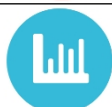


Medium Term Plan – SCIENCE – Year 3 Autumn 1 – **PLANTS**

Overarching Enquiry Question: Which is the most important part of a plant?

Length of unit - 5 Sessions

	Disciplinary and Substantive Knowledge	Suggested Vocabulary	Learning Sequence
Pre-learning	- Which things are living, and which are not. - A variety of common wild and garden plants, including deciduous and evergreen trees and how to identify them. - The structure of common flowering plants, including trees (including leaves, flowers, fruits, roots, bulbs, seeds, stem, trunks and branches) - Seeds and bulbs grow into mature plants - Plants need water, light and a suitable temperature to grow and stay healthy. - Plants and animals depend on each other to survive.	Plant Flower Anther Petal Stigma Ovary	Identify parts of a plant and record my findings in labelled scientific diagrams. Learning <i>A flowering plant is made of four main parts: flower, stem, leaf and root.</i> <i>The parts of the flower relevant to pollination (Anther, stigma, ovary, petal)</i> Activity WS – Recording the parts of a flower in a labelled scientific diagram. SE – Identifying the parts of a plant and the different parts of a flower.
3Learning in this unit	<u>To know that</u> - Different parts of flowering plants (roots, stem/trunk, leaves and flowers) have different functions (L1) - The requirements of plants for life and growth (air, light, water, nutrients from soil, and correct temperature) vary from plant to plant (L2) - Water is transported within plants and how this happens. (L3) - Flowers play a part in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (L4, L5, L6) <u>Working Scientifically</u> <u>To know how to</u>	Growth Nutrients	Plan and carry out a comparative test to investigate plant growth. (2 Sessions) Learning <i>Plants need air, light, water, soil and the correct temperature to grow.</i> <i>If a plant does not have one or more of these whilst growing, it will affect the growth of the plant in different ways (to be observed throughout the unit)</i> Activity WS – Plan and set up an enquiry to investigate how removing one of these essential factors affects plant growth. SE – Carry out a simple comparative test to investigate plant growth.
			
			
	 <u>Setting up tests (L2)</u> Work as a class to set up simple practical enquiries, comparative and fair tests.		
			
	 <u>Recording Data (L1, L4)</u> Gather, record, classify, and present data in labelled diagrams and tables, using scientific language.	Xylem	Observe and explain how water is transported in plants. Learning <i>Water is essential for plant growth. Water is absorbed from the soil by the roots of a plant.</i> <i>Water travels through xylem (hollow tubes) in the stem to reach the leaves and flower.</i> Activity WS – Explain what you have observed. SE – Observe how water travels through the xylem in the stem of a plant by using dyed water, white flowers and celery.
	 <u>Interpreting and Communicating Results (L3)</u> Use simple scientific language to communicate findings orally and written. Draw conclusions based on observations, supporting with simple scientific evidence		
	 <u>Evaluating (L5)</u> Suggest improvement and new questions arising from the investigation.		
	<u>Scientific Enquiry</u>	Seeds Pollen Pollination	Use research to explain what pollination is and why it needs to happen.

