

Term	Autumn One	
Year R		
Project	What is your favourite fairy tale?	
SCIENCE Focus	Explore and familiarise ourselves with our new surroundings, asking questions about our familiar world.	
Knowledge and Skills	Crucial knowledge: To ask questions about the natural environment. To respect and care for the natural environment. To explore the outdoor area in forest school.	Using knowledge as a skill: Asking Questions • Asks questions about aspects of their familiar world. • Show curiosity about objects, events and people. <u>Predict and hypothesise</u> • Comment and ask questions about aspects of their familiar world such as the place where they live or the natural world <u>Planning and setting up for different types of enquiry</u> • Find ways to solve problems/find new ways to do things/ test their ideas • Develop ideas of grouping, sequencing, cause and effect • Know about similarities and differences in relation to place, object, materials and living things <u>Using equipment</u> • Measure by direct comparison. • Non-standard units of measurement. • Simple comparative vocabulary – bigger, smaller. • Choose the resources they need for their chosen activity • Handle equipment and tools effectively <u>Making Observations and measuring</u> • General sensory observations of animals and plants. • Simple descriptions of the world around them. • Looking at objects and pictures and discussing what they can see. • Take a risk, engage in new experience and learn by trial and error <u>Presenting evidence</u> • Talking about objects and events. Answers how and why questions about their experiences • Simple recording – pictures/images <u>Drawing conclusions</u> • Noticing ‘which worked best’ – simple comparative statements. • Answer initial question simply. • Answer how and why questions about their experiences <u>Explaining Evidence</u> • Noticing ‘which worked best’ – simple comparative statements. • Answer initial question simply. • Answer how and why questions about their experiences

		Evaluating Outcome - Develop their own narratives and explanations by connecting ideas or events - Build up vocabulary that reflects the breadth of their experience
Vocab		
Year One		
Project	How has transport changed overtime?	
SCIENCE Focus	Describing materials (6 sessions)	
Knowledge and Skills	Crucial knowledge: - distinguish between an object and the material from which it is made - identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock - describe the simple physical properties of a variety of everyday materials - Compare and group together a variety of everyday materials on the basis of their simple physical properties.	Using knowledge as a skill: Asking Questions - Recognises the difference between a statement and a question. - Begins to shape questions using different question stems. What, How, When - Explore the world around them and raise their own simple questions. Predict and hypothesise - With support the children use ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. Planning and setting up for different types of enquiry - Children to recognise that if we change what we think the cause is then there will be an effect. - With support the children can identify the cause and recommend changes. - Decides which questions can be answered practically and which cannot. - Suggests next step, or a sequence of steps, in a plan Using equipment - Children begin to choose appropriate equipment to use to make observations and follows simple instructions for using it correctly and safely. Making Observations and measuring - Makes relevant observations in familiar contexts. - With support take some non-standard measurements - With support observe changes over time. - With support, children should notice patterns and relationships. Presenting evidence - Use drawings and labels to present evidence. - With support, uses prepared simple tables and charts, including ICT forms. - This should be included on the enquiry mind map Drawing conclusions

		- Children can identify if there is a relationship between what they changed and measure (Cause and effect) with support - Describes simple observations of an object or objects or of an event and with support makes a simple comparison. Explaining Evidence - With support, recognises the links between cause and effect in simple, familiar situations. Evaluating Outcome - Reviews their work and with support, recognises some of the difficulties encountered.
Vocab	Properties, Metal, Rock, Fabric, Wood, Plastic, Ceramic, Suitable, Purpose	
Year Two		
Project	What does a Pirate need to reach the treasure?	
SCIENCE Focus	Animal Lifecycles	
Knowledge and Skills	Crucial knowledge: - What is the lifecycle of an animal? - Notice that animals, including humans, have offspring which grow into adults - Find out about and describe the basic needs of animals. Including humans, for survival (water, food and air) - Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. - Explore and compare the differences between things that are living, dead and things that have never been alive. - Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	Using knowledge as a skill: Asking Questions - With support, suggest own questions that they might investigate. Predict and hypothesise - With support the children use ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. Planning and setting up for different types of enquiry - Children to recognise that if we change what we think the cause is then there will be an effect. - Children can identify the cause and recommend changes. - Decides independently simple questions that could be answered practically and some that cannot. Using equipment - Children chooses appropriate equipment from a selection and follows instructions for using it, sometimes working independently of adult support. Making Observations and measuring - Makes relevant observations. - Takes non-standard measurements. Begins to use basic equipment for measuring length or mass, in standard units.(Hands lenses, egg timers) Presenting evidence - Uses drawings and labels to present evidence. - Uses prepared tables and block graphs, including ICT forms - This should be included on the enquiry mind map Drawing conclusions

		- Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) - Describes what has happened, making comparisons where appropriate. With support, sequences results, e.g. from smallest to largest. Explaining Evidence - Recognises the link between cause and effect in simple, familiar situations. - Begins to notice simple patterns in results. Evaluating Outcome - Reviews their work and recognises some of the difficulties encountered. With support, suggests how these might have been avoided.
Vocab	Maturity, reproduce, die, offspring, life cycle, food chain (from animal survivalYr1), producer, consumer	
Year Three		
Project	Stone Age Britain- Did it rock to live in Stone Age Britain?	
SCIENCE Focus	Magnets	
Knowledge and Skills	Crucial knowledge: - Compare how things move on different surfaces - Notice that some forces need contact between two objects, but magnetic forces can act at a distance. - Observe how magnets attract or repel each other and attract some materials and not others. - 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. - Describe magnets as having two poles - Predict whether two magnets will attract or repel each other, depending on which poles are facing.	Using knowledge as a skill: Asking Questions - Asks questions independently and generate own ideas to explore through Scientific enquiry. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is ‘known’ to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry - Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. - Children are starting to understand that there can be more than one thing that affects what they are measuring - Recognises when to answer a question by using a fair test method and when other methods might be needed. - In a fair test identifies what to keep the same and sometimes ant to change and measure. Using equipment - Children selects from a wider range of equipment what to use in an investigation. - Uses basic equipment correctly, safely and with increasing accuracy. Making Observations and measuring - Makes relevant, careful observations throughout an investigation. - Help make decisions on how long to make observations

