

## Science Progression Lower KS2

Year / Term	Themes/ Domains	Dimensions	Working towards	Expected	Mastery	Deepening and Applying
<b>Year 3</b>						
<b>3a</b> <b>Autumn 1</b> <b>Key Knowledge:</b> The composition of the Earth and its atmosphere and the processes occurring within them shape the Earth's surface and its climate	Chemistry	Rocks EM3.1 Compare and group together different kinds of rocks on the basis of their simple physical properties EM3.2 Describe in simple terms how fossils are formed when things that have lived are trapped within rock EM3.3 Recognise that soils are made from rocks and organic matter	I can: Describe how the main rock groups are formed Identify and the properties of the main rock groups Describe how fossils are formed Outline how soils are formed as rocks are eroded and organic matter decays	I can: Explain how the main rock groups are formed Identify and describe the properties of the main rock groups Explain how fossils are formed Explain how soils are formed as rocks are eroded and organic matter decays	I can: Create a guide to the main rock groups explaining how the way that they were formed determines their properties  Generalise about how fossils are formed and reflect on how we can use fossils to help us understand how the world looked millions of years ago  Summarise the process of erosion that turns rocks and organic matter into soil giving examples of different processes and soils	I can: Research and describe how the earth has changed over millennia
<b>Key Skills:</b> Identify, group and classify things according to observable properties Finding things out using secondary sources of information		<b>Answer scientific questions using different types of scientific enquiry, including</b> •Noticing patterns, differences, similarities or changes •Finding things out using secondary sources of information. Make systematic and careful observations and take accurate measurements Recording findings using simple scientific language, drawings, labelled diagrams, bar charts and tables	I can: Answer scientific questions and give some reasons for my answers  Carry out research to identify how rocks are formed and their different properties finding things out using secondary sources of information and observation	I can: Answer scientific questions and explain my reasoning  Independently carry out research to identify how rocks are formed and their different properties finding things out using secondary sources of information and observation  Record data using a range of diagrams, labels, graphs and classification keys	I can: Formulate scientifically valid questions, explain my reasoning and use these to inform my investigations and research  Carry out scientific research independently noticing patterns, grouping and classifying things, finding things out using a range of secondary sources of information	Plan and carry out own research setting out your hypothesis and the rationale for your sources  Present your information in new and different ways and evaluate the most appropriate approach

		Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Record data using diagrams, labels, graphs and classification keys Report findings and give reasons for my views based on my observations and research	Report and present findings including: Sequencing, classifying, comparing and contrasting, explain cause and effect and justify my views	Make informed choices on how to record data using a range of diagrams, labels, graphs and classification keys and justify my decisions  Report and present findings including: Generalising, predicting, hypothesising, theorising, evaluating, reflecting, justifying	
		To compare and contrast different types of rock in terms of their suitability as building materials	I can: Draw and label a picture of a house to show how different types of rock are used in construction	I can: Draw and annotate a picture of a house to show how different types of rock are used in construction	I can: Evaluate why different rocks are used based on their properties	I can: Speculate about what would happen if we used the wrong materials in the wrong place and give examples
<b>3b</b> <b>Autumn 2</b> <b>Key Knowledge:</b> Organisms require a supply of energy and materials for which they are often dependent on or in competition	<b>Biology</b>	<b>Animals, including humans</b> AH3.1 Identify that animals, including humans, need the right types and amounts of nutrition, and that they cannot make their own food, they get nutrition from what they eat AH3.2 Identify that humans and some animals have skeletons and muscles for support, protection and movement	I can: Identify the main food groups and explain their nutritional importance  Describe how the body takes goodness from food and the importance of healthy eating  Label a diagram of a human skeleton showing the main bones and the joints	I can: Distinguish the main food groups and explain their nutritional importance  Explain how the body takes goodness from food Explain the importance of healthy eating  Annotate a diagram of a human skeleton showing the main bones and the joints	I can: Create a guide to the major food groups and explain how each group contributes to our health and growth  Evaluate why some foods are less healthy than others  Summarise how our skeleton allows us to move giving examples of which joints and muscles allow us to lift objects, sit and run	Compare the human skeleton with another mammal and evaluate and explain the reasons for those differences
<b>Key Skills:</b> Finding things out using		<b>Answer scientific questions using different types of scientific enquiry, including</b>	I can: Answer scientific questions	I can: Answer scientific questions and explain my reasoning	I can: Formulate scientifically valid questions, explain my	Plan and carry out own research setting out your

