

# Curriculum Improvement Cycle

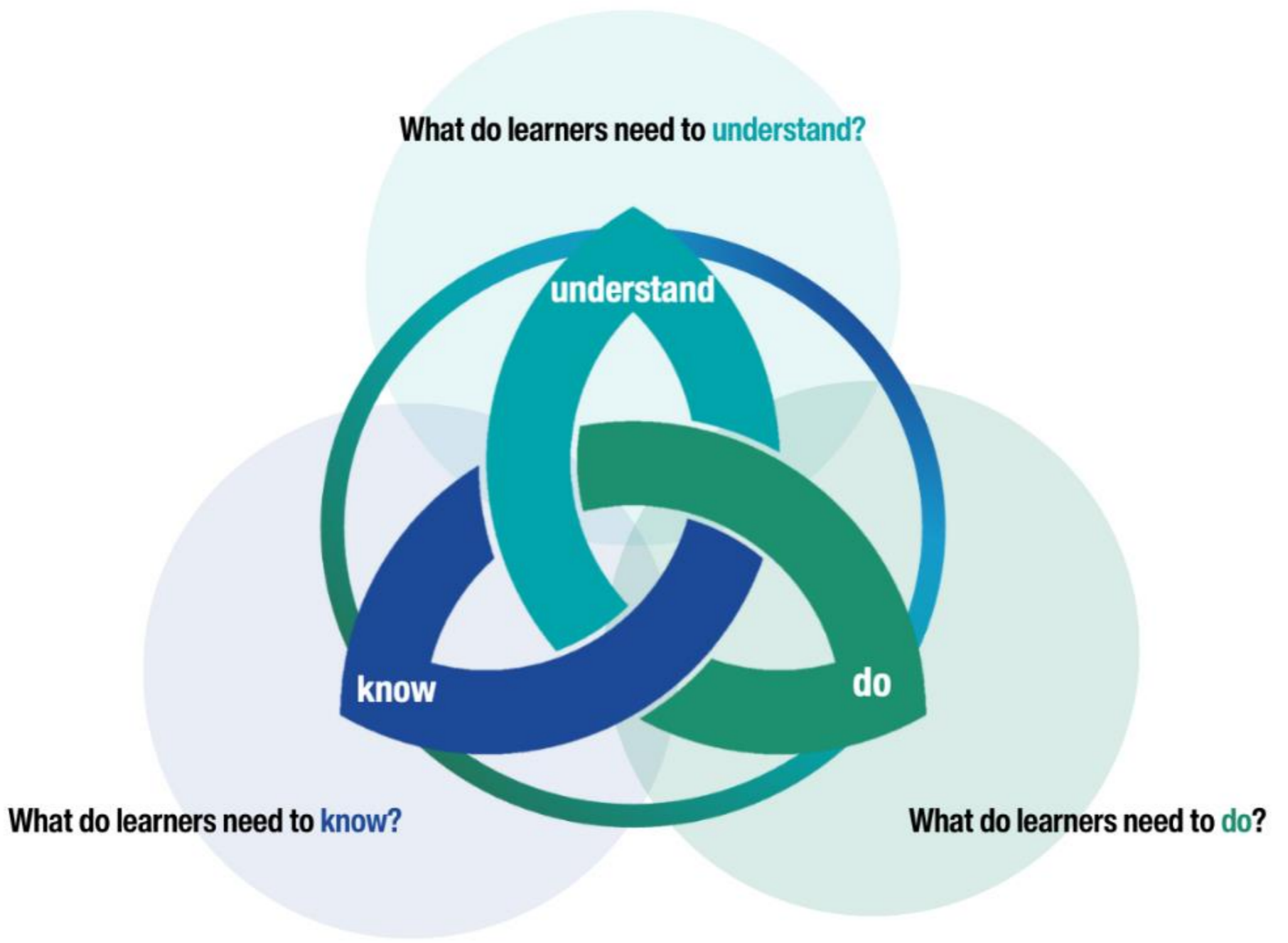
## Draft Technical Framework

### Sciences Sample

June 2026

These are **draft materials**. The content, format and style are subject to change. It would not be appropriate to change current planning or tracking and monitoring systems in establishments at this stage.

There is **no expectation** on educators, schools or settings to do anything now with these samples. They are being shared as part of the co-design process and in advance of engagement and feedback time during the 2026/27 session.



Sciences			
Illustrative Big Idea	Our scientific knowledge: What we understand so far		
	Scientific knowledge helps us to make sense of the world around us and to discover our place within it. Our understanding of the sciences is refined over time as new evidence emerges. We can all contribute to the development of scientific knowledge.		
Strand	The Connected World		
	Nature and Earth's resources		
	Nature		Food production
Early Level	<b>Understand: The environment provides living things with what they need to stay alive.</b>		<b>Understand: Plants and animals provide food for many living things to stay alive.</b>
	<b>Know:</b> <b>The environment</b> <ul style="list-style-type: none"> <li>Plants, humans and other animals, can live in different places.</li> <li>Water is used by animals and humans for drinking and keeping clean.</li> <li>Air is needed to breathe.</li> </ul>	<b>Do:</b> <ul style="list-style-type: none"> <li>Explore and observe different places where plants, humans and other animals live.</li> <li>Explore and observe how living things use their environment to meet their needs.</li> </ul>	<b>Know:</b> <b>Food sources</b> <ul style="list-style-type: none"> <li>Plants and animals are sources of food for humans and other animals.</li> <li>Plants and animals we eat usually come from farms and the sea.</li> </ul>
	<b>Notes</b> <ul style="list-style-type: none"> <li>The word habitat may be used to describe where humans and other animals live, but the definition of the term is not required until first level.</li> <li>Link to Scientific Knowledge Big Idea: The Living World (Concept of Life). <ul style="list-style-type: none"> <li>Needs of living things.</li> </ul> </li> <li>Link to Science in Action Big Idea: Taking Scientific Action. <ul style="list-style-type: none"> <li>Caring for places and living things.</li> </ul> </li> </ul>		<b>Includes</b> <ul style="list-style-type: none"> <li>Discuss that not all plants are safe to eat. Caution should be taken to avoid touching or picking unknown plants in nature.</li> </ul> <b>Notes</b> <ul style="list-style-type: none"> <li>Link to health and wellbeing. Plants and animals can contribute to a healthy, balanced diet.</li> <li>Different places our food comes from might include: farms, sea, lakes, rivers, gardens, allotments etc. Our food might have been grown in different countries because the climate is more suitable.</li> </ul>
First Level	<b>Understand: The environment provides habitats and resources for living things to stay alive, and human activity can affect the environment.</b>		<b>Understand: Living things depend on one another for food to stay alive.</b>
	<b>Know:</b> <b>The environment</b> <ul style="list-style-type: none"> <li>The environment includes all the living and non-living things in the surroundings.</li> <li>Habitats are part of an environment.</li> <li>A habitat is a place where a living thing lives.</li> <li>Habitats can provide living things with the resources they need.</li> <li>Human activity affects habitats.</li> </ul>	<b>Do:</b> <ul style="list-style-type: none"> <li>Explore and observe the local environment.</li> <li>Identify and compare different habitats and the resources they provide.</li> <li>Use scientific vocabulary: habitat.</li> <li>Identify how human activity can positively and negatively affect habitats.</li> </ul>	<b>Know:</b> <b>Food sources</b> <ul style="list-style-type: none"> <li>Seasons influence which plants grow and when they grow.</li> </ul> <b>Interdependence</b>