		• Uses standard measuring equipment for quantities, such as volume and temperature. Presenting evidence • Gathers, records, classifies and presents data in a variety of ways to help in answering questions. • Sometimes creates own tables and bar charts, using ICT where appropriate. • Interprets a line graph with support. • This should be included on the enquiry mind map Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) With support include the variables that they kept the same in their conclusion, commenting on their potential effect. • Reports on findings from enquiries, including oral and written, displays or presentations of results and conclusions. • Makes a general statement about simple patterns they notice in a set of results. Explaining Evidence • Provides explanations for simple patterns in results, referring to everyday experiences when explaining reasoning. Evaluating Outcome • Suggests how an enquiry might be improved. • With support, recognises some of the limitations and significance of evidence.
Vocab	Magnet, Force, Attraction, Repulsion, Metal, Non – Contact Force, Pole	
Year Four		
Project	Why do so many people settle in Megacities?"	
SCIENCE Focus	Mixtures and separating them	
Knowledge and Skills	• Crucial knowledge: Asking relevant questions and using different types of scientific enquiries to answer them. • Setting up simple practical enquiries, comparative and fair tests. • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • Reporting on findings from enquiries, including oral and written explanations,	Using knowledge as a skill: Asking Questions • Asks questions and offers ideas for a range of scientific enquiry. • With support, improves focus of question to clarify its scientific purpose. Predict and hypothesise • Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. • Children to resent predictions in different ways, written, sketch graph etc Planning and setting up for different types of enquiry • Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. • Children understand that there can be more than one thing that affects what they are

	displays or presentations of results and conclusions. - Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. - Identifying differences, similarities or changes related to simple scientific ideas and processes. - Using straightforward scientific evidence to answer questions or to support their findings. Knowledge - compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets - know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution - use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating - demonstrate that dissolving, mixing and changes of state are reversible changes	measuring. Knows when to answer a question by using a fair test method and when better evidence could be generated in other ways, e.g. through a survey, diary/log or research. - Sets up a fair test controlling variables, what to keep the same, what to change, measure or observe. Using equipment - Children use a wide range of equipment for example thermometers and data loggers, correctly, safely, and accurately. - Deals with most equipment difficulties independently before asking for help if necessary. Making Observations and measuring - Chooses to make a series of observations that will add to the evidence they collect while investigating. - With support, takes accurate readings on measuring equipment, recognising when to repeat them. Presenting evidence - Selects the most appropriate way to present evidence they have collected. - Records findings using drawings, labelled diagrams, bar charts, tables and graphs, using ICT where appropriate. - Uses simple scientific language effectively to communicate outcomes. - Interprets a line graph with increasing independence. - This should be included on the enquiry mind map Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. - Makes a comparative statement, sometimes referring to the factors under investigation. - Identifies differences, similarities, or changes related to simple scientific ideas and processes. - Uses straightforward scientific evidence to answer questions or to support their findings. Explaining Evidence - Relates explanations of patterns in results to scientific knowledge and understanding when explaining reasoning Evaluating Outcome - Suggest how much to trust results, identifying some of the limitations of evidence. - Suggests new questions and predictions for setting up further tests
Vocab	Substances, Mixture, Dissolving, Solution	

Year Five		
Project	What was the greatest achievement for each civilisation?	
SCIENCE Focus	Fossils, geological time and classification	
Knowledge and Skills	Crucial knowledge:	Using knowledge as a skill:
	- Children to recognise that living things have changed over time. Use information from video source to place the dates in chronological order and discuss what happened at each stage. - Children to focus on the evolution of a horse from Eohippus to Equus, identifying changes that happen, recording stages through written and illustrated diagrams. - Children explore how fossils are made, using information from books and research online. Record the stages of how a fossil is created. - Children make their own fossil using clay, shells and plaster of paris. Discuss which bits link to the stages they researched earlier. - Children explore how animals, including humans, have adapted over time and the factors that cause adaptation to occur.	Using knowledge as a skill: Asking Questions - Independently asks questions and offers ideas for scientific enquiry, which have a clear scientific purpose. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry - Children use change, measure and same confidently and start recognising when error makes conclusions unreliable and seeks ways to overcome error - Identifies the most appropriate enquiry methods to use to generate evidence needed to solve problems and answer scientific questions. - Plan familiar enquiry types in appropriate detail. Using equipment - Selects the most appropriate equipment to use in a range of contexts and enquiries. - Takes measurements using a range of science equipment with increasing accuracy and precision. Making Observations and measuring - Chooses to make a series of observations or measurements that will add to the quality of the evidence collected while investigating. - Makes their own decisions on how long a observation will be, what they are observing and what measurements to take. Presenting evidence - Records data and results of increasing complexity using scientific diagrams, classification keys, tables, bar and line graphs and models. - Communicates findings in written form, displays and uses other forms of presentation. - Uses scientific language to communicate increasingly detailed analysis. - Interprets a line graph independently. Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same

		in their conclusion, commenting on their potential effect. They also use an understanding of error to describe how confident they are in their conclusion with support. • Where appropriate, makes a comparative statement, describing relationships between factors being investigated. • Uses simple models to help describe scientific ideas. Explaining Evidence • Relates explanations of evidence gathered to scientific knowledge and understanding. • Makes generalisations about what that evidence seems to indicate. Evaluating Outcome • Recognises some of the limitations of their evidence and can suggest why it should not be trusted. • Uses test results to set up further comparative tests.
Vocab	Million, billion, evolution, extinct, fossil, palaeontologist, organism, microorganism, bacteria, microscope	
Year Six		
Project	Are there mountains in the UK?	
SCIENCE Focus	How light behaves. Why does my shadow change length?	
Knowledge and Skills	Crucial knowledge: • recognise that light appears to travel in straight lines • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eye • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	Using knowledge as a skill: Asking Questions • Recognises scientific questions that do not yet have definitive answers. Predict and hypothesise • Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is ‘known’ to be incorrect. • Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry • Children recognise that error plays an important role in being able to draw reliable conclusions. This may not be apparent when first planning the enquiry. They also realise that the data they gathered is not good enough and changed will need to be made to the planning mind map. • Children confidently understand that there can be more than one thing that affects what they are measuring. Children make changes, adaptations to their mind map when needed. • Selects methods to use to solve problems or answer questions, including a full range of enquiry methods, which are planned in detail. Using equipment