<p>secondary sources of information Recording findings using simple scientific language, drawings, labelled diagrams, bar charts and tables</p>		<ul style="list-style-type: none"> <li>•Noticing patterns, differences, similarities</li> <li>•Finding things out using secondary sources of information.</li> </ul> <p>Gather, record and present data in a variety of ways to help in answer questions Recording findings using simple scientific language, drawings, labelled diagrams, bar charts and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p>	<p>Carry out research to identify the different food groups using secondary sources of information Record data using diagrams, labels, graphs and classification keys</p> <p>Report findings and give reasons for my views based on my observations and research</p>	<p>Independently carry out research to identify the different food groups; finding things out using secondary sources of information Record data using a range of diagrams, labels, graphs and classification keys</p> <p>Report and present findings including: Sequencing, classifying, comparing and contrasting, explain cause and effect and justify my views</p>	<p>reasoning and use these to inform my investigations and research Carry out scientific research independently noticing patterns, grouping and classifying things, finding things out using a range of secondary sources of information Make informed choices on how to record data using a range of diagrams, labels, graphs and classification keys and justify my decisions Report and present findings including: Generalising, predicting, hypothesising, theorising, evaluating, reflecting, justifying</p>	<p>hypothesis and the rationale for your sources</p> <p>Present your information in new and different ways and evaluate the most appropriate approach</p>
		<p>To keep a food diary for a week and then identify the different food types they have eaten</p> <p>To create a hinged model of a person with moveable shoulders elbows hips and knees to show how joints help us move</p>	<p>I can: Sort the food I have eaten into the main food groups</p> <p>Create a jointed model of a person</p>	<p>I can: Classify the food I have eaten into the main food groups</p> <p>Create a jointed model of a person and explain how each joint works</p>	<p>I can: Evaluate my diet and consider whether I am eating food from all the main food groups</p> <p>Speculate on what happens when we damage a joint or break a bone in our body and how this restricts our movement</p>	<p>I can: Suggest some improvements to my diet in order to be healthy</p> <p>Reflect on how exercising our muscles helps support our joints</p>
<p><b>3c</b> <b>Spring 1</b> Objects can affect other objects at a distance</p>	<p>Physics</p>	<p>Forces and magnets FM3.1 Compare how things move on different surfaces FM3.2 Notice that some forces need contact between two objects and some forces act at a distance</p>	<p>I can: Describe how different surfaces affect the way objects move across them because of friction</p>	<p>I can: Explain how different surfaces affect the way objects move across them because of friction Explain what a force is and give examples of different forces</p>	<p>I can: Predict which surfaces will be easier to move an object over and explain my reasoning Summarise the different forces that exist and evaluate which</p>	<p>I can: Devise a way of moving a heavy object more easily across a rough surface and test out my theory</p>

<p>Changing the movement of an object requires a net force to be acting on it</p>		<p>FM3.3 Observe how magnets attract or repel each other and attract some materials and not others  FM3.4 Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials  FM3.5 Describe magnets as having two poles  FM3.6 Predict whether two magnets will attract or repel each other, depending on which poles are facing</p>	<p>Describe what a force is and give examples of different forces  Describe how magnets attract and repel each other  Compare materials to identify which ones are magnetic and which ones are not</p>	<p>Explain how magnets attract and repel each other  Compare materials to identify which ones are magnetic and which ones are not and explain why</p>	<p>ones require direct contact and which ones do not  Generate a rule for when magnets will attract and repel each other  Generalise about which materials are attracted to magnets and explain why</p>	<p>Identify how and where we use magnets in our homes</p>
<p><b>Key Skills:</b>  Setting up simple practical enquiries, Make systematic and careful observations and take accurate measurements</p>		<p><b>Answer scientific questions using different types of scientific enquiry, including</b>  •Noticing patterns, differences, similarities or changes  •Finding things out using secondary sources of information.  Setting up simple practical enquiries,  Make systematic and careful observations and take accurate measurements  Recording findings using simple scientific language, drawings, labelled diagrams, bar charts and tables  Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions  Using results to draw simple conclusions, make predictions</p>	<p>I can:  Answer scientific questions  Carry out a scientific investigation moving a heavy object across a variety of surfaces to understand the effect of friction; using the key skills of observation, testing, taking measurements, and using scientific equipment appropriately</p> <p>Record data using diagrams, labels, graphs and classification keys</p>	<p>I can:  Answer scientific questions and explain my reasoning</p> <p>Carry out a scientific investigation moving a heavy object across a variety of surfaces to understand the effect of friction; using the key skills of observation, testing, considering variables, taking measurements, and using scientific equipment appropriately</p> <p>Record data using a range of diagrams, labels, graphs and classification keys</p>	<p>I can:  Formulate scientifically valid questions, explain my reasoning and use these to inform my investigations and research</p> <p>Plan, hypothesise about the likely outcome and carry out scientific investigation moving a heavy object across a variety of surfaces to understand the effect of friction: effectively using the key skills of observation, testing, considering variables, taking measurements, and use scientific equipment with increasing accuracy and precision</p>	<p>Plan and carry out own investigation setting out your hypothesis and the rationale for your investigative approach</p> <p>Provide guidance for others on how to use particular scientific equipment correctly</p> <p>Present your information in new and different ways and evaluate the most appropriate approach</p>