			<ul style="list-style-type: none"> <li>• Humans and other animals depend on living things for food to allow them to move and grow.</li> </ul>	
	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Living things – plants, animals and humans.</li> <li>• Non-living things – air, water and land.</li> </ul> <p>-----</p> <ul style="list-style-type: none"> <li>• Different habitats include desert, tree, pond etc.</li> </ul> <p>-----</p> <ul style="list-style-type: none"> <li>• Human activities can have positive impacts (such as creating a bug hotel) or negative impacts (such as littering) on the environment.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• Link to Scientific Knowledge Big Idea: The Living World (Concept of Life). <ul style="list-style-type: none"> <li>- Needs of living things.</li> </ul> </li> <li>• Link to Science in Action Big Idea: Taking Scientific Action. <ul style="list-style-type: none"> <li>- Caring for places and living things.</li> </ul> </li> </ul>		<p>-----</p> <p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Seasonal plants, in Scotland, include new potatoes (spring), strawberries (summer), carrots (autumn) and leeks (winter). This will be different in other parts of the world.</li> </ul> <p>-----</p> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• Humans and other animals need to eat other living things – this may lead to discussion about food chains but learners don't need to know this until second level.</li> </ul>	
<p><b>Second Level</b></p>	<p><b>Understand: The environment supports living things with what they need and human activity can affect the environment and biodiversity.</b></p>		<p><b>Understand: All living things are interdependent, with plants forming the base of food chains to support survival.</b></p>	
	<p><b>Know:</b></p> <p><b>The environment</b></p> <ul style="list-style-type: none"> <li>• Living things need habitats and resources, and at times those resources can be limited.</li> <li>• Biodiversity is the variety of life on Earth.</li> <li>• Human activity affects biodiversity.</li> </ul> <p>-----</p> <p>-----</p>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>• Analyse the positive and negative impacts of human activity on biodiversity.</li> <li>• Evaluate possible solutions to reduce environmental impact.</li> <li>• Use scientific vocabulary: biodiversity.</li> </ul> <p>-----</p> <p>-----</p>	<p><b>Know:</b></p> <p><b>Food sources</b></p> <ul style="list-style-type: none"> <li>• Climate change is changing seasonal patterns and causing extreme weather which is affecting plant growth and food production.</li> </ul> <p>-----</p> <ul style="list-style-type: none"> <li>• Plants grown for food are called crops and they can grow in different environments, not just soil.</li> <li>• Fertilisers are substances added to soil to help plants grow.</li> <li>• Food security is when people have access to enough safe and nutritious food to meet their needs.</li> </ul> <p><b>Interdependence</b></p> <ul style="list-style-type: none"> <li>• Interdependence refers to the way living things rely on each other for survival.</li> <li>• Animals and plants are linked through simple food chains.</li> <li>• Food chains represent the feeding relationship between organisms.</li> <li>• Plants are known as producers and are always found at the start of a food chain.</li> <li>• Humans and other animals get their food by eating other organisms and are referred to as consumers.</li> <li>• Herbivores are animals that eat plant material only.</li> <li>• Carnivores are animals that eat animal material only.</li> <li>• Omnivores are animals that eat both plant and animal material.</li> <li>• Within a food chain, organisms can also be categorised as either predator or prey.</li> <li>• A predator is an animal that hunts and eats other animals to survive.</li> </ul>	<p><b>Do:</b></p> <p>-----</p> <ul style="list-style-type: none"> <li>• Compare the growth of plants in different environments.</li> <li>• Identify how human actions impact on food availability.</li> <li>• Use scientific vocabulary: food security, fertilisers, interdependence, producer, consumer, predator, prey, herbivore, omnivore and carnivore.</li> </ul> <p>-----</p>

		<ul style="list-style-type: none"> <li>• Prey are animals that are hunted and eaten by predators.</li> </ul> <p>-----</p>	
	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Different environments include school grounds, woodland, coastal etc.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• Progression from first level on human activity:             <ul style="list-style-type: none"> <li>- Climate change and human activities, such as pollution of land, water and air, can have negative impacts on the environment and decrease biodiversity.</li> <li>- Human activities can have positive impacts on the environment and increase biodiversity such as planting wildflowers.</li> </ul> </li> <li>• Link to Scientific Knowledge Big Idea: The Living World (Concept of Life).</li> <li>• Link to Scientific Knowledge Big Idea: The Connected World (Energy and climate change).</li> <li>• Link to Science in Action Big Idea: Taking Scientific Action.</li> <li>- Caring for places and living things.</li> </ul> <p>-----</p> <p>-----</p>	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Extreme and unusual weather patterns include floods, droughts and cold snaps.</li> </ul> <p>-----</p> <p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Plants can be grown in polytunnels, green houses and artificial environments.</li> <li>• Interpret and construct simple food chains.</li> <li>• Describe how energy is transferred between plants and animals in food chains.</li> <li>• Predict what might happen to other organisms if one population in the food chain changes.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• Human actions can affect food security:             <ul style="list-style-type: none"> <li>- Positive impacts such as sustainable farming, reducing waste, farming technology and innovation etc.</li> <li>- Negative impacts such as pollution (contaminating soil and water), climate change, misuse of water resources, overfishing, deforestation etc.</li> </ul> </li> <li>• Link to Scientific Knowledge Big Idea: The Connected World (Energy and Climate Change).</li> <li>• Link to Science in Action Big Idea: Taking Scientific Action.</li> <li>• Consumer has a different scientific meaning to its everyday use.</li> <li>• Prey sounds like pray but has a different scientific meaning.</li> </ul> <p>-----</p>	