		- Explains why particular pieces of equipment or information sources will provide better quality evidence. Making Observations and measuring - Repeats sets of observations or measurements, where appropriate, selecting suitable ranges and intervals, to give sufficient depth of evidence. Presenting evidence - Decides on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables. - Communicates findings in written form, across a range of genre, and uses multi-media and other forms of presentation. Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. They also use an understanding of error to describe how confident they are in their conclusion. - Uses scientific evidence to answer questions or support findings. - Draws valid conclusions that utilise more than one piece of supporting evidence. Explaining Evidence - Provides explanations for differences repeated observations or measurements, identifying reasons for any anomalies noticed. Evaluating Outcome - Evaluates the effectiveness of their working methods, making practical suggestions for improving them. - Identifies scientific evidence that has been used to support or refute ideas or arguments.
Vocab	Shadow, opaque, transparent, translucent, reflection, pupil	

Term	Autumn Two
Year R	
Project	What changes in our environment can you see?
SCIENCE Focus	Exploring ice and different weathers when they happen. Explored floating and sinking – sorting and testing objects. To know about and recognise the signs of Autumn. To know about features of the world and Earth.

Knowledge and Skills	Crucial knowledge:	Using knowledge as a skill: Asking Questions • Asks questions about aspects of their familiar world. • Show curiosity about objects, events and people. <u>Predict and hypothesise</u> • Comment and ask questions about aspects of their familiar world such as the place where they live or the natural world <u>Planning and setting up for different types of enquiry</u> • Find ways to solve problems/find new ways to do things/ test their ideas • Develop ideas of grouping, sequencing, cause and effect • Know about similarities and differences in relation to place, object, materials and living things <u>Using equipment</u> • Measure by direct comparison. • Non-standard units of measurement. • Simple comparative vocabulary – bigger, smaller. • Choose the resources they need for their chosen activity • Handle equipment and tools effectively <u>Making Observations and measuring</u> • General sensory observations of animals and plants. • Simple descriptions of the world around them. • Looking at objects and pictures and discussing what they can see. • Take a risk, engage in new experience and learn by trial and error <u>Presenting evidence</u> • Talking about objects and events. Answers how and why questions about their experiences • Simple recording – pictures/images <u>Drawing conclusions</u> • Noticing ‘which worked best’ – simple comparative statements. • Answer initial question simply. • Answer how and why questions about their experiences <u>Explaining Evidence</u> • Noticing ‘which worked best’ – simple comparative statements. • Answer initial question simply. • Answer how and why questions about their experiences <u>Evaluating Outcome</u> • Develop their own narratives and explanations by connecting ideas or events Build up vocabulary that reflects the breadth of their experience
Vocab		

Year One		
Project	How does the weather change over seasons?	
SCIENCE Focus	How do animals survive? (7 sessions) ANIMAL SURVIVAL	
Knowledge and Skills	Crucial knowledge: • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals fish, amphibians, reptiles, birds and mammals, including pets) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Using knowledge as a skill: Asking Questions • Recognises the difference between a statement and a question. • Begins to shape questions using different question stems. What, How, When • Explore the world around them and raise their own simple questions. Predict and hypothesise • With support the children use ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. Planning and setting up for different types of enquiry • Children to recognise that if we change what we think the cause is then there will be an effect. • With support the children can identify the cause and recommend changes. • Decides which questions can be answered practically and which cannot. • Suggests next step, or a sequence of steps, in a plan Using equipment • Children begin to choose appropriate equipment to use to make observations and follows simple instructions for using it correctly and safely. Making Observations and measuring • Makes relevant observations in familiar contexts. • With support take some non-standard measurements • With support observe changes over time. • With support, children should notice patterns and relationships. Presenting evidence • Use drawings and labels to present evidence. • With support, uses prepared simple tables and charts, including ICT forms. • This should be included on the enquiry mind map Drawing conclusions • Children can identify if there is a relationship between what they changed and measure (Cause and effect) with support • Describes simple observations of an object or objects or of an event and with support makes a simple comparison. Explaining Evidence • With support, recognises the links between cause and effect in simple, familiar situations.

		Evaluating Outcome Reviews their work and with support, recognises some of the difficulties encountered.
Vocab	Organisms, growth, energy, fish, amphibians, mammals, birds, reptiles, herbivores, omnivore, carnivore, predator, prey, food chain, senses	
Year Two		
Project	How has Andover changed?	
SCIENCE Focus	Changing Materials	
Knowledge and Skills	Crucial knowledge: • Why do we choose materials to do certain jobs? • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Using knowledge as a skill: Asking Questions • With support, suggest own questions that they might investigate. Predict and hypothesise • With support the children use ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is ‘known’ to be incorrect. Planning and setting up for different types of enquiry • Children to recognise that if we change what we think the cause is then there will be an effect. • Children can identify the cause and recommend changes. • Decides independently simple questions that could be answered practically and some that cannot. Using equipment • Children chooses appropriate equipment from a selection and follows instructions for using it, sometimes working independently of adult support. Making Observations and measuring • Makes relevant observations. • Takes non-standard measurements. Begins to use basic equipment for measuring length or mass, in standard units.(Hands lenses, egg timers) Presenting evidence • Uses drawings and labels to present evidence. • Uses prepared tables and block graphs, including ICT forms • This should be included on the enquiry mind map Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) • Describes what has happened, making comparisons where appropriate. With support, sequences results, e.g. from smallest to largest. Explaining Evidence • Recognises the link between cause and effect in simple, familiar situations.