		for new values, suggest improvements, and raise further questions	Report findings and give reasons for my views based on my observations and research	Report and present findings including: Sequencing, classifying, comparing and contrasting, explain cause and effect and justify my views	Make informed choices on how to record data using a range of diagrams, labels, graphs and classification keys and justify my decisions  Report and present findings including: Generalising, predicting, hypothesising, theorising, evaluating, reflecting, justifying	
		Design a circuit with ramps for a model car with a range of different surfaces  To create a game that uses magnets to move the pieces round the board	I can: Describe different surfaces and use this knowledge to create a circuit for a model car Describe how my game works	I can: Compare and contrast different surfaces and use this knowledge to create a circuit for a model car Explain how my game works	I can: Hypothesise why road surfaces are not smooth and predict what would happen if they were Justify my design choices based on my knowledge of magnets	I can test out and sequence different surfaces according to the degree of friction on a model car
<b>3d</b> <b>Spring 2</b> <b>Key Knowledge:</b> The total amount of energy in the universe is always the same but the energy can be transformed when things change or are made to happen.	Physics	<b>Light and shadow</b> <b>LT3.1</b> Recognise that they need light in order to see things and that dark is the absence of light <b>LT3.2</b> Notice that light is reflected from surfaces <b>LT3.3</b> Recognise that light from the Sun can be dangerous and that there are ways to protect their eyes <b>LT3.4</b> Recognise that shadows are formed when the light from a light source is blocked by a solid object <b>LT3.5</b> Find patterns in the way that the size of shadows change	I can: Give reasons why we cannot see in the dark  Describe how light travels through some objects and is reflected by others  Describe how light from the sun hurts our eyes and how we can protect them Describe how shadows are formed	I can: Explain why we cannot see in the dark  Explain how light travels through some objects and is reflected by others  Explain how light from the sun hurts our eyes and how we can protect them Explain how shadows are formed	I can: Generalise about how we need light to see Classify different materials in terms of what happens when a light hits them using the correct terminology  Explain how sun glasses protect our eyes from the sun  Evaluate how a sun dial can be used to tell the time	I can design clothing to protect me from the sun and justify my choices based on what I have learnt about light  I can create a sundial using shadows
<b>Key Skills:</b>		<b>Answer scientific questions using different types of scientific enquiry, including</b>	I can:	I can:	I can:	Plan and carry out own investigation

<p>Setting up simple practical enquiries, Make systematic and careful observations and take accurate measurements</p>		<ul style="list-style-type: none"> <li>•Observing changes</li> <li>•Noticing patterns, differences and similarities</li> <li>•Finding things out using secondary sources of information.</li> </ul> <p>Setting up simple practical enquiries, Make systematic and careful observations and take accurate measurements</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, bar charts and tables</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions</p>	<p>Answer scientific questions about light</p> <p>Carry out scientific investigations effectively using the key skills of observation, testing, taking measurements, and using scientific equipment appropriately</p> <p>Record data using diagrams, labels, graphs and classification keys</p> <p>Report findings and give reasons for my views based on my observations and research</p>	<p>Answer scientific questions about light and explain my reasoning</p> <p>Carry out scientific investigations effectively using the key skills of observation, testing, considering variables, taking measurements, and using scientific equipment appropriately</p> <p>Record data using a range of diagrams, labels, graphs and classification keys</p> <p>Report and present findings including: Sequencing, classifying, comparing and contrasting, explain cause and effect</p>	<p>Formulate scientifically valid questions, to find out more about how light travels through some materials and is reflected by others and explain my reasoning and use these to inform my investigations and research</p> <p>Plan, hypothesise about the likely outcome and carry out scientific investigations effectively using the key skills of observation, testing, considering variables, taking measurements, and use scientific equipment with increasing accuracy and precision</p> <p>Make informed choices on how to record data using a range of diagrams, labels, graphs and classification keys and justify my decisions</p> <p>Report and present findings including: Generalising, predicting, hypothesising, theorising, evaluating, reflecting, justifying</p>	<p>setting out your hypothesis and the rationale for your investigative approach</p> <p>Provide guidance for others on how to use particular scientific equipment correctly</p> <p>Present your information in new and different ways and evaluate the most appropriate approach</p>
		<p>To imagine what it is like in complete darkness – how would we move around?</p> <p>Carry out a survey of the school identifying opaque and transparent surfaces and reflective and non-reflective surfaces</p>	<p>I can: Describe how I would feel in complete darkness and how I would use my other senses to move around</p> <p>Survey the classroom to see what happens when light hits different surfaces and use this</p>	<p>I can: Explain how I would feel in complete darkness and how I would use my other senses to move around</p> <p>Survey the classroom to compare what happens when light hits different surfaces and use this information to explain</p>	<p>I can: Hypothesise on how blind people need to use all their senses to move around safely and reflect on what it would be like to move around the classroom</p> <p>Generalise about why we need to have a range of materials</p>	<p>I can create a dark box to show how we need light to see</p>