<b>Third Level</b>	<b>Understand: The environment consists of a variety of ecosystems, and scientific monitoring helps identify environmental change to enable nature-focused solutions.</b>	<b>Understand: Soil health, climate and pollinators play an essential role in the survival of living things, including plant growth, food web stability and food security.</b>
	<p><b>Know:</b> <b>The environment</b></p> <ul style="list-style-type: none"> <li>• An ecosystem is made up of living and non-living parts.</li> <li>• The environment provides the conditions that support a variety of ecosystems.</li> <li>• Monitoring the health of the environment is important because it helps support living things, ecosystems and human health by identifying environmental changes.</li> <li>• Human activity affects ecosystems.</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>• Identify different ecosystems and their key features.</li> <li>• Select and use appropriate techniques to explore an ecosystem.</li> <li>• Identify how human activity affects ecosystems and evaluate the relative impacts of nature-focused solutions.</li> <li>• Use scientific vocabulary: ecosystem.</li> </ul>
	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Ecosystems can be large such as oceans or rainforests, or small, such as a garden or rock pool.</li> <li>• Non-living parts of an ecosystem include environmental factors such as light intensity, temperature, pH, soil moisture, carbon dioxide and humidity.</li> <li>• Techniques for monitoring environmental conditions may include the use of light, pH and moisture meters and sampling techniques such as pitfall traps, quadrats, and transect lines.</li> </ul> <p><b>Excludes</b></p> <ul style="list-style-type: none"> <li>• The environment consists of more than just ecosystems. This will be further explored in the senior phase.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• Progression from second level on human activity: <ul style="list-style-type: none"> <li>- Climate change and human activities, such as deforestation and burning fossil fuels, can negatively impact on ecosystems.</li> <li>- Human activities such as conservation efforts and effective policies can positively support ecosystems, helping to protect and increase biodiversity.</li> </ul> </li> <li>• Link to Scientific Knowledge Big Idea: The Chemical World (Composition of air).</li> <li>• Link to Science in Action Big Idea: Taking Scientific Action, and also, Equity, Identity and Belonging (Citizen science project).</li> <li>• Social Subjects Link: The Connected World (Systems).</li> </ul>	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Regenerative farming improves soil and restores the environment using natural and sustainable practices such as crop rotation.</li> <li>• Links to Science in Action Big Idea could include: <ul style="list-style-type: none"> <li>- Opportunities to grow plants for food.</li> <li>- Taking action to encourage and protect pollinating insects.</li> <li>- Exploring innovations and ethics of food production, such as: hydroponics, aquaponics, vertical farming, biotechnology (microorganisms in food production, lab-grown meat and GM crops).</li> </ul> </li> </ul> <p><b>Excludes</b></p> <p>The learning below does not need to be covered at this level.</p> <ul style="list-style-type: none"> <li>• The role of nitrogen, potassium and phosphorus in plant growth.</li> <li>• The process of eutrophication.</li> <li>• The study of pesticides and plant diseases.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• The term 'transfer of energy' should be used instead of 'energy flow' for scientific accuracy.</li> <li>• Human actions impacting on food security might include: <ul style="list-style-type: none"> <li>- Positive: Regenerating land, polyculture growing, agroforestry etc.</li> <li>- Negative: Use of fertile land for other purposes (such as for solar energy, growing of biofuels), overuse of pesticides which harm pollinators, overuse of fertilisers etc.</li> </ul> </li> <li>• Link to Science in Action Big Idea: Using science to make informed views and choices.</li> <li>- Ethical food production and sustainable living.</li> </ul>

		<ul style="list-style-type: none"> <li>• Social Subjects Link: Fragility - The Fragile World – Conflict.</li> <li>• Social Subjects Link: Change - The Changing World.</li> </ul>
<b>Fourth Level</b>	<b>Understand: Environmental and climate conditions shape different biomes, supporting life on Earth.</b>	<b>Understand: When resources are limited, living things must compete to get what they need to survive.</b>
	<p><b>Know:</b></p> <p><b>The environment</b></p> <ul style="list-style-type: none"> <li>• A biome is a large region of the Earth that can be distinguished from other biomes by: <ul style="list-style-type: none"> <li>- The characteristic environmental factors that affect it, such as climate.</li> <li>- The animal community (fauna) and plant community (flora) that it supports.</li> </ul> </li> <li>• Human activity affects biomes.</li> </ul> <p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Different biomes include aquatic (freshwater and marine) and terrestrial (desert, forest and tundra).</li> <li>• A community is all the different living organisms in an area and how they interact.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• The application of knowledge and skills through everyday contexts will be a significant focus at fourth level. See Science in Action Big Idea and Breadth of Experience guidance for details.</li> <li>• Progression from third level: <ul style="list-style-type: none"> <li>- Climate change and human activities, such as overfishing and urbanisation, can negatively affect biomes.</li> <li>- Human activities such as nature restoration, like coral reef and peatlands, can positively impact on biomes.</li> </ul> </li> <li>• Link to Scientific Knowledge Big Idea: The Connected World (Energy and Climate Change).</li> <li>• Link to Science in Action Big Idea: Taking Scientific Action, and also, Equity, Identity and Belonging (Citizen science project).</li> <li>- Learners could, for example apply learning of ecosystems and biomes to monitor and enhance a natural environment or location.</li> <li>• Social Subjects Link: The Connected World (Systems).</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>• Identify and compare the key features of different biomes.</li> <li>• Identify how human activity affects biomes and investigate nature-focused solutions.</li> <li>• Use scientific vocabulary: biome, fauna, flora.</li> </ul> <p><b>Know:</b></p> <p><b>Competition</b></p> <ul style="list-style-type: none"> <li>• Competition occurs when organisms require the same limited resources.</li> <li>• Competition can have multiple effects including changes to population size and food webs.</li> </ul> <p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Plants compete for light, water, nutrients and space.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• The application of knowledge and skills through everyday contexts will be a significant focus at fourth level. See Science in Action Big Idea and Breadth of Experience guidance for details.</li> <li>• Competition has a different scientific meaning to its everyday use.</li> <li>• Link to Science in Action Big Idea: Taking Scientific Action.</li> <li>- Learners could for example apply learning about food production in practical real-life contexts.</li> </ul>