		- Begins to notice simple patterns in results. Evaluating Outcome - Reviews their work and recognises some of the difficulties encountered. With support, suggests how these might have been avoided.
Vocab	Changed, physical force, absorb, crumbly, property, drag, suitable, strongest, flexible	
Year Three		
Project	When was life in Andover better? The Iron Age or Stone Age?	
SCIENCE Focus	Animals, Skeletons and Movement	
Knowledge and Skills	Crucial knowledge: - Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat. - Identify that humans and some other animals have skeletons and muscles for support, protection and movement	Using knowledge as a skill: Asking Questions - Asks questions independently and generate own ideas to explore through Scientific enquiry. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry - Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. - Children are starting to understand that there can be more than one thing that affects what they are measuring - Recognises when to answer a question by using a fair test method and when other methods might be needed. - In a fair test identifies what to keep the same and sometimes ant to change and measure. Using equipment - Children selects from a wider range of equipment what to use in an investigation. - Uses basic equipment correctly, safely and with increasing accuracy. Making Observations and measuring - Makes relevant, careful observations throughout an investigation. - Help make decisions on how long to make observations - Uses standard measuring equipment for quantities, such as volume and temperature. Presenting evidence - Gathers, records, classifies and presents data in a variety of ways to help in answering questions. - Sometimes creates own tables and bar charts, using ICT where appropriate. - Interprets a line graph with support.

		- This should be included on the enquiry mind map Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) With support include the variables that they kept the same in their conclusion, commenting on their potential effect. - Reports on findings from enquiries, including oral and written, displays or presentations of results and conclusions. - Makes a general statement about simple patterns they notice in a set of results. Explaining Evidence - Provides explanations for simple patterns in results, referring to everyday experiences when explaining reasoning. Evaluating Outcome - Suggests how an enquiry might be improved. - With support, recognises some of the limitations and significance of evidence.
Vocab	Vertebrates, invertebrates , skeleton , exoskeleton , vital organs , support , mass , muscles, connect , contract	
Year Four		
Project	Were the Anglo Saxons the ruin of Britain?	
SCIENCE Focus	Digestion	
Knowledge and Skills	Crucial knowledge: Working Scientifically - Asking relevant questions and using different types of scientific enquiries to answer them. - Setting up simple practical enquiries, comparative and fair tests. - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. - Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. - Recording findings using simple scientific language, drawings, labelled diagrams, keys, 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.	Using knowledge as a skill: Asking Questions - Asks questions and offers ideas for a range of scientific enquiry. - With support, improves focus of question to clarify its scientific purpose. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is ‘known’ to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc Planning and setting up for different types of enquiry - Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. - Children understand that there can be more than one thing that affects what they are measuring. Knows when to answer a question by using a fair test method and when better evidence could be generated in other ways, e.g. through a survey, diary/log or research. - Sets up a fair test controlling variables, what to keep the same, what to change, measure or observe. Using equipment

	- Identifying differences, similarities or changes related to simple scientific ideas and processes. - Using straightforward scientific evidence to answer questions or to support their findings. Knowledge - describe the simple functions of the basic parts of the digestive system in humans - identify the different types of teeth in humans and their simple functions - construct and interpret a variety of food chains, identifying producers, predators and prey	- Children use a wide range of equipment for example thermometers and data loggers, correctly, safely, and accurately. - Deals with most equipment difficulties independently before asking for help if necessary. Making Observations and measuring - Chooses to make a series of observations that will add to the evidence they collect while investigating. - With support, takes accurate readings on measuring equipment, recognising when to repeat them. Presenting evidence - Selects the most appropriate way to present evidence they have collected. - Records findings using drawings, labelled diagrams, bar charts, tables and graphs, using ICT where appropriate. - Uses simple scientific language effectively to communicate outcomes. - Interprets a line graph with increasing independence. - This should be included on the enquiry mind map Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. - Makes a comparative statement, sometimes referring to the factors under investigation. - Identifies differences, similarities, or changes related to simple scientific ideas and processes. - Uses straightforward scientific evidence to answer questions or to support their findings. Explaining Evidence - Relates explanations of patterns in results to scientific knowledge and understanding when explaining reasoning Evaluating Outcome - Suggest how much to trust results, identifying some of the limitations of evidence. Suggests new questions and predictions for setting up further tests
Vocab	Meat, dairy, protein, grains, root vegetables, carbohydrates, fat, insulation, fruits, minerals, vitamins, fibre, healthy, digestion	
Year Five		
Project	Where in Russia would you launch a space rocket?	
SCIENCE Focus	Space and gravity	
Knowledge and Skills	Crucial knowledge:	Using knowledge as a skill: Asking Questions