    	<u>Comparative/Fair Testing (L2)</u> Changing one variable to see its effect on another, whilst keeping all others the same.	Learning Seeds (and therefore new plants) are made through pollination. One way of plants being pollinated is by insects such as bees. Bees are attracted by bright petals and drink nectar from flowers. Pollen is transferred from the anther to the bee. Pollen is then transferred to the stigma of other plants when bees visit them. Pollen travels down the style into the ovary and attaches to an ovule to make a seed. Activity WS - Present what you have learned about pollination from your research SE - Research how pollination happens using a drama-based activity.
	<u>Research (L4, L5)</u> Using secondary sources of information to answer scientific questions.	
	<u>Observation over time (L3)</u> Observing changes that occur over a period of time ranging from minutes to months.	
	<u>Identifying, grouping and classifying (L1)</u> Making observations to name, sort and organise items.	
		Dispersal Germinate Observe and identify patterns in how seeds are dispersed. Learning Seeds need to disperse by a parent plant. Seeds are dispersed in different ways: wind, bursting, shaking, water, animals. Activity WS – Create, adapt and evaluate your model seed spinner, identifying what elements were successful. SE – Look for patterns in the way that seeds that are dispersed by the wind.
Book/ Science Capital	Carl Linnaeus George Washington Carver Alexander Humboldt Oliver Rackham	
Resources	• Post it notes • Lilly flowers • Magnifying glasses/microscopes. • Pansies 6 per group, zip lock bags • Leafy celery, carnations, red or blue dye (food colouring does not work as well) • Zip lock bags or bags with a tie handle. • Small dish, water, apple juice, straws, cheesy crisps. • Whiteboards • Range of seeds. • Paperclips • Range of resources for spinners e.g., feathers, paper card, tissue, acetate, tissue paper.	

Overarching Enquiry Question: What can magnets do?

Length of unit - 6 Sessions

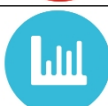
	Disciplinary and Substantive Knowledge	Suggested Vocabulary	Learning Sequence														
Pre-learning	- The shape of some materials can be changed when they are stretched, twisted, bent and squashed. - How different toys move. - Pushing and pulling can make an object start or stop moving. - The strength of the push or pull determines how far and fast an object moves.	Force Push Pull	Observe, group and classify forces as a push or a pull. Learning <i>A force makes an object start or stop moving, speed up or slow down, or change direction.</i> <i>Forces can be classified as a push or a pull.</i> Activity WS: Observe different forces. SE: Group and classify different forces based on observations and scientific knowledge														
Learning in this unit	<u>To know that</u> - Objects move differently on different surfaces. (L1, L2) - Some forces need contact between two objects, but magnetic forces can act at a distance. (L1, L2, L3) - Magnets attract or repel each other and attract some materials and not others. (L6) - A variety of everyday materials can be compared and grouped together based on whether they are attracted to a magnet and identify some magnetic materials. (L4) - Magnets have two poles. (L5, L6) - Two magnets will attract or repel each other, depending on which poles are facing. (L5, L6) <u>Working Scientifically</u> <u>To know how to</u> <table><tr><td></td><td></td></tr><tr><td></td><td><u>Making Predictions (L4)</u> Make predictions based on simple data.</td></tr><tr><td></td><td><u>Setting up tests (L5)</u> Work as a class to set up simple practical enquiries, comparative and fair tests.</td></tr><tr><td></td><td><u>Observing and Measuring (L1, L3)</u> Make careful observations using a range of measuring equipment, beginning to record in standard units where appropriate.</td></tr><tr><td></td><td><u>Recording Data (L6)</u> Gather, record, classify, and present data in labelled diagrams and tables, using scientific language.</td></tr><tr><td></td><td></td></tr><tr><td></td><td><u>Evaluating (L2)</u> Suggest improvement and new questions arising from the investigation.</td></tr></table>				<u>Making Predictions (L4)</u> Make predictions based on simple data.		<u>Setting up tests (L5)</u> Work as a class to set up simple practical enquiries, comparative and fair tests.		<u>Observing and Measuring (L1, L3)</u> Make careful observations using a range of measuring equipment, beginning to record in standard units where appropriate.		<u>Recording Data (L6)</u> Gather, record, classify, and present data in labelled diagrams and tables, using scientific language.				<u>Evaluating (L2)</u> Suggest improvement and new questions arising from the investigation.	Contact force Friction	Research, investigate and evaluate how objects move on different surfaces. Learning <i>Objects move differently over different surfaces.</i> <i>Friction forces slow down moving objects.</i> <i>A rough surface will create a greater friction force against a moving object than a smooth surface.</i> WS: Evaluate my choices and suggest further improvements. SE: Use the research and findings of John McAdam to create my own road surfaces.
		<u>Making Predictions (L4)</u> Make predictions based on simple data.															
		<u>Setting up tests (L5)</u> Work as a class to set up simple practical enquiries, comparative and fair tests.															
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	<u>Evaluating (L2)</u> Suggest improvement and new questions arising from the investigation.																
		Contact Non-contact force	Observe forces in action to classify them as contact or non-contact forces Learning <i>Some forces are contact forces</i> - Contact forces are forces that act between two objects that are physically touching each other. <i>Magnetic forces are non-contact forces.</i> - A magnet can act at a distance, so it does not have to be touching the object. Activities WS: Observe magnetism in action. SE: Research different forces in action.														
		Non-contact force Magnet Magnetic	Predict, investigate and classify which materials are magnetic.														
	Scientific Enquiry																