	Nature and Earth's resources	Energy in society
	<b>Materials</b>	<b>Energy sources and security</b>
Early Level	<b>Understand: Materials have different uses, and their properties can be explored and described.</b>	
	<p><b>Know:</b> <b>Properties and uses of materials</b></p> <ul style="list-style-type: none"> <li>Different materials are suitable for different uses.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>Materials are all around us and have different properties.</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>Explore and select materials to make models and solve problems.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>Sort materials into different groups.</li> <li>Use everyday vocabulary to describe materials.</li> </ul>
	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>Properties of materials and everyday vocabulary include: colour, texture, shape, hardness, heavy, light, waterproofness etc.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>Technologies link: Materials and design.</li> </ul>	<p><b>Know:</b> <b>Safety and use</b></p> <ul style="list-style-type: none"> <li>Electrical things need to be used safely.</li> </ul> <hr/> <p><b>Do:</b></p> <ul style="list-style-type: none"> <li>Observe what happens when electrical devices are used.</li> </ul>
	<b>Understand: Electricity is needed to power devices used in everyday life and need to be used safely to protect us.</b>	
First Level	<b>Understand: Materials have different properties which determines how they are used.</b>	
	<p><b>Know:</b> <b>Properties and uses materials</b></p> <ul style="list-style-type: none"> <li>The properties of a material determine its use.</li> </ul> <hr/> <p><b>Responsible use of materials</b></p> <ul style="list-style-type: none"> <li>Materials can be reused and recycled to reduce waste and pollution.</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>Sort materials into different groups.</li> <li>Select and justify materials for different uses based on their properties.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>Sort materials into groups based on their recyclable properties.</li> </ul>
	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>Progression from early level is that some materials may have multiple properties, making sorting more complex.</li> <li>Observable properties of materials include: shape, texture, colour, heaviness, hardness etc.</li> </ul> <hr/> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>Link to Science in Action Big Idea: Taking Scientific Action.</li> <li>Sorting of waste materials for recycling.</li> <li>Technologies link: Materials and design.</li> </ul>	<p><b>Know:</b> <b>Safety and use</b></p> <ul style="list-style-type: none"> <li>Electricity can hurt people if it is not used safely.</li> <li>Only plugs should be put into sockets.</li> </ul> <p><b>Electricity</b></p> <ul style="list-style-type: none"> <li>Electricity transfers energy from one place to another, to make things work.</li> <li>Electricity can make things light up, move, make sound or become warmer.</li> </ul>
	<b>Understand: Energy resources are needed to power our homes, transport and many aspects of daily life.</b>	
	<b>Includes</b>	
	<ul style="list-style-type: none"> <li>Focus on encouraging safe and unsafe behaviour around electricity and sockets.</li> <li>May involve turning electrical devices on and off and using devices and observing what happens.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>Link to Scientific Knowledge Big Idea: The Living World (Concept of Life).</li> <li>Food provides humans and others animals with energy.</li> <li>Link to Scientific Knowledge Big Idea: The Physical World.</li> </ul>	
	<b>Includes</b>	
	<ul style="list-style-type: none"> <li>Electricity stays within safe pathways in plugs, sockets and wires.</li> <li>Focus on observable electrical effects only.</li> <li>Electricity can also make things warmer but this is unlikely to be experienced due to safety.</li> <li>Electricity can make things light up, move or make sound: could cover small devices, everyday appliances or transport.</li> </ul>	

<b>Second Level</b>	<b>Understand: Materials have different properties and availability which determines how they can be used and conserved.</b>		<b>Understand: Society meets its energy needs, and powers everyday devices through the use of renewable and non-renewable energy sources.</b>	
	<b>Know:</b> ----- -----  <b>Properties and uses of materials</b> • Materials can bend, stretch, compress or break when forces are applied. • Some materials are used because they float or sink. Floating and sinking depends on material and shape. • Some materials help keep heat in or out and are used in buildings and clothing. • Materials which let heat pass through them easily are called conductors. • Materials which do not let heat pass through easily are called insulators.  <b>Responsible use of materials</b> • Some materials are at risk of running out. • Ways to reduce the use of raw materials include: rethinking, reducing, re-using/re-purposing, repairing, and recycling.	<b>Do:</b> ----- -----  • Evaluate and justify which materials are best suited for specific uses, based on their properties. • Justify responsible choices about the use and conservation of materials. • Evaluate the environmental impact of material use and disposal. • Use scientific vocabulary: float, sink, conductor, insulator.	<b>Know:</b> <b>Energy sources</b> ----- -----  • A fuel stores energy that people can use. • Batteries store energy that can be used when required. • Meeting society's energy needs has led to the burning of fossil fuels, which are non-renewable and took millions of years to form. • There are a range of ways to generate electricity from renewable sources, which are replenished naturally. • The use of energy resources in homes, schools and transport can be measured.  <b>Electricity</b> • Electricity transfers energy to everyday devices that convert it to heat, light, sound or movement. • Electricity travels along wires inside devices. If it leaves this path, it can cause harm. • Wires have a protective coating (usually plastic or rubber) around them to keep the electricity safely inside. -----	<b>Do:</b> ----- -----  • Classify energy sources as renewable or non-renewable. • Compare the advantages and disadvantages of different energy sources. • Compare information about the use of energy resources in everyday life. • Use scientific vocabulary: finite, renewable, non-renewable, fuel, fossil fuel. -----
	<b>Includes</b> • At this level, properties of materials could extend to flexibility, elasticity, waterproofness, strength, durability, biodegradability.  <b>Notes</b> • Materials can become at risk of running out either because they are scarce or being used up quickly. Examples include copper, coal, oil. • Ways to reduce the use of materials introduces some principals of the circular economy, but this vocabulary is not required. Composting may also be discussed. • Sink has a different scientific meaning to its everyday use.		<b>Includes</b> • Non-renewable fossil fuels include coal, oil and gas. • Range of ways to generate electricity: renewable sources such as wind, solar, hydroelectric, geothermal, wave/tidal and biomass.  <b>Notes</b> • Link to Being Scientific Big Idea: Interpreting and analysing data. - Comparing information about energy use might include discussion about smart meter data, appliance ratings, transport comparisons, school energy audits. -----	