	• Children to explain that Sun, Earth and Moon as approximately spherical bodies by understanding how this knowledge has been attained. Children identify scientific evidence that has been used to support or refute ideas or arguments in the context of how ideas changed from a flat earth view. • Children to describe the movement of the Earth, and other planets, relative to the Sun in the solar system by learning the order of the planets and how they move in the solar system. • Children to use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky by examining why the sun appears to move and the arguments for the Earth's rotation. • Children investigate night and day in different parts of the Earth. • Children describe the movement of the Moon relative to the Earth by explaining how the Moon orbits the Earth.	• Independently asks questions and offers ideas for scientific enquiry, which have a clear scientific purpose. Predict and hypothesise • Children use ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. • Children to present predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry • Children use change, measure and same confidently and start recognising when error makes conclusions unreliable and seeks ways to overcome error • Identifies the most appropriate enquiry methods to use to generate evidence needed to solve problems and answer scientific questions. • Plan familiar enquiry types in appropriate detail. Using equipment • Selects the most appropriate equipment to use in a range of contexts and enquiries. • Takes measurements using a range of science equipment with increasing accuracy and precision. Making Observations and measuring • Chooses to make a series of observations or measurements that will add to the quality of the evidence collected while investigating. • Makes their own decisions on how long an observation will be, what they are observing and what measurements to take. Presenting evidence • Records data and results of increasing complexity using scientific diagrams, classification keys, tables, bar and line graphs and models. • Communicates findings in written form, displays and uses other forms of presentation. • Uses scientific language to communicate increasingly detailed analysis. • Interprets a line graph independently. Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. They also use an understanding of error to describe how confident they are in their conclusion with support. • Where appropriate, makes a comparative statement, describing relationships between factors being investigated.
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		• Uses simple models to help describe scientific ideas. Explaining Evidence • Relates explanations of evidence gathered to scientific knowledge and understanding. • Makes generalisations about what that evidence seems to indicate. Evaluating Outcome • Recognises some of the limitations of their evidence and can suggest why it should not be trusted. • Uses test results to set up further comparative tests.
Vocab	Solar system, planets, orbit, star, moon, rotating, day, year, galaxy, universe, asteroid, comet, gravity, mass	
Year Six		
Project	Andover or the Canadian Wilderness – which biome would you choose?	
SCIENCE Focus	Classification and Evolution How does evolution happen?	
Knowledge and Skills	Crucial knowledge: • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	Using knowledge as a skill: Asking Questions • Recognises scientific questions that do not yet have definitive answers. Predict and hypothesise • Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is ‘known’ to be incorrect. • Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry • Children recognise that error plays an important role in being able to draw reliable conclusions. This may not be apparent when first planning the enquiry. They also realise that the data they gathered is not good enough and changed will need to be made to the planning mind map. • Children confidently understand that there can be more than one thing that affects what they are measuring. Children make changes, adaptations to their mind map when needed. • Selects methods to use to solve problems or answer questions, including a full range of enquiry methods, which are planned in detail. Using equipment • Explains why particular pieces of equipment or information sources will provide better quality evidence. Making Observations and measuring • Repeats sets of observations or measurements, where appropriate, selecting suitable ranges

		and intervals, to give sufficient depth of evidence. Presenting evidence - Decides on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables. - Communicates findings in written form, across a range of genre, and uses multi-media and other forms of presentation. Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. They also use an understanding of error to describe how confident they are in their conclusion. - Uses scientific evidence to answer questions or support findings. - Draws valid conclusions that utilise more than one piece of supporting evidence. Explaining Evidence - Provides explanations for differences repeated observations or measurements, identifying reasons for any anomalies noticed. Evaluating Outcome - Evaluates the effectiveness of their working methods, making practical suggestions for improving them. - Identifies scientific evidence that has been used to support or refute ideas or arguments.
Vocab	Evolution, natural skeleton, population, variation, competition, adapted, offspring, inheritance, Charles Darwin, Lamarck, HMS Beagle	

Term	Spring One	
Year R		
Project	What can you see through a telescope?	
SCIENCE Focus	Explore magnets – what is magnetic?	
Knowledge and Skills	Crucial knowledge: To know and recognise the signs of Winter. To know some important processes and changes in the natural world, including states of matter. (Freezing)	Using knowledge as a skill: Asking Questions - Asks questions about aspects of their familiar world. - Show curiosity about objects, events and people. Predict and hypothesise - Comment and ask questions about aspects of their familiar world such as the place where they live or the natural world Planning and setting up for different types of enquiry

		- Find ways to solve problems/find new ways to do things/ test their ideas - Develop ideas of grouping, sequencing, cause and effect - Know about similarities and differences in relation to place, object, materials and living things Using equipment - Measure by direct comparison. - Non-standard units of measurement. - Simple comparative vocabulary – bigger, smaller. - Choose the resources they need for their chosen activity - Handle equipment and tools effectively Making Observations and measuring - General sensory observations of animals and plants. - Simple descriptions of the world around them. - Looking at objects and pictures and discussing what they can see. - Take a risk, engage in new experience and learn by trial and error Presenting evidence - Talking about objects and events. Answers how and why questions about their experiences - Simple recording – pictures/images Drawing conclusions - Noticing ‘which worked best’ – simple comparative statements. - Answer initial question simply. - Answer how and why questions about their experiences Explaining Evidence - Noticing ‘which worked best’ – simple comparative statements. - Answer initial question simply. - Answer how and why questions about their experiences Evaluating Outcome - Develop their own narratives and explanations by connecting ideas or events Build up vocabulary that reflects the breadth of their experience
Vocab		
Year One		
Project	Who is the oldest reigning monarch?	
SCIENCE Focus	What is a habitat? (7 sessions)	
Knowledge and Skills	Crucial knowledge: - identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals - Identify and name a variety of common animals that are carnivores, herbivores and omnivores.	Using knowledge as a skill: Asking Questions - Recognises the difference between a statement and a question. - Begins to shape questions using different question stems. What, How, When

	- Describe and compare the structure of a variety of common animals fish, amphibians, reptiles, birds and mammals, including pets) - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	- Explore the world around them and raise their own simple questions. Predict and hypothesise - With support the children use ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. Planning and setting up for different types of enquiry - Children to recognise that if we change what we think the cause is then there will be an effect. - With support the children can identify the cause and recommend changes. - Decides which questions can be answered practically and which cannot. - Suggests next step, or a sequence of steps, in a plan Using equipment - Children begin to choose appropriate equipment to use to make observations and follows simple instructions for using it correctly and safely. Making Observations and measuring - Makes relevant observations in familiar contexts. - With support take some non-standard measurements - With support observe changes over time. - With support, children should notice patterns and relationships. Presenting evidence - Use drawings and labels to present evidence. - With support, uses prepared simple tables and charts, including ICT forms. - This should be included on the enquiry mind map Drawing conclusions - Children can identify if there is a relationship between what they changed and measure (Cause and effect) with support - Describes simple observations of an object or objects or of an event and with support makes a simple comparison. Explaining Evidence - With support, recognises the links between cause and effect in simple, familiar situations. Evaluating Outcome Reviews their work and with support, recognises some of the difficulties encountered.
Vocab	Variation, habitat, adapted, survive, avoid, wild plant, garden plant	
Year Two		
Project	How does the weather change the closer you get to the equator?	
SCIENCE Focus	Changing Materials	