	<table><tr><td></td><td><u>Comparative/Fair Testing (L5)</u> Changing one variable to see its effect on another, whilst keeping all others the same.</td></tr><tr><td></td><td><u>Research (L2)</u> Using secondary sources of information to answer scientific questions.</td></tr><tr><td></td><td></td></tr><tr><td></td><td><u>Pattern-seeking (L6)</u> Identifying patterns and looking for relationships in enquiries where variables are difficult to control.</td></tr><tr><td></td><td><u>Identifying, grouping and classifying (L1, L4, L6)</u> Making observations to name, sort and organise items.</td></tr></table>		<u>Comparative/Fair Testing (L5)</u> Changing one variable to see its effect on another, whilst keeping all others the same.		<u>Research (L2)</u> Using secondary sources of information to answer scientific questions.				<u>Pattern-seeking (L6)</u> Identifying patterns and looking for relationships in enquiries where variables are difficult to control.		<u>Identifying, grouping and classifying (L1, L4, L6)</u> Making observations to name, sort and organise items.	<u>Learning</u> Materials can be magnetic. Magnetic materials are attracted to magnets. Not all metals are magnetic – only iron, steel, nickel and cobalt. <u>Activity</u> WS: Predict whether materials are magnetic or not. SE: Sort and classify materials into magnetic and non-magnetic. Magnet Plan and carry out a fair test to investigate the strength of magnets. <u>Learning</u> Magnets can be different shapes and sizes – bar magnet, ring magnet, horseshoe magnet. Magnets have different strengths. <u>Activities</u> WS: Plan a fair test to investigate the strength of magnets. SE: Carry out a fair test to investigate the strength of magnets Attract Repel Poles Use scientific drawings to explain how magnets attract and repel. <u>Learning</u> Magnets have two poles – north and south. Poles can attract (join) or repel (push apart). Opposite poles (N+S) attract, like poles (N+N, S+S) repel. <u>Activities</u> WS: Record findings using scientific drawings. SE: Spot patterns in drawings and explain what is happening.
	<u>Comparative/Fair Testing (L5)</u> Changing one variable to see its effect on another, whilst keeping all others the same.											
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Book/ Science Capital	Gigantic turnip John McAdam Sir Isaac Newton Albert Einstein											
Resources	• Blu tac, car or ball, balloon. • 2 bottles, long grain rice, Chop stick/skewer • Force metres • Cars/shoes • Range of materials e.g., sand, mud, flour, marbles, stones, pebbles to make roads. • Pringles tube, Range of 10ps with different alloys of metal (check dates), 50p coin, Strong magnets. (This part of the lesson is optional) • Range of magnetic and non-magnetic materials e.g., coke can, nail, foil, steel. Gold, keys. Coins, paper clip. • Magnetic materials • Magnets. • Tape. • 2x bar magnets and string. • Bar magnets											

Overarching Enquiry Question: How is every rock different?