<b>Third Level</b>	<b>Understand: Metals and plastics are materials that are chosen for specific uses and consideration should be given to their impact on people and the environment.</b>		<b>Understand: Energy is generated, transferred, stored and managed in different ways to meet changing demand, so societies can maintain reliable and sustainable energy supplies.</b>	
	<p><b>Know:</b></p> <p><b>Properties and uses of materials</b></p> <ul style="list-style-type: none"> <li>• Metal elements are usually good conductors of heat and electricity, where non-metals are usually not.</li> <li>• Some metals are found uncombined in the Earth's crust. These are known as native metals.</li> <li>• Most metals are found combined with other elements in compounds known as ores, and have to be extracted for use.</li> <li>• The method of extraction is related to the property of reactivity: <ul style="list-style-type: none"> <li>- Unreactive metals can be extracted from their ores by heating.</li> <li>- Moderately reactive metals can be extracted from their ores by heating with carbon.</li> <li>- Reactive metals have to be extracted from their ores by electrolysis.</li> </ul> </li> <li>• Metals can be arranged in order of reactivity according to their reactions with water, acids and oxygen.</li> <li>• Heat can be transferred by conduction, convection and radiation.</li> <li>• Heat transfers through solid materials by conduction.</li> <li>• In liquids and gases, heat can be transferred by convection.</li> <li>• Radiation transfers heat without direct contact.</li> <li>• The properties of electrical and thermal conductivity have useful applications in improving energy efficiency in everyday life.</li> <li>• Many plastics are durable and biodegrade very slowly, so they can persist in the environment and form microplastics.</li> <li>• New materials with particular properties have been developed to meet specific needs and challenges.</li> </ul> <p><b>Responsible use of materials</b></p> <ul style="list-style-type: none"> <li>• Extracting metals provides materials that society depends on, but it can harm the environment and affect communities. These impacts need to be carefully considered and managed.</li> <li>• Plastics pose environmental, health and social challenges. Consideration needs to be given to how we can reduce plastic waste and pollution.</li> <li>• Decisions about using materials require</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>• Compare reactions of metals to observe the property of reactivity.</li> <li>• Relate extraction methods to metal reactivity.</li> <li>• Investigate and compare conductivity in different materials.</li> <li>• Evaluate and justify which materials are most suitable for energy efficiency.</li> <li>• Make informed decisions about the use of plastics and metals in everyday life.</li> <li>• Use scientific vocabulary: ore, extraction, conduction, convection, radiation.</li> </ul>	<p><b>Know:</b></p> <p><b>Energy sources</b></p> <ul style="list-style-type: none"> <li>• Electricity is generated when energy from fuels or renewable sources is used to turn turbines. Electricity can also be generated by photovoltaic cells.</li> <li>• Turbines spin the moving parts of a generator, producing electricity.</li> <li>• Energy cannot be created or destroyed. It can be transferred between energy stores within a system or to the surroundings.</li> <li>• A battery contains chemicals that store energy and can supply an electrical current when connected in a complete circuit.</li> <li>• The National Grid draws on a changing mix of energy sources, which allows supply and demand of electricity to be managed and balanced.</li> <li>• Micro-renewables are small-scale systems that generate electricity locally for nearby users.</li> <li>• Energy security is having access to a reliable supply of energy to meet current and future needs.</li> </ul> <p><b>Electricity</b></p> <ul style="list-style-type: none"> <li>• Electricity consumption is often measured in kilowatt-hours (kWh).</li> <li>• Different electrical appliances have different power ratings and technology can help people monitor and manage electricity use.</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>• Use data such as kilowatt-hours (kWh) and energy tariffs to analyse the cost and efficiency of electrical appliances.</li> <li>• Identify patterns in electricity use to suggest ways electricity consumption can be reduced.</li> <li>• Identify and compare ways to reduce unnecessary use of energy resources.</li> <li>• Evaluate the advantages and limitations of different energy sources in relation to reliability, sustainability and environmental impact.</li> <li>• Use scientific vocabulary: turbines, generators, photovoltaic cells, energy security.</li> </ul>

	evaluation of environmental, social and ethical impacts.			
	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Comparison of metal reactivity by reaction with water, acid and oxygen.</li> <li>• Examples of applications based on conductivity includes, for example, building insulation, cooking utensils, insulation in wires.</li> </ul> <p><b>Excludes</b></p> <ul style="list-style-type: none"> <li>• Knowledge of the products of the reaction of metals with water, acid or oxygen does not need to be covered at this level.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• Graphite conducts electricity well, which is unusual for a non-metal.</li> <li>• Link to Science in Action Big Idea: Scientific Innovations.</li> <li>- New materials such as Kevlar (strong), biopol (soluble), composite materials (carbon fibre and plywood), and high-performance sportswear, amongst others, can be explored in the contexts of performance, cost, sustainability and ethics.</li> </ul>		<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Technologies used to monitor electricity consumption include smart meters and apps.</li> <li>• Micro-renewables includes solar panels, small wind turbines, and micro-hydro.</li> <li>• Heat pumps are classed as micro renewables because they draw on energy from natural sources such as air or the ground, although they require electricity to operate.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• The word 'energy' is used widely in society. This can result in 'energy' being used and thought of in ways that are not completely scientific.</li> <li>• The use of terms relating to different 'forms' or 'types' of energy are best avoided. The exceptions are stored (potential) and movement (kinetic) energy. It is better to refer to the 'transfer' of energy, or 'energy stores', rather than the 'transformation' of energy from one 'form' to another.</li> <li>• Electricity consumption may be explored using real or simulated energy data, including kilowatt-hours (kWh) and appliance ratings.</li> <li>• Link to Scientific Knowledge Big Idea: The Physical World (Electricity).</li> <li>- Building circuits using electrical components.</li> </ul>	
	<p><b>Understand: Metals have different chemical properties and react in different ways, making them suited to different uses and applications in society.</b></p>		<p><b>Understand: Meeting future energy needs requires balancing energy sources, storage and demand, so societies can make informed decisions about reliable, sustainable and secure energy supplies.</b></p>	
Fourth Level	<p><b>Know:</b></p> <p><b>Properties and uses of metals</b></p> <ul style="list-style-type: none"> <li>• Some metals react with water to produce a metal hydroxide and hydrogen gas.</li> <li>• Some metals react with acids to produce a salt and hydrogen gas.</li> <li>• Some metals react with oxygen to produce metal oxides.</li> <li>• The reactivity of metals has many practical applications in everyday life.</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>• Construct word equations to describe the reactions of metals.</li> <li>• Use evidence of how metals react to justify the selection and use of metals in real-world contexts.</li> <li>• Apply knowledge of reactivity of metals to identify solutions to everyday problems.</li> <li>• Use scientific vocabulary: metal hydroxide, metal oxide, reactivity.</li> </ul>	<p><b>Know:</b></p> <p><b>Energy security</b></p> <ul style="list-style-type: none"> <li>• Innovative energy storage methods are important for expanding the use of renewable energy, as they allow energy to be stored when it is produced and used later when demand is high or supply is low.</li> <li>• Future energy security depends on reducing overall energy demand, as well as ensuring an appropriate balance of available energy sources and sufficient storage to meet needs.</li> <li>• Countries around the world experience different challenges and develop different solutions to meet the energy needs of their populations in a sustainable way.</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>• Justify why energy security is important for communities and society.</li> </ul>
	<p><b>Excludes</b></p> <ul style="list-style-type: none"> <li>• Formula equations for reactions of metals, as this does not need to be covered at this level.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• The application of knowledge and skills through everyday contexts will be a significant focus at fourth level. See Science in Action Big Idea and Breadth of Experience guidance for details.</li> <li>• The reactivity of metals can be used in solutions to everyday problems such as: <ul style="list-style-type: none"> <li>- Choosing more reactive metals to make batteries more efficient.</li> <li>- Using less reactive metals in buildings so they don't rust or corrode quickly.</li> <li>- Using copper in wires because its unreactive and safe.</li> </ul> </li> <li>• Reactivity has a different scientific meaning to its everyday use.</li> </ul>		<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Energy storage innovations include fast-charging Lithium batteries, battery walls to store solar energy generated in homes, and large-scale energy storage used in power stations.</li> <li>• Smart grid technologies can be used to integrate renewable energy sources and balance supply and demand across the electricity network.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• The application of knowledge and skills through real-life contexts will be a significant focus at fourth level. See Science in Action Big Idea and Breadth of Experience guidance for details.</li> <li>• Learners should engage critically with evidence and contemporary case studies related to energy security and sustainability.</li> <li>• Energy security challenges may include resource availability, climate change, conflict, infrastructure limitations and increasing demand.</li> <li>• Link to Scientific Knowledge Big Idea: The Connected World (Energy and climate change).</li> </ul>	

