

Science Progression Framework

		Key areas	
Organisers	Experiences and outcomes	National 3	National 4
Planet Earth	<p>...renewable energy sources, benefits and potential problems. SCN 3-04b</p> <p>...risks and benefits of different energy sources, including those produced from plants. SCN 4-04a</p> <p>...the formation and use of fossil fuels and the responsible use and conservation of finite resources. SCN 4-04b</p> <p>...the processes which contribute to climate change and the possible impact of atmospheric change on the survival of living things. SCN 3-05b</p> <p>...the carbon cycle and the processes involved in maintaining the balance of gases in the air, considering causes and implications of changes in the balance. SCN 4-05b</p>	<p>Water Conflicts, benefits, and solutions to issues in the uses of water, including sources and origins of drinking water, and extraction of water.</p> <p>Food Conflicts and issues associated with food production, including plant and livestock farming, impact of technology on food production, impact of farming on the environment.</p> <p>Energy Conflicts and issues with production and use of energy, including the generation of power from a range of sources (fossil fuels, plants, renewables), risks and benefits of energy sources, sustainability of energy sources, concept of conservation of energy.</p> <p>Metals Conflicts and issues with extraction and uses of metals, including properties of metals, methods of extraction of metals, abundance and sources of metals, impact of metal extraction on the environment, recycling metals.</p>	<p>Water Conflicts, benefits, and solutions to issues in the uses of water, including sources and origins of drinking water; extraction of water.</p> <p>Food Conflicts and issues associated with food production, including plant and livestock farming, impact of technology on food production, impact of farming on the environment.</p> <p>Energy Conflicts and issues with production and use of energy, including the generation of power from a range of sources (fossil fuels, plants, renewables), risks and benefits of energy sources; sustainability of energy sources; concept of conservation of energy.</p> <p>Metals Conflicts and issues with extraction and uses of metals, including properties of metals; methods of extraction of metals; abundance and sources of metals; impact of metal extraction on the environment; recycling metals.</p>
Materials	<p>...how different materials can be derived from crude oil and their uses. The importance of carbon compounds in our lives. SCN 4-17a</p> <p>Extraction of useful substances from natural resources. SCN 3-17b</p> <p><i>Explore common fractions and their importance</i></p> <p>...the different types of chemicals in agriculture and their alternatives and their potential impact on the world's food production. SCN 3-03a</p> <p>...the nitrogen cycle, design for a fertiliser taking account of its environmental impact.</p> <p><i>...design a fertiliser taking account of N.P and K investigate the potential problems associated with over use. Calculations of % composition. SCN 4-03a</i></p> <p><i>Methods of extracting metals from ores in relation to their position in the reactivity series. Test for hydrogen gas. SCN 4-19b</i></p>		

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Human health	<p>...explain how images of substance use and misuse can influence people's behaviour. HWB 4-39a</p> <p>The impact that ongoing misuse of substances can have on a person's health, future life choices and options. HWB 3-43a</p> <p>The impact that ongoing misuse of substances can have on a person's health, future life choices and options. HWB 4-43a</p>	<p>What is health? Aspects of social, physical and mental health.</p> <p>Threats to health Health issues.</p> <p>Health claims Review of health claims.</p>	<p>What is health? How to keep healthy. Understanding of the impact of nutrition on health.</p> <p>Threats to health Preventative measures (including understanding of the immune system and use of vaccines).</p> <p>Health claims Review articles and information in the media.</p>
Forces, Electricity and Waves	<p>...current and voltage in series and parallel circuits,... design a circuit to show the advantages of parallel circuits in an everyday application. SCN 3-09a</p> <p>...the relationship between current, voltage and resistance. SCN 4-09a</p> <p>...the properties of a range of electronic components, their use as input and output devices in practical electronic circuits. SCN 4-09b</p> <p>...electronic components and switching devices,... electronic system to provide a practical solution to a real-life situation. SCN 4-09c</p> <p>...design simple chemical cells and... the factors which affect the voltage produced. SCN 3-10a</p> <p>...the latest developments in chemical cells technology and... their impact on society. <i>Development of fuel cells</i>. SCN 4-10b</p> <p>...the electromagnetic spectrum beyond the visible... the use of radiation and the impact upon society and our quality of life. SCN 4-11b</p> <p>...radiations beyond the visible ...in a selected application... the advantages and limitations. SCN 3-11b</p>	<p>Telecommunications Principles and applications of telecommunications, electromagnetic waves and sound waves.</p> <p>Materials Material source, production, properties, uses, benefits and issues</p> <p>Risks and safety Risks and minimising risks in the home, work and transport.</p>	<p>Telecommunications Principles and applications of telecommunications uses and properties of electromagnetic waves.</p> <p>Materials Including properties of substances; properties and uses of novel materials and impacts, risks and benefits of their use.</p> <p>Risks and health and safety Measures associated with science at work, including chemical, radiation and electrical risks and safety.</p>
Materials	<p>...novel materials and the scientific basis of their properties and ...the possible impacts they may have on society. SCN 4-16a</p>		

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