Knowledge and Skills	Crucial knowledge: Why do we choose materials to do certain jobs? - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Using knowledge as a skill: Asking Questions - With support, suggest own questions that they might investigate. Predict and hypothesise - With support the children use ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. Planning and setting up for different types of enquiry - Children to recognise that if we change what we think the cause is then there will be an effect. - Children can identify the cause and recommend changes. - Decides independently simple questions that could be answered practically and some that cannot. Using equipment - Children chooses appropriate equipment from a selection and follows instructions for using it, sometimes working independently of adult support. Making Observations and measuring - Makes relevant observations. - Takes non-standard measurements. Begins to use basic equipment for measuring length or mass, in standard units.(Hands lenses, egg timers) Presenting evidence - Uses drawings and labels to present evidence. - Uses prepared tables and block graphs, including ICT forms - This should be included on the enquiry mind map Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) - Describes what has happened, making comparisons where appropriate. With support, sequences results, e.g. from smallest to largest. Explaining Evidence - Recognises the link between cause and effect in simple, familiar situations. - Begins to notice simple patterns in results. Evaluating Outcome - Reviews their work and recognises some of the difficulties encountered. With support, suggests how these might have been avoided.
Vocab	Changed, physical force, absorb, crumbly, property, drag, suitable, strongest, flexible	
Year Three		
Project	How extreme can Earth be?	

SCIENCE Focus	Solids, Liquids and Gases	
Knowledge and Skills	Crucial knowledge: - Compare and group materials together, according to whether they are solids, liquids or gases. - Observe that some materials change state when heated or cooled, and measure and research the temperature at which this happens in degrees Celsius. - Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Using knowledge as a skill: Asking Questions - Asks questions independently and generate own ideas to explore through Scientific enquiry. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry - Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. - Children are starting to understand that there can be more than one thing that affects what they are measuring - Recognises when to answer a question by using a fair test method and when other methods might be needed. - In a fair test identifies what to keep the same and sometimes ant to change and measure. Using equipment - Children selects from a wider range of equipment what to use in an investigation. - Uses basic equipment correctly, safely and with increasing accuracy. Making Observations and measuring - Makes relevant, careful observations throughout an investigation. - Help make decisions on how long to make observations - Uses standard measuring equipment for quantities, such as volume and temperature. Presenting evidence - Gathers, records, classifies and presents data in a variety of ways to help in answering questions. - Sometimes creates own tables and bar charts, using ICT where appropriate. - Interprets a line graph with support. - This should be included on the enquiry mind map Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) With support include the variables that they kept the same in their conclusion, commenting on their potential effect. - Reports on findings from enquiries, including oral and written, displays or presentations of results and conclusions.

		- Makes a general statement about simple patterns they notice in a set of results. Explaining Evidence - Provides explanations for simple patterns in results, referring to everyday experiences when explaining reasoning. Evaluating Outcome - Suggests how an enquiry might be improved. - With support, recognises some of the limitations and significance of evidence.
Vocab	State, solid, liquid, gas, gravity, viscous, heating, cooling, melting, boiling, evaporate, freeze, condense	
Year Four		
Project	Were the Vikings Raiders or Traders?	
SCIENCE Focus	Plants - Reproduction	
Knowledge and Skills	Crucial knowledge: Knowledge Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	Using knowledge as a skill: Asking Questions - Asks questions and offers ideas for a range of scientific enquiry. - With support, improves focus of question to clarify its scientific purpose. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc Planning and setting up for different types of enquiry - Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. - Children understand that there can be more than one thing that affects what they are measuring. Knows when to answer a question by using a fair test method and when better evidence could be generated in other ways, e.g. through a survey, diary/log or research. - Sets up a fair test controlling variables, what to keep the same, what to change, measure or observe. Using equipment - Children use a wide range of equipment for example thermometers and data loggers, correctly, safely, and accurately. - Deals with most equipment difficulties independently before asking for help if necessary. Making Observations and measuring - Chooses to make a series of observations that will add to the evidence they collect while investigating.

		• With support, takes accurate readings on measuring equipment, recognising when to repeat them. Presenting evidence • Selects the most appropriate way to present evidence they have collected. • Records findings using drawings, labelled diagrams, bar charts, tables and graphs, using ICT where appropriate. • Uses simple scientific language effectively to communicate outcomes. • Interprets a line graph with increasing independence. • This should be included on the enquiry mind map Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. • Makes a comparative statement, sometimes referring to the factors under investigation. • Identifies differences, similarities, or changes related to simple scientific ideas and processes. • Uses straightforward scientific evidence to answer questions or to support their findings. Explaining Evidence • Relates explanations of patterns in results to scientific knowledge and understanding when explaining reasoning Evaluating Outcome • Suggest how much to trust results, identifying some of the limitations of evidence. • Suggests new questions and predictions for setting up further tests
Vocab	Pollination, seed (from year 1 plants), stamen, stigma, ovaries, petals, dispersal, germination (from year 1 plants)	
Year Five		
Project	What was everyday life like for men, women and children in Ancient Egypt?	
SCIENCE Focus	Making new substances	
Knowledge and Skills	Crucial knowledge: • Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. • Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. • Use knowledge of solids, liquids, and gases to decide how mixtures might be	Using knowledge as a skill: Asking Questions • Independently asks questions and offers ideas for scientific enquiry, which have a clear scientific purpose. Predict and hypothesise • Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect.