Length of unit - 6 Sessions

	Disciplinary and Substantive Knowledge	Suggested Vocabulary	Learning Sequence														
Pre-learning	• Soil contains nutrients and these help plants to grow. • Some materials are used for certain purposes because of their properties	Appearance Layers Crystals Bubbles Pebbles	Observe the appearance of rocks and begin to group them by their appearances.														
Learning in this unit	<u>To know that</u> • Rocks can be compared and grouped together based on their appearance and simple physical properties (L1, L2, L3) • Fossils are formed when things that have lived are trapped within rock (L4) • Soils are made from rocks and organic matter. (L5, L6) <u>Working Scientifically</u> <u>To know how to</u> <table><tr><td></td><td></td></tr><tr><td></td><td><u>Making Predictions (L5)</u> Make predictions based on simple data.</td></tr><tr><td></td><td><u>Setting up tests (L6)</u> Work as a class to set up simple practical enquiries, comparative and fair tests.</td></tr><tr><td></td><td><u>Observing and Measuring (L1)</u> Make careful observations using a range of measuring equipment, beginning to record in standard units where appropriate.</td></tr><tr><td></td><td><u>Recording Data (L2, L3)</u> Gather, record, classify, and present data in labelled diagrams and tables, using scientific language.</td></tr><tr><td></td><td><u>Interpreting and Communicating Results (L4)</u> Use simple scientific language to communicate findings orally and written. Draw conclusions based on observations, supporting with simple scientific evidence</td></tr><tr><td></td><td></td></tr></table>				<u>Making Predictions (L5)</u> Make predictions based on simple data.		<u>Setting up tests (L6)</u> Work as a class to set up simple practical enquiries, comparative and fair tests.		<u>Observing and Measuring (L1)</u> Make careful observations using a range of measuring equipment, beginning to record in standard units where appropriate.		<u>Recording Data (L2, L3)</u> Gather, record, classify, and present data in labelled diagrams and tables, using scientific language.		<u>Interpreting and Communicating Results (L4)</u> Use simple scientific language to communicate findings orally and written. Draw conclusions based on observations, supporting with simple scientific evidence				<u>Learning</u> <i>Rocks have different appearances.</i> <i>Rocks may have layers, pebbles, crystals or bubbles.</i> <u>Activities</u> <i>WS: Make careful observations and identify similarities and differences in rocks.</i> <i>SE: Compare and group rocks together depending on their appearance.</i>
																	
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		<u>Interpreting and Communicating Results (L4)</u> Use simple scientific language to communicate findings orally and written. Draw conclusions based on observations, supporting with simple scientific evidence															
																	
		Hardness Durable	Classify rocks by their durability and record my classifications in a table or diagram. <u>Learning</u> <i>The physical properties of a material are its features that can be observed or measured.</i> <i>Hardness is a physical property of rocks.</i> <i>Durable rocks don't damage easily.</i> <u>Activities</u> <i>WS: Record classifications in a Venn diagram or Carroll diagram.</i> <i>SE: Classify rocks using their appearance.</i>														
		Permeable Impermeable	Carry out comparative tests to rank the properties of rocks and record this in a table. <u>Learning</u> <i>Rocks have different properties – permeability, durability, density.</i> <i>Permeable rocks allow water to be absorbed.</i> <i>Durable rocks don't damage easily.</i> <u>Activities</u> <i>WS: Record my results in a table and rank my rocks to answer enquiries.</i> <i>SE: Carry out a series of comparative tests to rank rock properties.</i>														
		Fossil Sediment	Use a model and pictures to explain the process of fossilisation. <u>Learning</u> <i>Fossils can be formed from different plants and animals.</i>														
	Scientific Enquiry																

		<u>Comparative/Fair Testing (L3)</u> Changing one variable to see its effect on another, whilst keeping all others the same.			<i>Some fossils are formed by an imprint of parts of living things, like bones, feathers, shells or leaves.</i> Fossils are formed when living things are trapped between rock. Activities WS: Understand the process of fossilisation using a model and pictures. SE: Research and present learning about Mary Anning and how she influenced the discovery of fossils.
		<u>Research (L4)</u> Using secondary sources of information to answer scientific questions.			
		<u>Observation over time (L6)</u> Observing changes that occur over a period of time ranging from minutes to months.			
					