			information to Describe why some materials need to be transparent, opaque or reflective	why some materials need to be transparent, opaque or reflective	with different properties including transparency opacity and reflectivity	
<b>3e Summer 1 Key Knowledge:</b> Organisms require a supply of energy and materials for which they are often dependent on or in competition with other organisms	Biology	Plants PL3.1 Identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers PL3.2 Explore the requirements of plants for life and growth (air, light, water, nutrients from the soil, and room to grow) and how they vary from plant to plant PL3.3 Investigate the way in which water is transported within plants PL3.4 Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	I can: Describe the functions of different parts of a flowering plant  Describe what plants need to grow  Describe how water is absorbed and transported in plants  Describe the life cycle of a plant	I can: Explain the functions of different parts of a flowering plant  Analyse what plants need to grow  Explain how water is absorbed and transported in plants  Describe and explain the life cycle of a plant	I can: Summarise the key functions of the different parts of a flowering plant and show this on examples of different flowering plants  Create a guide to keeping plants healthy based on my knowledge of what plants need to grow  Compare the life cycle of two contrasting plants and give reasons for their differences (pollination and distribution)	I can: Explain the importance to plants of pollinating insects such as bees
<b>Key Skills:</b> Setting up simple practical enquiries, Using results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions		Answer scientific questions using different types of scientific enquiry, including •Observing changes over a period of time, •Noticing patterns, differences, similarities or changes •Finding things out using secondary sources of information. Setting up simple practical enquiries, Make systematic and careful observations and take accurate measurements	I can: Answer scientific questions  Carry out research to identify patterns using secondary sources of information Record data using diagrams, labels, graphs and classification keys  Report and present findings and give reasons for my views based on my	I can: Answer scientific questions and explain my reasoning  Carry out research to identify patterns and classify living things finding things out using secondary sources of information  Record data using a range of diagrams, labels, graphs and classification keys	I can: Formulate scientifically valid questions, explain my reasoning and use these to inform my investigations and research  Carry out scientific research independently noticing patterns, grouping and classifying things, finding things out using a range of secondary sources of information	Plan and carry out own investigation setting out your hypothesis and the rationale for your investigative approach  Provide guidance for others on how to use particular scientific equipment correctly

		Recording findings using simple scientific language, drawings, labelled diagrams, bar charts and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Using results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions	observations and research	Report and present findings including: Sequencing, classifying, comparing and contrasting, explain cause and effect and justify my views	Make informed choices on how to record data using a range of diagrams, labels, graphs and classification keys and justify my decisions  Report and present findings including: Generalising, predicting, hypothesising, theorising, evaluating, reflecting, justifying	Present your information in new and different ways and evaluate the most appropriate approach
		Apply their knowledge of plants to create the ideal growing conditions for a plant in the classroom, plant and grow observing the whole life cycle of the plant	I can: Describe the conditions a plant needs to grow and what happens when those conditions change	I can: Explain the conditions a plant needs to grow and what happens when those conditions change	I can: Create a growing kit with instructions on how to grow your plant successfully	I can: Place plants in a range of different growing conditions and predict how these conditions will affect their growth
Year 4						
<b>4a</b> <b>Autumn 1</b> <b>Key Knowledge:</b> Organisms require a supply of energy and materials for which they are often dependent on or in competition with other organisms	Biology	<b>Animals, including humans</b> <b>AH4.1</b> Describe the simple functions of the basic parts of the digestive system in humans <b>AH4.2</b> Identify the different types of teeth in humans and their simple function <b>AH4.3</b> Construct and interpret a variety of food chains, identifying producers, predators and prey	I can: Draw and label a diagram to show how food is processed through our digestive system  Describe how our teeth help us to eat different types of food  Identify the living things that make up a food chain and describe their role in the process	I can: Draw an annotated diagram to show how food is processed through our digestive system  Explain how our teeth help us to eat different types of food  Identify the living things that make up a food chain and explain their role in the process	I can: Create a diagram of our digestive system to explain how food is broken down at each stage to extract nutrients from our food  Summarise how our teeth help us to eat different types of food and explain why this is important for a balanced diet  Generalise about the interdependency of living using examples of typical food chains	I can: Create an advice sheet on keeping your teeth healthy  Hypothesise what would happen if part of a food chain was disrupted using my knowledge of local wild life as an example (i.e. what happens to garden birds when an area