		<ul style="list-style-type: none"><li>- Linking the science of climate change to responsible energy use.</li><li>• Link to Science in Action Big Idea: Taking Scientific Action.</li><li>- Learners could apply learning to suggest creative solutions to meet the future energy needs of a community or place; or apply learning to reduce the use of energy resources in real-life contexts such as the home, school, transport, or the wider community.</li></ul>
--	--	--

Early Draft Sample

	Energy in society	Space		
	Energy and climate change			
	Understand: The use of energy resources impacts the environment and should be used with care.		Understand: The turning of the Earth causes the sky to appear light and dark, creating day and night.	
Early Level	<p><b>Know:</b></p> <p>-----</p> <p><b>Climate change</b></p> <ul style="list-style-type: none"> <li>Using less energy resources helps care for the environment.</li> </ul>	<p><b>Do:</b></p> <p>-----</p> <ul style="list-style-type: none"> <li>Observe and identify ways energy resources can be wasted and saved.</li> </ul>	<p><b>Know:</b></p> <p><b>Solar system</b></p> <ul style="list-style-type: none"> <li>The Sun gives us light and warmth.</li> <li>The Moon can be observed in the sky during the day and at night.</li> </ul> <p><b>Stars and galaxies</b></p> <ul style="list-style-type: none"> <li>Stars can be seen at night.</li> </ul> <p>-----</p> <p><b>Solar system</b></p> <ul style="list-style-type: none"> <li>The Moon appears to change shape.</li> <li>The sky is mostly light during the day and dark at night.</li> <li>The Sun is in the sky during the daytime, even when it is cloudy.</li> </ul> <p><b>Exploring space</b></p> <ul style="list-style-type: none"> <li>People can travel into space to explore.</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>Observe changes between day and night.</li> </ul> <p>-----</p> <ul style="list-style-type: none"> <li>Observe the sky at different times and identify the Sun and Moon.</li> <li>Use everyday vocabulary such as Sun, Moon, stars, day and night to describe changes in the sky.</li> </ul>
	<p>-----</p> <p><b>Includes</b></p> <ul style="list-style-type: none"> <li>Noticing when energy is wasted (such as lights on in empty rooms, heating on when windows are open etc).</li> </ul>	<p><b>Notes</b></p> <ul style="list-style-type: none"> <li>Link to Scientific Knowledge Big Idea: The Physical World (Light).</li> <li>Observing the world around us.</li> </ul> <p>-----</p> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>Link to Scientific Knowledge Big Idea: The Physical World (Light).</li> <li>Observing the world around us.</li> <li>The sky is mostly light during the day and dark during the night. The word 'mostly' is used because of seasonal changes - in the winter learners may arrive to settings during the day when it is still dark, and in the summer they may go to bed at night but it is still light.</li> <li>Observing the sky at night to see stars might not be possible but can be discussed.</li> </ul>		

<b>First Level</b>	<b>Understand: The use of energy resources to improve people's lives can have harmful impacts on the environment.</b>		<b>Understand: The Earth, Moon and Sun are part of the Solar System and move in predictable ways creating patterns such as day, night and seasons that shape and support life on Earth.</b>	
	<b>Know:</b> <hr style="border-top: 1px dashed #000;"/> <hr style="border-top: 1px dashed #000;"/> <b>Climate change</b> <ul style="list-style-type: none"> <li>• People can make choices to minimise the use of energy resources and protect the environment.</li> </ul>	<b>Do:</b> <hr style="border-top: 1px dashed #000;"/> <hr style="border-top: 1px dashed #000;"/> <ul style="list-style-type: none"> <li>• Identify and apply ways to reduce unnecessary use of energy resources.</li> <li>• Compare how different activities use energy resources.</li> </ul>	<b>Know:</b> <hr style="border-top: 1px dashed #000;"/> <hr style="border-top: 1px dashed #000;"/> <b>Solar System</b> <ul style="list-style-type: none"> <li>• Planet Earth is shaped like a sphere.</li> <li>• The Earth spins once every day, causing day and night, and moves around the Sun over a year, causing seasonal patterns.</li> <li>• The Solar System is made up of the Sun, eight planets and other objects that move around the Sun.</li> <li>• Some planets can be observed in the night sky without a telescope.</li> <li>• The moon goes through eight major phases. Stars and galaxies.</li> <li>• Stars appear as small points of light in the sky, often in recognisable patterns.</li> <li>• The Sun is one of many stars in our Milky Way galaxy.</li> </ul> <b>Conditions for life.</b> <ul style="list-style-type: none"> <li>• The Sun provides the light and warmth needed by living things.</li> </ul> <b>Exploring space.</b> <ul style="list-style-type: none"> <li>• Humans use technology to observe and explore space to learn about Earth, the Solar System and beyond.</li> </ul> <hr style="border-top: 1px dashed #000;"/>	<b>Do:</b> <hr style="border-top: 1px dashed #000;"/> <hr style="border-top: 1px dashed #000;"/> <ul style="list-style-type: none"> <li>• Observe changes in the sky and seasonal change.</li> <li>• Relate the Earth's movements to the length of a day, the seasons, and a year.</li> <li>• Use scientific vocabulary: seasons, Earth, planets, Solar System, galaxies, Milky Way.</li> </ul> <hr style="border-top: 1px dashed #000;"/>
<hr style="border-top: 1px dashed #000;"/> <hr style="border-top: 1px dashed #000;"/> <b>Includes</b> <ul style="list-style-type: none"> <li>• Examples of choices humans to minimise energy would be turning off devices, using public transport etc.</li> </ul> <b>Notes</b> <ul style="list-style-type: none"> <li>• Link to Scientific Knowledge Big Idea: The Connected World (Nature).</li> <li>• It is more accurate to refer to 'energy resources being used', than to say, 'energy being used'.</li> <li>• Link to Science in Action Big Idea: Taking Scientific Action.</li> <li>- Reduce the use of energy resources.</li> </ul>		<b>Includes</b> <hr style="border-top: 1px dashed #000;"/> <hr style="border-top: 1px dashed #000;"/> <ul style="list-style-type: none"> <li>• The planets in the Solar System are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.</li> <li>• Changes in the sky can include day, night, sunrise and sunset and in the appearance of the Moon.</li> <li>• Relating the Earth's movements might include discussion about days being shorter in winter, longer in summer, how long it takes to orbit the sun = a year, differences in northern and southern hemisphere / equator.</li> <li>• The eight major phases of the Moon: new moon, waxing crescent, first quarter, waxing gibbous, full moon, waning gibbous, last quarter, waning crescent.</li> </ul> <b>Notes</b> <ul style="list-style-type: none"> <li>• Link to Numeracy and Mathematics.</li> <li>• The Sun only appears to move across the day because the Earth is turning, not because the Sun itself is moving.</li> <li>• Learners are not expected to memorise all moon phases in sequence at first level.</li> </ul> <hr style="border-top: 1px dashed #000;"/>		

