

CURRICULUM MAP – Year 10 COMBINED SCIENCE

Each topic will cover the key enquiry processes, relevant maths skills and cultural capital.

CL = Careers Links which supports the Catholic Social Teaching (CST) strand of Dignity of Work and Participation



ST JAMES'
CATHOLIC HIGH SCHOOL

KEY
Biology
Chemistry
Physics

HT1:	HT2:	Assessment TD1	HT3:	HT4:	Assessment TD2	HT5	HT6:	Assessment TD3
<p>INTENT Particle Model of Matter 6.3 We learn how the particle model is widely used to predict the behaviour of solids, liquids and gases and how this has many applications in everyday life.</p> <p>Link to KS3 forces, fluids and solids, liquids and gases. CL- Deep Sea Diver Materials Researcher, Engineer, Jeweller.</p> <p>Cell Biology 4.1 We explore how structural differences between types of cells enables them to perform specific functions within the organism.</p>	<p>INTENT Atomic Structure and the Periodic Table 5.1 We learn how arrangement of elements in the modern periodic table can be explained in terms of atomic structure which provides evidence for the model of a nuclear atom with electrons in energy levels.</p> <p>Link to particles 6.3 CL- Research Scientist, Chemist.</p> <p>CST – Dignity in the workplace: Extraction of rare earth resources for a developing market. Common good: Using chemicals to make new products to help</p>	<p>Students will be assessed by a series of end of topic tests and completion of the required practical booklet.</p>	<p>INTENT Organisation 4.2 We learn about the human digestive system which provides the body with nutrients and the respiratory system and circulatory system that provides it with oxygen and removes waste. We will also learn how the plant's transport system is dependent on environmental conditions to ensure that leaf cells are provided with what they need for photosynthesis.</p> <p>CL- Dietitian Cardiologist, Vet, Nutritionist, Phlebotomist, Surgeon.</p> <p>CST – Options for the poor: Poor diet has an impact on health e.g. heart disease.</p> <p>Bioenergetics 4.4 We explore how plants</p>	<p>INTENT Electricity 6.2 We learn about electrical charge and current in series and parallel circuits. We also learn about the domestic uses of electricity and how it is supplied.</p> <p>Link to electrons in 5.1 CL- Electrical Engineer.</p> <p>CST – Creation and environment – safe disposal of batteries. Solidarity – reducing reliance of fossil fuels. Options for the poor – Use of renewable energy resources where once established take little money to run.</p> <p>Chemical Changes 5.4 We learn about the extraction of important resources from the earth. We study the way that some</p>	<p>Students will be assessed by a series of end of topic tests and completion of the required practical booklet.</p>	<p>INTENT Infection and Response 4.3 We study the pathogens which cause infectious disease in plants and animals</p> <p>Link to History Vaccines, Jenner, Smallpox, antibiotics Florey and Chain, antiseptics, Louis Pasteur, Fleming</p> <p>Link to photosynthesis in 4.4 when looking at plant diseases CL- Pathologist, Doctor, Lab researcher.</p> <p>Quantitative Chemistry 5.3 We use quantitative analysis to determine the formulae of compounds and the equations for reactions. CL- Pharmacist and</p>	<p>INTENT Energy Changes 5.5 We learn that energy changes are an important part of chemical reactions. The interaction of particles often involves transfers of energy due to the breaking and formation of bonds.</p> <p>Link to bioenergetics as examples of endothermic and exothermic reactions CL- Energy Engineer.</p> <p>Atomic Structure 6.4 We revisit the structure of the atom and how this links to ionising radiation.</p> <p>Recap bonding Recap DNA from cell biology. Links to the teaching of Russia in Humanities due to the radiation poisoning of Litvinyenko.</p>	<p>Students will be assessed by a series of end of topic tests and completion of the required practical booklet.</p>

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<p>Taught before ionising radiation. CL – Animal Technician, Biologist, Botanist, General Practitioner (GP), Hospital Doctor, Pharmacologist.</p> <p>Link to History HT2 Stem Cells Health and the People</p> <p>CST – Dignity: Stem cell research form embryos encourages loss of life. Creation and Environment: Life begins from a fertilized egg cell.</p>	<p>improve mankind</p> <p><u>Bonding, Structure and Properties of Matter 5.2</u> We use theories of structure and bonding to explain the physical and chemical properties of materials. CL- Materials Engineer, Nanotechnologist, Research and Development Manager.</p> <p>CST – Peace: Use of oil to make polymers leads to conflict and impacts on the environment.</p> <p><u>Energy 6.1</u> For the students to look at the different types of energy store, observe in everyday examples how</p>		<p>harness the Sun's energy in photosynthesis in order to make food. We also explore aerobic vs anaerobic respiration.</p> <p>Link to balancing equations from Chem and links to Geography: Tropical Rainforests CL- Farmer, Gardener, Sports Athlete.</p> <p>CST – Solidarity: Our need for oxygen and how trees and plants are essential to this but we disturb this balance through deforestation and farming methods.</p>	<p>elements and compounds react with each other and how easily they can be 'pulled apart'.</p> <p>Link to ionic bonding in 5.2 CL- Quarry Engineer, Geoscientist.</p> <p>CST – Dignity in the workplace and participation: Miners in LEDCs being exploited and poor safety.</p>		<p>Chemical Engineer.</p>	<p>CL- Medical Physicist, Radiographer, Radiation Protection Practitioner.</p>	
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	<p>they can be transferred and calculated and investigate the main energy resources.</p> <p>CST – Option for the poor – Cheaper methods of energy production. Solidarity – Sustainable resources for the future. Creation and the environment – reducing carbon footprint</p> <p>Link to KS3 energy resources. Also links to Geography CL- Energy Engineer, Oceanographer, Hydrologist.</p>							
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