						is built on and there is no plant life)
<p><b>Key Skills:</b> Setting up simple practical enquiries, Using results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions</p>		<p><b>Answer scientific questions using different types of scientific enquiry, including</b></p> <ul style="list-style-type: none"> <li>•Observing changes over a period of time,</li> <li>•Noticing patterns, differences, similarities or changes</li> <li>•Finding things out using secondary sources of information.</li> </ul> <p>Gather, record and present data in a variety of ways to help in answer questions using simple scientific language, drawings, labelled diagrams, bar charts and tables</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p>	<p>I can: Answer scientific questions</p> <p>Carry out research to identify how our digestive system works using secondary sources of information</p> <p>Observe and identify our teeth according to shape and function</p> <p>Record data using diagrams, labels, graphs and classification keys</p> <p>Report findings and give reasons for my views based on my observations and research</p>	<p>I can: Answer scientific questions and explain my reasoning</p> <p>Independently carry out research to identify how our digestive system works; finding things out using secondary sources of information</p> <p>Observe and classify our teeth according to shape and function</p> <p>Record data using a range of diagrams, labels, graphs and classification keys</p> <p>Report and present findings including: Sequencing, classifying, comparing and contrasting, explain cause and effect and justify my views</p>	<p>I can: Formulate scientifically valid questions, explain my reasoning and use these to inform my investigations and research</p> <p>Carry out scientific research to identify how our digestive system works; independently using a range of secondary sources of information</p> <p>Carry out observations of my own teeth to identify the different types and functions, including how I eat/chew different foods</p> <p>Make informed choices on how to record data using a range of diagrams, labels, graphs and classification keys and justify my decisions</p> <p>Report and present findings including: Generalising, predicting, hypothesising, theorising, evaluating, reflecting, justifying</p>	<p>Plan and carry out own research setting out your hypothesis and the rationale for your sources</p> <p>Present your information in new and different ways and evaluate the most appropriate approach</p>
		Create a balanced diet including all the key nutrition they need to grow and be healthy	<p>I can: Plan out a diet for a day and describe the food groups I have used, using</p>	<p>I can: Plan out a diet for a day and explain the food groups I have used, using my knowledge of</p>	<p>I can: Summarise the key ingredients of a healthy diet and explain</p>	<p>I can: Create a “healthy diet” quiz to prompt children to</p>

			my knowledge of the nutrients we need to be healthy from Y3	the nutrients we need to be healthy from Y3	what happens if we eat too much of the wrong foods	think more carefully about the food they eat
<b>4b</b> <b>Autumn 2</b> <b>Key</b> <b>Knowledge:</b> All material in the universe is made of very small particles.	Chemistry	<b>States of matter</b> EM4.1 Compare and group materials together, according to whether they are solids, liquids or gases EM4.2 Observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius EM4.3 Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	I can: Identify and describe the difference between solids, liquids and gasses and give examples Describe what happens to different materials when they are heated and cooled Describe how different materials change state at different temperatures and give examples Draw and label a diagram to show how water changes from a liquid to a gas and back again within the water cycle	I can: Identify and explain the difference between solids, liquids and gasses and give examples Explain what happens to different materials when they are heated and cooled Explain that different materials change state at different temperatures and give examples Annotate a diagram to show how water changes from a liquid to a gas and back again within the water cycle	I can: Summarise the properties of solids liquids and gases and create a chart to help me classify everyday materials I can generalise about what happens to different materials when they are heated or cooled and how we can use this knowledge for example in cooking  I design a diagram/ model to explain how water changes state to create the water cycle	I can: Reflect on how we use changes in matter to make new things (glass, metal, plastics, ice)  Generalise about the importance of the water cycle and reflect on how too much water or too little water impacts on our lives
<b>Key Skills:</b> Finding things out using secondary sources of information. Gather, record and present data in a variety of ways to help in answer questions using simple scientific language		<i>Answer scientific questions using different types of scientific enquiry, including</i> •Observing changes over a period of time, •Noticing patterns, differences, similarities or changes •Finding things out using secondary sources of information. Setting up simple practical enquiries, Make systematic and careful observations Recording findings using simple scientific language, drawings,	I can: Answer scientific questions  Carry out scientific investigations into what happens when materials are heated or cooled; effectively using the key skills of observation, testing, taking measurements, and using scientific equipment appropriately	I can: Answer scientific questions and explain my reasoning  Independently carry out scientific investigations into what happens when materials are heated or cooled; effectively using the key skills of observation, testing, considering variables, taking measurements, and using scientific equipment appropriately	I can: Formulate scientifically valid questions, explain my reasoning and use these to inform my investigations and research Plan, hypothesise about the likely outcome and carry out scientific investigations into what happens when materials are heated or cooled; effectively using the key skills of observation, testing, considering variables, taking measurements, and use scientific equipment with	Plan and carry out own investigation setting out your hypothesis and the rationale for your investigative approach  Provide guidance for others on how to use particular scientific equipment correctly