		<u>Identifying, grouping and classifying (L1, L2, L5)</u> Making observations to name, sort and organise items.			
			Soil		Predict and identify the materials that soils are made from. Learning Soil is the loose surface material that covers most land. The creation of soil occurs over many years. Soil is a combination of different things, including rock, organic matter and air. Activities WS: Predict what materials a soil is made from. SE: Identify the materials in different soils.
Book/ Science Capital	Mary Anning Geologist Ground investigation engineer			Permeability	Set up tests and make observations to investigate soil permeability. Learning Soil is the top layer of the Earth. There are different types of soil - Sandy soil, clay soil, chalky soil and peat. Different soils have different levels of permeability. Activities WS: Set up tests to answer questions about different soils. SE: Make systematic and careful observations of soil permeability over time.
Resources	• Post it notes, Bounty, dairy milk, aero/whisper, Maltesers/revels, kit kat, snickers/double decker (chocolate bars) • Plates. • Selection of rocks, magnifying glasses, microscopes. • Whiteboards (optional) • Selection of rocks, pipettes, small dishes, egg boxes, white vinegar, sandpaper, nail, golf tea or coin, • Water. • Fossils, magnifying glasses. • Dog bones, plasticine or blu tack, candy floss or icing sugar, water, pipette, black food colouring, tissues. • Scissors, starburst, zippy wallet, foil trays, metal supports, tealight candles, small tray of sand (safety), • Camera, pots for samples, spades, white paper, magnifying glasses, pens. • 4 jars/beaker, 4 soil samples, magnifying glasses, water.				

	Disciplinary and Substantive Knowledge	Suggested Vocabulary	Learning Sequence	
Pre-learning	- The parts of the human body and what they do. - There are five types of vertebrates (mammals, fish, reptiles, amphibians, birds) - Vertebrates are animals that have a backbone. - Invertebrates are animals that do not have a backbone. - All animals need water, air and food to survive. - The different ways in which humans can be healthy	Bones Skeleton Spine Skull Ribs	Research the bones in the skeletal system to accurately label a human skeleton. Learning Humans have a skeleton made up of 206 bones. Key bones: skull, spine, ribs, tibia, fibula, femur, ulna, radius, humerus, pelvis Activities WS: Locate and label the bones in the body accurately. SE: Research the bones in the skeletal system.	
Learning in this unit	To know that			
	- Humans and some other animals have skeletons and muscles for support, protection and movement. (L1, L2, L3, L4) - Animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (L5, L6)			
	Working Scientifically			
	To know how to			
		Asking Questions (L2, L5) Ask relevant questions and use simple scientific enquiries to seek answers.		
				
				
		Observing and Measuring (L3) Make careful observations using a range of measuring equipment, beginning to record in standard units where appropriate.		
		Recording Data (L1, L6) Gather, record, classify, and present data in labelled diagrams and tables, using scientific language.		
		Interpreting and Communicating Results (L4) Use simple scientific language to communicate findings orally and written. Draw conclusions based on observations, supporting with simple scientific evidence		
				
	Scientific Enquiry			
				
	Research (L1, L4, L6) Using secondary sources of information to answer scientific questions.			
				
				
		Support Protect Movement	Classify parts of the human skeleton system to explain the uses of our bones. Learning Skeletons have three main functions. Support – skeletons are a framework to keep the body upright. Movement – muscles are attached to bones to help our body to move. Bones meet at joints. Protection – Bones protect some of our vital organs – heart, brain, lungs. Activities WS: Ask and answer questions about the uses of our bones. SE: Identify and classify functions of the human skeletal system	
		Vertebrate Invertebrate Exoskeleton	Make careful observations to classify vertebrates and invertebrates. Learning Animals that have a spine are called vertebrates. Some invertebrates have a hard shell over their bodies instead of a skeleton. Learning WS: Make careful observations to sort animals into groups according to their skeleton types. SE: Identify and classify animals into vertebrate and invertebrates.	
		Muscle Bicep Triceps Contract Relax	Use secondary sources to learn how muscles work and communicate my learning using a model. Learning Muscles work in pairs to help	