<b>Second Level</b>	<b>Understand: The use of some energy resources is contributing to global warming and climate change.</b>	<b>Understand: The movements and features of the Solar System reveal patterns seen across space and help us understand the conditions needed for life.</b>	
	<p><b>Know:</b></p> <p>-----</p> <p>-----</p> <p><b>Climate change</b></p> <ul style="list-style-type: none"> <li>• The Earth's natural Greenhouse Effect helps keep the Earth warm enough for life to survive, but changes to this natural balance can affect the Earth's climate.</li> <li>• Burning fossil fuels releases more greenhouse gases into the atmosphere, which leads to an increase in the Earth's temperature.</li> <li>• Global warming affects climate systems, causing the weather to change.</li> </ul>	<p><b>Do:</b></p> <p>-----</p> <p>-----</p> <ul style="list-style-type: none"> <li>• Evaluate how different energy sources contribute to climate change.</li> <li>• Identify the impact of human activity on climate systems over time.</li> <li>• Use scientific vocabulary: Greenhouse Effect, greenhouse gases, climate change.</li> </ul>	<p><b>Know:</b></p> <p><b>Solar System</b></p> <ul style="list-style-type: none"> <li>• The Earth spins on its axis once every 24 hours, causing day and night.</li> <li>• An orbit is the path an object follows around another object in space.</li> <li>• The Earth orbits the Sun once each year.</li> <li>• The Moon orbits the Earth approximately every 27 days.</li> <li>• Some planets in the Solar System are rocky and some are gas or ice giants.</li> </ul> <p><b>Stars and galaxies</b></p> <ul style="list-style-type: none"> <li>• Space is the vast region beyond Earth's atmosphere where planets, stars, and galaxies exist.</li> <li>• A star is a very large, hot object in space that produces its own light and heat.</li> <li>• Planets are large, rounded objects that orbit a star.</li> <li>• Constellations are recognised patterns of stars that appear to form shapes when viewed from Earth, even though the stars are not actually close together in space.</li> </ul> <p><b>Conditions for life</b></p> <ul style="list-style-type: none"> <li>• Planet Earth has the ideal conditions needed to support life.</li> <li>• The Sun provides the energy that drives weather on Earth and makes life possible.</li> </ul> <p><b>Exploring space</b></p> <ul style="list-style-type: none"> <li>• Satellites are used to communicate, navigate and monitor Earth.</li> <li>• Space exploration helps us learn more about Earth and space.</li> <li>• Conditions in space can affect the health of humans working in space.</li> </ul> <p>-----</p> <p>-----</p>
	<p>-----</p> <p>-----</p> <p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Impacts of climate change include extreme weather (storms, flooding, droughts), loss of habitats.</li> <li>• Link to Being Scientific Big Idea: Interpreting and Analysing Data.</li> <li>- Identify impact of human activity may include interpreting evidence such as temperature change data,</li> </ul>	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Rocky planets (Mercury, Venus, Earth and Mars).</li> <li>• Gas planets (Jupiter, Saturn) and Ice planets (Uranus and Neptune) are the furthest planets from the Sun and are much bigger than the rocky planets.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>• Leap year – The Earth takes about 365¼ days to orbit the Sun, so an extra day (29 February) is added every four years.</li> </ul>	

	<p>polar ice cap sizes, number of extreme weather events.</p> <p><b>Excludes</b></p> <ul style="list-style-type: none"> <li>• Specific naming of greenhouse gases (such as carbon dioxide, methane etc) is not expected at this level but may naturally occur during discussion.</li> </ul>	<ul style="list-style-type: none"> <li>• It takes about 27.3 days for the Moon to orbit the Earth – not 28 days as commonly thought.</li> <li>• Stars in the same constellation may be very far apart in space.</li> <li>• Link to Science in Action Big Idea: Equity, Identity and Belonging.</li> <li>- Observing the night sky has been important to many cultures over time.</li> </ul> <p>-----</p> <p>-----</p>	
<p><b>Third Level</b></p>	<p><b>Understand: Greenhouse gas emissions, and further climate change impacts caused by humankind, can be reduced by using renewable energy sources and by changing the way energy resources are used.</b></p>	<p><b>Understand: Gravity causes objects in space to move in predictable orbits and patterns, allowing satellites and space technologies to observe the Earth, Solar System and The Universe.</b></p>	
	<p><b>Know:</b></p> <p><b>Climate change</b></p> <ul style="list-style-type: none"> <li>• The Sun warms the land and oceans on Earth. They then emit infrared radiation, some of which is absorbed and re-emitted by greenhouse gases in the Earth's atmosphere.</li> <li>• Human activities are increasing the amount of greenhouse gases in the atmosphere, causing more infrared radiation to be absorbed and re-emitted.</li> <li>• The increasing amounts of greenhouse gases in the atmosphere are slowing the rate at which energy is transferred into space, causing the Earth to warm and contributing to changes in weather patterns and climate.</li> <li>• Combustion is the scientific term for burning – a chemical reaction in which a substance reacts with oxygen.</li> <li>• Fossil fuels are carbon-based compounds.</li> <li>• The reaction of carbon-based compounds with oxygen produces carbon dioxide, which is a greenhouse gas.</li> <li>• Some natural environments are important stores of carbon.</li> <li>• Using renewable energy reduces greenhouse gas emissions compared to the use of fossil fuels.</li> </ul> <p><b>Journey to net zero</b></p> <ul style="list-style-type: none"> <li>• Climate change has widespread effects which have consequences for nature and communities, both locally and globally.</li> <li>• Reducing greenhouse gas emissions requires changes to the way society operates and use energy resources.</li> <li>• Net zero is when the level of greenhouse gases absorbed or released into the environment is equal.</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>• Compare renewable and non-renewable sources used to generate electricity.</li> <li>• Evaluate evidence to make informed decisions about the most effective actions to reduce greenhouse gas emissions.</li> <li>• Use scientific vocabulary: combustion, peatlands, renewable energy, fossil fuels, infrared radiation, emit.</li> </ul>	<p><b>Know:</b></p> <p><b>Solar System and the Universe</b></p> <ul style="list-style-type: none"> <li>• Lunar and solar eclipses are caused by the relative positions of the Earth, Moon and Sun.</li> <li>• Gravity pulls objects towards each other, keeping the Earth and Moon in orbit and affecting tides on Earth.</li> <li>• A galaxy is a large group of stars, gas and dust held together by gravity.</li> <li>• The Universe is vast and contains billions of galaxies and is expanding.</li> <li>• Earth lies within the Sun's habitable 'Goldilocks' Zone, where temperatures can allow liquid water to exist, enabling life.</li> <li>• Planetary atmospheres contain different gases and affect planetary conditions.</li> </ul> <p><b>Exploring space</b></p> <ul style="list-style-type: none"> <li>• Satellites and space technologies are used for a variety of purposes including environmental and climate monitoring, research and astronomy.</li> <li>• Space exploration and technologies create environmental and ethical considerations.</li> </ul>
<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Possible sources of energy to compare include: fossil fuels, nuclear, wind, solar, hydroelectric, geothermal, wave/tidal, hydrogen, biomass etc.</li> </ul>	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>• Scientists study organisms called extremophiles, which can survive in extreme conditions such as high temperature, pressure or low oxygen, to help understand if and where life might exist beyond Earth.</li> <li>• Living in low gravity can affect muscles, bones and body systems.</li> <li>• Space technologies include satellites, probes, telescopes and spacecraft, space stations etc.</li> </ul>		