	separated, including through filtering, sieving and evaporating. • Give reasons based on evidence from comparative and fair tests, for the particular uses of everyday materials, including wood, metals and plastic. • Demonstrate that dissolving, mixing and changes of state are reversible changes. • Explain that some changes result in the formation of new materials, and this kind of change is usually not reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	• Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry • Children use change, measure and same confidently and start recognising when error makes conclusions unreliable and seeks ways to overcome error • Identifies the most appropriate enquiry methods to use to generate evidence needed to solve problems and answer scientific questions. • Plan familiar enquiry types in appropriate detail. Using equipment • Selects the most appropriate equipment to use in a range of contexts and enquiries. • Takes measurements using a range of science equipment with increasing accuracy and precision. Making Observations and measuring • Chooses to make a series of observations or measurements that will add to the quality of the evidence collected while investigating. • Makes their own decisions on how long a observation will be, what they are observing and what measurements to take. Presenting evidence • Records data and results of increasing complexity using scientific diagrams, classification keys, tables, bar and line graphs and models. • Communicates findings in written form, displays and uses other forms of presentation. • Uses scientific language to communicate increasingly detailed analysis. • Interprets a line graph independently. Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. They also use an understanding of error to describe how confident they are in their conclusion with support. • Where appropriate, makes a comparative statement, describing relationships between factors being investigated. • Uses simple models to help describe scientific ideas. Explaining Evidence • Relates explanations of evidence gathered to scientific knowledge and understanding. • Makes generalisations about what that evidence seems to indicate. Evaluating Outcome
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		- Recognises some of the limitations of their evidence and can suggest why it should not be trusted. - Uses test results to set up further comparative tests.
Vocab	Matter, mass, react, irreversible	
Year Six		
Project	Why is the Mayan culture important?	
SCIENCE Focus	Controlling Electrical circuits - How can electrical circuits be controlled?	
Knowledge and Skills	Crucial knowledge: - associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit - compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches - use recognised symbols when representing a simple circuit in a diagram.	Using knowledge as a skill: Asking Questions - Recognises scientific questions that do not yet have definitive answers. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry - Children recognise that error plays an important role in being able to draw reliable conclusions. This may not be apparent when first planning the enquiry. They also realise that the data they gathered is not good enough and changed will need to be made to the planning mind map. - Children confidently understand that there can be more than one thing that affects what they are measuring. Children make changes, adaptations to their mind map when needed. - Selects methods to use to solve problems or answer questions, including a full range of enquiry methods, which are planned in detail. Using equipment - Explains why particular pieces of equipment or information sources will provide better quality evidence. Making Observations and measuring - Repeats sets of observations or measurements, where appropriate, selecting suitable ranges and intervals, to give sufficient depth of evidence. Presenting evidence - Decides on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables. - Communicates findings in written form, across a range of genre, and uses multi-media and other forms of presentation. Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they

		changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. They also use an understanding of error to describe how confident they are in their conclusion. • Uses scientific evidence to answer questions or support findings. • Draws valid conclusions that utilise more than one piece of supporting evidence. Explaining Evidence • Provides explanations for differences repeated observations or measurements, identifying reasons for any anomalies noticed. Evaluating Outcome • Evaluates the effectiveness of their working methods, making practical suggestions for improving them. • Identifies scientific evidence that has been used to support or refute ideas or arguments.
Vocab	Current, voltage, volts, conductor, resistance, resistor	

Term	Spring Two	
Year R		
Project	If you were a fish, what fish would you be?	
SCIENCE Focus	Seasonal changes – winter to spring, ice. To know and recognise the signs of Spring. To know about features of my own immediate environment and how they might vary from another. To learn the life cycle of a duck. To know some important processes and changes in the natural world including states of matter. (Melting, sinking and floating). Chicken life cycles.	
Knowledge and Skills	Crucial knowledge: •	Using knowledge as a skill: Asking Questions • Asks questions about aspects of their familiar world. • Show curiosity about objects, events and people. <u>Predict and hypothesise</u> • Comment and ask questions about aspects of their familiar world such as the place where they live or the natural world <u>Planning and setting up for different types of enquiry</u> • Find ways to solve problems/find new ways to do things/ test their ideas • Develop ideas of grouping, sequencing, cause and effect

		- Know about similarities and differences in relation to place, object, materials and living things Using equipment - Measure by direct comparison. - Non-standard units of measurement. - Simple comparative vocabulary – bigger, smaller. - Choose the resources they need for their chosen activity - Handle equipment and tools effectively Making Observations and measuring - General sensory observations of animals and plants. - Simple descriptions of the world around them. - Looking at objects and pictures and discussing what they can see. - Take a risk, engage in new experience and learn by trial and error Presenting evidence - Talking about objects and events. Answers how and why questions about their experiences - Simple recording – pictures/images Drawing conclusions - Noticing ‘which worked best’ – simple comparative statements. - Answer initial question simply. - Answer how and why questions about their experiences Explaining Evidence - Noticing ‘which worked best’ – simple comparative statements. - Answer initial question simply. - Answer how and why questions about their experiences Evaluating Outcome - Develop their own narratives and explanations by connecting ideas or events Build up vocabulary that reflects the breadth of their experience
Vocab		
Year One		
Project	How is London different to where we live?	
SCIENCE Focus	Do seasons affect habitats? (7 sessions)	
Knowledge and Skills	Crucial knowledge: - identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals - Identify and name a variety of common animals that are carnivores, herbivores and omnivores. - Describe and compare the structure of a variety of common animals fish,	Using knowledge as a skill: Asking Questions - Recognises the difference between a statement and a question. - Begins to shape questions using different question stems. What, How, When - Explore the world around them and raise their own simple questions. Predict and hypothesise - With support the children use ideas from the learning journey of that phase to accurately

