cells Specialised cells Tissues, organs and systems Introducing microscopes RP: Using Microscopes Types of microscope Culturing microorganisms RP: Investigating Antiseptics (part 1) RP: Investigating antiseptics (part 2) Analysing Antibiotics Mini Quiz DNA Mitosis and the cell cycle Incredible stem cells Therapeutic cloning Cloning plants Asexual reproduction Sexual Reproduction and Meiosis Sexual vs asexual reproduction	Viral diseases Bacterial diseases Fungal and protists Our barriers to diseases The immune system Vaccinations Medicines Antibiotic resistance Developing new drugs (part 1) Developing new drugs (part 2) Monoclonal antibodies (Triple only) Scatter Graphs and Health Frequency tables and histograms Analysis data Mini Quiz

		Reactivity series and displacement reactions	RP: Measuring speed of a wave using a ripple tank EM Spectrum RP: Investigating reflection and refraction of light	Electromagnets	Examples of unusual reproduction Inheritance (genetic cross diagrams) Family trees Genetic diseases and sex determination	
Skills	Calculate the number of protons, neutrons and electrons for different elements Naming apparatus Selecting appropriate apparatus Explaining why certain apparatus is used Accuracy (comparison to true value) Select the best hypothesis based on results	Writing a method Reproducibility and repeatability Following a given method Following a given risk assessment Writing a risk assessment (hazards, risks, precautions) Explaining properties of types of bonding Reproducibility and repeatability	Independent, dependent and control variables Explaining differences between waves Stating the resolution Using a manual or digital scale Explaining why certain apparatus is used Bar chart	Using a manual or digital scale Rearranging and using equations Stating the resolution Explaining why certain apparatus is used Sketch graph Using a manual or digital scale Making predictions from data Range electrolyte Gradient Area under a graph	Writing instructions Calculate uncertainty Creating own hypothesis Making scientific drawings Evaluating stem cells Explaining why certain apparatus is used	Plot and interpret scatter graphs showing data about health and diseases Analyse data health from frequency tables and histograms Using a given result table
Assessment	End of topic assessment	AP1 assessment	End of topic assessment	AP2 assessment	End of topic assessment	EOY exam