		labelled diagrams, bar charts and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Carry out research into how different materials change when they are heated or cooled using secondary sources of information Record data using diagrams, labels, graphs and classification keys  Report findings and give reasons for my views based on my observations and research	Carry out research into how different materials change when they are heated or cooled using secondary sources of information Record data using a range of diagrams, labels, graphs and classification keys  Report and present findings including: Sequencing, classifying, comparing and contrasting, explain cause and effect and justify my views	increasing accuracy and precision Carry out scientific research independently to find out what happens to a range of different materials when they are heated or cooled; using a range of secondary sources of information Make informed choices on how to record data using a range of diagrams, labels, graphs and classification keys and justify my decisions Report and present findings including: Generalising, predicting, hypothesising, theorising, evaluating, reflecting, justifying	Present your information in new and different ways and evaluate the most appropriate approach
		To identify gasses liquids and solids in the home and describe where we would see evidence of evaporation and condensation	I can: Describe the range of solids liquids and gasses in our home and give examples of where we change them (cooking, steam iron/cleaner, ice cubes, chocolate)	I can: Explain the range of solids liquids and gasses in our home and give examples of where we change them (cooking, steam iron/cleaner, ice cubes, chocolate)	I can: Generalise about how we use changes in the state of matter to make new things and give a range of examples	I can: Research and explain how a steam engine works.
<b>4c</b> <b>Spring 1</b> <b>Key</b> <b>Knowledge:</b> The diversity of organisms living and extinct, is the result of evolution	Biology	<b>Living things and their habitats</b> <b>ALT4.1</b> Recognise that living things can be grouped in a variety of ways <b>ALT4.2</b> Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	I can: Use a classification key to group animals found in the UK according to their observable features Describe how a classification key helps us to distinguish between different groups of living things	I can: Independently use a classification key to group animals found in the UK according to their observable features Explain how a classification key helps us to distinguish between different groups of living things	I can: Classify animals in the UK based on their observable characteristics and explain how the key helps us understand the similarities and differences between groups  Summarise the factors that might impact on a local river	I can: Write a persuasive text to the local council asking them to preserve our rivers and streams and explain some of the dangers and how they might

		<b>ALT4.3</b> Recognise that environments can change and that this can sometimes pose dangers to living things	Using the example of a local river I can describe how living things are interdependent and why changes to their habitat can pose dangers	Using the example of a local river I can explain how living things are interdependent and why changes to their habitat can pose dangers	and explain their impact on the creatures that live there	affect the wildlife there
<b>Key Skills:</b> Identify, group and classify things according to observable properties Noticing patterns, differences, similarities or changes		<b>Answer scientific questions using different types of scientific enquiry, including</b> <ul style="list-style-type: none"> <li>•Observing changes over a period of time,</li> <li>•Noticing patterns, differences, similarities or changes</li> <li>•Finding things out using secondary sources of information.</li> </ul> Gather, record and present data in a variety of ways to help in answer questions using simple scientific language, drawings, labelled diagrams, bar charts and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	I can: Answer scientific questions Carry out research to identify patterns and classify animals finding things out using secondary sources of information Record data using diagrams, labels, graphs and classification keys  Report and present findings and give reasons for my views based on my observations and research	I can: Answer scientific questions and explain my reasoning Independently carry out research to identify patterns and classify animals finding things out using secondary sources of information Record data using a range of diagrams, labels, graphs and classification keys  Report and present findings including: Sequencing, classifying, comparing and contrasting, explain cause and effect and justify my views	I can: Formulate scientifically valid questions, explain my reasoning and use these to inform my investigations and research  Carry out scientific research independently noticing patterns, grouping and classifying things, finding things out using a range of secondary sources of information  Make informed choices on how to record data using a range of diagrams, labels, graphs and classification keys and justify my decisions  Report and present findings including: Generalising, predicting, hypothesising, theorising, evaluating, reflecting, justifying	Plan and carry out own research setting out your hypothesis and the rationale for your sources  Present your information in new and different ways and evaluate the most appropriate approach
		Create an identification key for garden birds using the conventions of classification (set up a bird table outside the classroom or a feeder on the	I can: Create a simple identification key for common garden birds	I can: Create a simple identification key for common garden birds and give reasons for my classification	I can: Research the main types of birds found in our gardens based on their observable features including bill shape	I can: Explain how different groups of birds feed on different foods and