	<ul style="list-style-type: none"> <li>Natural environments that are important carbon stores include: wetlands (including peatlands), forests, oceans, and coastal ecosystems such as seagrass meadows etc.</li> </ul> <p><b>Excludes</b></p> <ul style="list-style-type: none"> <li>Description of fossil fuels as hydrocarbons, or specific naming and drawing of these, does not need to be covered at this level.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>Comparing non-renewable and renewable resources might include evaluating environmental impact and sustainability of materials.</li> <li>Nuclear energy is currently classified as a non-renewable energy source because it relies on finite fuels such as uranium. However, electricity generated by nuclear power produces very low greenhouse gas emissions.</li> <li>Link to Scientific Knowledge Big Idea: The Connected World (Energy sources and security).</li> <li>Linking the science of climate change to responsible use of energy resources.</li> </ul>	<p><b>Notes</b></p> <ul style="list-style-type: none"> <li>Satellites may be explored in relation to communication, navigation, weather forecasting and environmental monitoring.</li> <li>Link to Science in Action Big Idea: Science and innovation around me.</li> <li>Connection of innovation in science and technologies with how this aids people and communities on planet Earth.</li> <li>Link to Scientific Knowledge Big Idea: The Physical World (Forces).</li> <li>Connection related to understanding of gravity.</li> </ul>		
<b>Fourth Level</b>	<p><b>Understand: Human activities are changing the Earth's climate by increasing greenhouse gases, and scientific evidence helps to inform decisions about how to reduce emissions and respond to the impacts of climate change on communities around the world.</b></p>		<p><b>Understand: Scientific discovery and innovation has helped us understand the origins of the Universe, and continues to open-up new frontiers in space exploration.</b></p>	
	<p><b>Know:</b></p> <p><b>Climate change</b></p> <ul style="list-style-type: none"> <li>Levels of carbon dioxide in the atmosphere depend on the balance of processes that release and remove carbon dioxide.</li> <li>Methane is a powerful greenhouse gas produced by waste decomposition and fossil-fuel extraction.</li> </ul> <p><b>Journey to net zero</b></p> <ul style="list-style-type: none"> <li>Climate change is a local and global issue requiring collective action which is informed by scientific evidence.</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>Use evidence and data to identify how human activities affect greenhouse gas levels and contribute to climate change.</li> <li>Use scientific vocabulary: methane, decomposition.</li> </ul>	<p><b>Know:</b></p> <p><b>Solar System and the Universe</b></p> <ul style="list-style-type: none"> <li>A black hole is a region of space that can form when a very massive star collapses, creating gravity so strong that nothing, not even light, can escape.</li> <li>The Universe began from a very hot, dense state and has been expanding over time. This is known as the Big Bang Theory.</li> </ul> <p><b>Exploring space</b></p> <ul style="list-style-type: none"> <li>Space travel and habitation requires innovation and scientific solutions.</li> </ul>	<p><b>Do:</b></p> <ul style="list-style-type: none"> <li>Analyse evidence from space research and Earth observation to identify patterns, changes and impacts.</li> <li>Evaluate how advances in space science and technology affect society and the environment.</li> <li>Use scientific vocabulary: black hole, The Big Bang Theory.</li> </ul>
	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>Link to Scientific Knowledge Big Idea: The Connected World (Energy sources and security).</li> <li>Linking the science of climate change to responsible use of energy resources.</li> <li>Link to Science in Action Big Idea: Taking Scientific Action.</li> <li>Learners could for example apply learning and work collaboratively to take positive scientific action on a climate change issue.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>The application of Knowledge and skills through everyday contexts will be a significant focus at fourth level. See Science in Action Big Idea and Breadth of Experience guidance for details.</li> <li>Link to Social Subjects: The consequences of climate change are not felt equally. Some people, places and communities experience more serious impacts than others.</li> </ul>	<p><b>Includes</b></p> <ul style="list-style-type: none"> <li>This content at fourth level provides a light-touch introduction to vocabulary and concepts that learners may encounter in everyday life, media and popular culture.</li> </ul> <p><b>Notes</b></p> <ul style="list-style-type: none"> <li>The application of knowledge and skills through everyday contexts will be a significant focus at fourth level. See Science in Action Big Idea and Breadth of Experience guidance for details.</li> <li>Discoveries and images from space can inspire wonder and curiosity about the Universe.</li> <li>Links can be made to environmental, ethical and economic considerations related to space innovation and exploration.</li> <li>Link to Science in Action Big Idea: Science and innovation around me.</li> <li>Connection of innovation in science and technologies with space exploration beyond Earth.</li> </ul>		

## Version History

Version	Date	Detail
Version 1	23 June 2026	First released

Early Draft Sample