		 Identifying, grouping and classifying (L2, L3, L5) Making observations to name, sort and organise items.	bones to move. <i>One muscle contracts, the other relaxes. A common muscle pair is the biceps and triceps.</i> Activities <i>WS: Use scientific language to explain how muscles work, using a model to support. SE: Use video clips and models to find out about how muscles work.</i>
			Nutrients Dairy Fruit and vegetables Carbohydrates Proteins Ask questions to classify foods into the different food groups and explore how their nutrients help our bodies. Learning <i>Animals, including humans, cannot make their own food. Different nutrients help our bodies in different ways Fruits and vegetables provide vitamins and fibre for good health. Carbohydrates give us the energy we need to be active. Proteins help our bones and muscles to grow, be healthy and repair. Dairy, and alternatives, provides calcium for bone health.</i> Activities <i>WS: Ask questions to explore which nutrients different foods give to our bodies. SE: Identify and classify foods into the different food groups.</i>
			Nutrition Carbohydrates Minerals Proteins Vitamins Fibre Fats Use food labels to research the nutritional value of foods and record my results in a table. Learning <i>Knowing the nutritional information of what we eat is important so we can make informed decisions. The nutritional information of most pre-packed food in the UK can be found on the label. Nutrition information helps us compare foods in a fair way and be aware of foods that are high in fat, salt and sugar.</i> Activities <i>WS: Record my results in a table. SE: Research the nutritional values of foods by reading data from food labels.</i>
Book/ Science Capital	Physiotherapist		
Resources	• Doll • Post it notes, Laptops/ICT • Cotton buds/Blu tac (optional) • Gloves, straws, post it notes. • Cardboard, string, elastic bands, straws, strong tape. • 2 glass jars per group, eggs, beaker if water, paper towels. • Strong card, elastic bands, split pins, stapler. • Range of foods/food labels. • Zip lock bags, sugar cubes		

Medium Term Plan – SCIENCE – Year 3 Summer 1 – **LIGHT**

Overarching Enquiry Question: How can dark be changed?