		window and see which birds they can identify)			and create an identification key to help others recognise them	how we can use this knowledge to provide for a wide variety of birds in our gardens
<p><b>4d</b></p> <p><b>Summer 1 Key Knowledge:</b></p> <p>The total amount of energy in the universe is always the same but the energy can be transformed when things change or are made to happen.</p>	Physics	<p><b>Sound</b></p> <p>SND4.1 Identify how sounds are made, associating some of them with something vibrating</p> <p>SND4.2 Find patterns between the pitch of a sound and features of the object that produced it</p> <p>SND4.3 Find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>SND 4.4 Recognise that sounds get fainter as the distance from the sound source increases</p>	<p>I can:</p> <p>Describe how sound is made by vibrations and give examples</p> <p>Describe how and why the pitch varies based on the speed of the vibrations</p> <p>Describe why some sounds are loud and others are quiet</p> <p>Describe why sound gets fainter as the distance from the source increases</p>	<p>I can:</p> <p>Explain how sound is made by vibrations and give examples</p> <p>Explain how and why the pitch varies based on the speed of the vibrations</p> <p>Explain why some sounds are loud and others are quiet</p> <p>Explain why sound gets fainter as the distance from the source increases</p>	<p>I can:</p> <p>Summarise how sound is made by waves and what happens when they pass through different materials</p> <p>Predict how we can change the pitch of the sound by changing the way materials vibrate</p> <p>Summarise and explain how we can create louder or softer sounds and why sounds get fainter when they are further away</p>	<p>I can:</p> <p>Using diagrams to explain how our ears hear sound</p>
<p><b>Key Skills:</b></p> <p>Setting up simple practical enquiries, Make systematic and careful observations</p>		<p><b>Answer scientific questions using different types of scientific enquiry, including</b></p> <ul style="list-style-type: none"> <li>•Noticing patterns, differences, similarities or changes</li> <li>•Finding things out using secondary sources of information.</li> </ul> <p>Setting up simple practical enquiries, Make systematic and careful observations</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, bar charts and tables</p>	<p>I can:</p> <p>Answer scientific questions</p> <p>Carry out scientific investigations into how sound is created and how it can be varied; effectively using the key skills of observation, testing, taking measurements, and using scientific equipment appropriately</p> <p>Record data using diagrams, labels, graphs and classification keys</p>	<p>I can:</p> <p>Answer scientific questions and explain my reasoning</p> <p>Independently carry out scientific investigations into how sound is created and how it can be varied; effectively using the key skills of observation, testing, considering variables, taking measurements, and using scientific equipment appropriately</p>	<p>I can:</p> <p>Formulate scientifically valid questions, explain my reasoning and use these to inform my investigations and research</p> <p>Plan, hypothesise about the likely outcome and carry out scientific investigations into how sound is created and how it can be varied: effectively using the key skills of observation, testing, considering variables, taking measurements, and use</p>	

		Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Report and present findings and give reasons for my views based on my observations and research	Record data using a range of diagrams, labels, graphs and classification keys Report and present findings including: Sequencing, classifying, comparing and contrasting, explain cause and effect and justify my views	scientific equipment with increasing accuracy and precision  Make informed choices on how to record data using a range of diagrams, labels, graphs and classification keys and justify my decisions  Report and present findings including: Generalising, predicting, hypothesising, theorising, evaluating, reflecting, justifying	
		Design and make an instrument and explain the reasons for your choices and explain how it makes its sound	I can: Design and make an instrument and give reasons for my choices	I can: Design and make an instrument and explain the reasons for my choices	I can: Create an instrument that has varying pitch and loudness and justify my choices based on my understanding of how sound is made	I can: Compare the similarities and differences between stringed, wind and percussion instruments
<b>4e</b> <b>Summer 2</b> <b>Key</b> <b>Knowledge:</b>  The total amount of energy in the universe is always the same but the energy can be transformed	Physics	<b>Electricity</b> ELEC4.1 Identify common appliances that run on electricity ELEC4.2 Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers ELEC4.3 Identify whether or not a lamp will light in simple series circuit based on whether or not	I can: Draw and label a diagram of the inside of a home to show all the appliances that use electricity  Follow a circuit diagram to create a circuit and describe how electricity passes round it	I can: Annotate a diagram of the inside of a home to show all the appliances that use electricity  Follow a circuit diagram to create a circuit and explain how electricity passes round it  Explain why a lamp will not light if the switch is off	I can: Generalise about the importance of electricity in our every-day lives.  Design a circuit using a circuit diagram and symbols for the components including a range of devices and switches and explain how it works	I can: Reflect on what our lives would be like without electricity  (possible link to literacy diary of a day without electricity or dramatized account of a power

<p>when things change or are made to happen.</p>		<p>the lamp is part of a complete loop with battery  ELEC4.4 Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights is simple series circuit  ELEC4.5 Recognise some common conductors and insulators and associate metal with being good conductors</p>	<p>Describe why a lamp will not light if the switch is off  Compare different metals to test whether or not they are good conductors</p>	<p>Compare different metals to test whether or not they are good conductors and sequence them in order of conductivity</p>	<p>Evaluate why some materials are used in electrical circuits based on their conductivity</p>	<p>cut – how would we cope</p>
<p><b>Key Skills:</b>  Finding things out using secondary sources of information.  Setting up simple practical enquiries,</p>		<p>Answer scientific questions using different types of scientific enquiry, including  •Finding things out using secondary sources of information.  Setting up simple practical enquiries,  Make systematic and careful observations  Recording findings using simple scientific language, drawings, labelled diagrams, bar charts and tables  Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions  Using results to draw simple conclusions, make predictions, suggest improvements, and raise further questions</p>	<p>I can:  Answer scientific questions  Carry out scientific investigations into how electricity passes round a circuit and what happens if the circuit is broken using the key skills of observation, testing, taking measurements, and using scientific equipment appropriately  Carry out scientific investigations into how different metals conduct electricity using the key skills of observation, testing, taking measurements, and using scientific equipment appropriately  Record data using diagrams, labels, graphs and classification keys  Report and present findings and give reasons</p>	<p>I can:  Answer scientific questions and explain my reasoning  Carry out scientific investigations into how electricity passes round a circuit and what happens if the circuit is broken: effectively using the key skills of observation, testing, considering variables, taking measurements, and using scientific equipment appropriately  Carry out scientific investigations into how different metals conduct electricity: effectively using the key skills of observation, testing, considering variables, taking measurements, and using scientific equipment appropriately  Record data using a range of diagrams, labels, graphs and classification keys</p>	<p>I can:  Formulate scientifically valid questions, explain my reasoning and use these to inform my investigations and research    Plan, hypothesise about the likely outcome and carry out scientific investigations how electricity passes round a circuit and what happens if the circuit is broken; effectively using the key skills of observation, testing, considering variables, taking measurements, and use scientific equipment with increasing accuracy and precision  Plan, hypothesise about the likely outcome and carry out scientific investigations into how different metals conduct electricity; effectively using the key skills of observation, testing, considering variables,</p>	<p>Plan and carry out own investigation setting out your hypothesis and the rationale for your investigative approach    Provide guidance for others on how to use particular scientific equipment correctly    Present your information in new and different ways and evaluate the most appropriate approach</p>

			for my views based on my observations and research	Report and present findings including: Sequencing, classifying, comparing and contrasting, explain cause and effect and justify my views	taking measurements, and use scientific equipment with increasing accuracy and precision Make informed choices on how to record data using a range of diagrams, labels, graphs and classification keys and justify my decisions Report and present findings including: Generalising, predicting, hypothesising, theorising, evaluating, reflecting, justifying	
		Carry out a survey of the school to identify all the things that use electricity Debate how we could save electricity in school to inform a poster campaign "Switch off to save the planet"	I can: Record all the devices in the school that use electricity Describe ways in which we waste electricity in school	I can: Research and record all the devices in the school that use electricity Explain ways in which we waste electricity in school	I can: Classify appliances into essential and non-essential and give reasons for my views Reflect on how we could save electricity in school to create a poster campaign	I can: Write a persuasive letter to the head teacher asking her to support your drive to save energy; justifying your reasons and explaining the benefits to the school