Length of unit - 6 Sessions

	Disciplinary and Substantive Knowledge	Suggested Vocabulary	Learning Sequence														
Pre-learning	• Certain things produce light, usually by burning (e.g., The Sun) or electricity (e.g. Street lights) • Shiny materials reflect light. • Shadows are caused when certain materials block light.	Light Source Dark	Explore materials and ask questions about how different materials react to light.														
Learning in this unit	<u>To know that</u> • We need light to see things and that dark is the absence of light. (L1, L6) • Light is reflected from surfaces. (L2) • Light from the sun can be dangerous and that there are ways to protect your eyes. (L3) • Shadows are formed when light from a light source is blocked by an opaque object. (L4) • There are patterns in the way that the shadows change. (L5) <u>Working Scientifically</u> <u>To know how to</u> <table><tr><td></td><td><u>Asking Questions (L1)</u> Ask relevant questions and use simple scientific enquiries to seek answers.</td></tr><tr><td></td><td><u>Making Predictions (L2)</u> Make predictions based on simple data.</td></tr><tr><td></td><td><u>Setting up tests (L3)</u> Work as a class to set up simple practical enquiries, comparative and fair tests.</td></tr><tr><td></td><td></td></tr><tr><td></td><td><u>Recording Data (L4)</u> Gather, record, classify, and present data in labelled diagrams and tables, using scientific language.</td></tr><tr><td></td><td><u>Interpreting and Communicating Results (L5)</u> Use simple scientific language to communicate findings orally and written. Draw conclusions based on observations, supporting with simple scientific evidence</td></tr><tr><td></td><td><u>Evaluating (L6)</u> Suggest improvement and new questions arising from the investigation.</td></tr></table>		<u>Asking Questions (L1)</u> Ask relevant questions and use simple scientific enquiries to seek answers.		<u>Making Predictions (L2)</u> Make predictions based on simple data.		<u>Setting up tests (L3)</u> Work as a class to set up simple practical enquiries, comparative and fair tests.				<u>Recording Data (L4)</u> Gather, record, classify, and present data in labelled diagrams and tables, using scientific language.		<u>Interpreting and Communicating Results (L5)</u> Use simple scientific language to communicate findings orally and written. Draw conclusions based on observations, supporting with simple scientific evidence		<u>Evaluating (L6)</u> Suggest improvement and new questions arising from the investigation.	Shiny Matt Reflect	Predict which materials reflect the most light and spot patterns in my results. Learning We see things as light reflects off it. Light reflects (bounces) off an object into our eyes. Shiny, smooth objects reflect light better. Activities WS: Make predictions about reflection based on scientific questions SE: Spot patterns in my results to answer questions.
		<u>Asking Questions (L1)</u> Ask relevant questions and use simple scientific enquiries to seek answers.															
		<u>Making Predictions (L2)</u> Make predictions based on simple data.															
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	<u>Evaluating (L6)</u> Suggest improvement and new questions arising from the investigation.																
		UV light SPF	Set up a comparative test and observe what happens over time to check which materials block UV rays. Learning The sun produces UV rays. UV rays are dangerous and can cause sunburn, blindness or illness such as skin cancer. Sun cream contains SPF which blocks UV rays. Activities WS: Set up practical comparative tests to investigate UV rays. SE: Observe UV rays over time.														
		Shadow	Find patterns about how to change the size of a shadow and record my results in a table. Learning Shadows are caused when an object blocks light. Shadows change size dependant on their distance to the light source – the closer to the light source, the larger the shadow.														
	<u>Scientific Enquiry</u> <table><tr><td></td><td><u>Comparative/Fair Testing (L1, L6)</u> Changing one variable to see its effect on another, whilst keeping all others the same.</td></tr></table>		<u>Comparative/Fair Testing (L1, L6)</u> Changing one variable to see its effect on another, whilst keeping all others the same.														
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				Activities WS: Record results in a table. SE: Look for patterns in shadow size to make a conclusion
		<u>Observation over time (L3, L5)</u> Observing changes that occur over a period of time ranging from minutes to months.		Observe a shadow over time and make conclusions by interpreting the results to find patterns.
		<u>Pattern-seeking (L2, L4, L5)</u> Identifying patterns and looking for relationships in enquiries where variables are difficult to control.		Learning <i>Shadows change size and position due to the position of the sun.</i> <i>The position of the sun changes as the earth makes one rotation per day.</i> <i>At the starts and ends of the day, shadows are long. At midday, shadows are short.</i>
		<u>Identifying, grouping and classifying</u> Making observations to name, sort and organise items.		Activities WS: Interpret my results and report on patterns found. SE: Observe a shadow over time.
			Transparent Opaque	Carry out and evaluate a fair test to see which materials block out the most light. Learning <i>Opaque objects fully block light.</i> <i>Translucent objects blocks some light.</i> <i>Transparent objects do not block any light and therefore don't leave a shadow.</i> Activities WS: Evaluate my test and suggest improvements. SE: Carry out a fair test on which materials best block light.
Book/ Science Capital	The Darkest Dark – Chris Hadfield Charlie Dimmock			
Resources	• Bear cave or shoe box painted or covered black. • A range of materials such as mirrors, prisms, CDs, reflective strips, coloured paddles, cellophane • Post it notes • Prisms, torches • Baking tray and bouncy ball • Data Logger, Lux measuring app. • Coloured card, foil, paper, corrugated card, carpet, sponge, laminated pouch, water. • UV beads, sun cream x 3 different UV factors, zip lock bags., • Coloured acetate, transparent materials • Torch, figure or object, whiteboard, ruler. • Semi-circular sun shadow kit (Ogden) or protractor, filament torch, ruler, whiteboard. • Card, straws, pens, light			