	amphibians, reptiles, birds and mammals, including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. Planning and setting up for different types of enquiry - Children to recognise that if we change what we think the cause is then there will be an effect. - With support the children can identify the cause and recommend changes. - Decides which questions can be answered practically and which cannot. - Suggests next step, or a sequence of steps, in a plan Using equipment - Children begin to choose appropriate equipment to use to make observations and follows simple instructions for using it correctly and safely. Making Observations and measuring - Makes relevant observations in familiar contexts. - With support take some non-standard measurements - With support observe changes over time. - With support, children should notice patterns and relationships. Presenting evidence - Use drawings and labels to present evidence. - With support, uses prepared simple tables and charts, including ICT forms. - This should be included on the enquiry mind map Drawing conclusions - Children can identify if there is a relationship between what they changed and measure (Cause and effect) with support - Describes simple observations of an object or objects or of an event and with support makes a simple comparison. Explaining Evidence - With support, recognises the links between cause and effect in simple, familiar situations. Evaluating Outcome - Reviews their work and with support, recognises some of the difficulties encountered.
Vocab	Spring, summer, autumn, winter, hibernating, migration, evergreen, deciduous	
Year Two		
Project	How is Kingston different to Andover?	
SCIENCE Focus	Pushes and Pulls	
Knowledge and Skills	Crucial knowledge: Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Using knowledge as a skill: Asking Questions With support, suggest own questions that they might investigate.

	• Objects can move (be in motion) in various ways, rolls, slide and bounce • The pushing and pulling of an object can affect its motion. • Pushing or pulling can do 3 things: slow down, speed up or change direction of an object. • The larger the push/ pull the bigger the effect on the motion. • Pushing and pulling objects can change their shapes.	Predict and hypothesise • With support the children use ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. Planning and setting up for different types of enquiry • Children to recognise that if we change what we think the cause is then there will be an effect. • Children can identify the cause and recommend changes. • Decides independently simple questions that could be answered practically and some that cannot. Using equipment • Children chooses appropriate equipment from a selection and follows instructions for using it, sometimes working independently of adult support. Making Observations and measuring • Makes relevant observations. • Takes non-standard measurements. Begins to use basic equipment for measuring length or mass, in standard units.(Hands lenses, egg timers) Presenting evidence • Uses drawings and labels to present evidence. • Uses prepared tables and block graphs, including ICT forms • This should be included on the enquiry mind map Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) • Describes what has happened, making comparisons where appropriate. With support, sequences results, e.g. from smallest to largest. Explaining Evidence • Recognises the link between cause and effect in simple, familiar situations. • Begins to notice simple patterns in results. Evaluating Outcome • Reviews their work and recognises some of the difficulties encountered. With support, suggests how these might have been avoided.
Vocab	Motion, pushing, pulling, slow down, speed up, direction	
Year Three		
Project	Why should we save Earth's Rainforests?	
SCIENCE Focus	How do plants make their food? Plant food production	
Knowledge and Skills	Crucial knowledge • Identify and describe the functions of	Using knowledge as a skill: Asking Questions

	different parts of flowering plants: roots, stem/trunk, leaves and flowers. • Explain the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary from plant to plant. • Investigate the way in which water is transported within plants.	• Asks questions independently and generate own ideas to explore through Scientific enquiry. Predict and hypothesise • Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. • Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry • Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. • Children are starting to understand that there can be more than one thing that affects what they are measuring • Recognises when to answer a question by using a fair test method and when other methods might be needed. • In a fair test identifies what to keep the same and sometimes ant to change and measure. Using equipment • Children selects from a wider range of equipment what to use in an investigation. • Uses basic equipment correctly, safely and with increasing accuracy. Making Observations and measuring • Makes relevant, careful observations throughout an investigation. • Help make decisions on how long to make observations • Uses standard measuring equipment for quantities, such as volume and temperature. Presenting evidence • Gathers, records, classifies and presents data in a variety of ways to help in answering questions. • Sometimes creates own tables and bar charts, using ICT where appropriate. • Interprets a line graph with support. • This should be included on the enquiry mind map Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) With support include the variables that they kept the same in their conclusion, commenting on their potential effect. • Reports on findings from enquiries, including oral and written, displays or presentations of results and conclusions. • Makes a general statement about simple patterns they notice in a set of results. Explaining Evidence
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		- Provides explanations for simple patterns in results, referring to everyday experiences when explaining reasoning. Evaluating Outcome - Suggests how an enquiry might be improved. - With support, recognises some of the limitations and significance of evidence
Vocab	Carbon dioxide, oxygen, roots, soil, leaves	
Year Four		
Project	Local River study – “Where does the River Anton begin and end?”	
SCIENCE Focus	Making electrical circuits work	
Knowledge and Skills	Crucial knowledge: - identify common appliances that run on electricity - construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers - identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery - recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors	Using knowledge as a skill: Asking Questions - Asks questions and offers ideas for a range of scientific enquiry. - With support, improves focus of question to clarify its scientific purpose. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is ‘known’ to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc Planning and setting up for different types of enquiry - Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. - Children understand that there can be more than one thing that affects what they are measuring. Knows when to answer a question by using a fair test method and when better evidence could be generated in other ways, e.g. through a survey, diary/log or research. - Sets up a fair test controlling variables, what to keep the same, what to change, measure or observe. Using equipment - Children use a wide range of equipment for example thermometers and data loggers, correctly, safely, and accurately. - Deals with most equipment difficulties independently before asking for help if necessary. Making Observations and measuring - Chooses to make a series of observations that will add to the evidence they collect while investigating. - With support, takes accurate readings on measuring equipment, recognising when to repeat them. Presenting evidence - Selects the most appropriate way to present evidence they have collected.

		- Records findings using drawings, labelled diagrams, bar charts, tables and graphs, using ICT where appropriate. - Uses simple scientific language effectively to communicate outcomes. - Interprets a line graph with increasing independence. - This should be included on the enquiry mind map Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. - Makes a comparative statement, sometimes referring to the factors under investigation. - Identifies differences, similarities, or changes related to simple scientific ideas and processes. - Uses straightforward scientific evidence to answer questions or to support their findings. Explaining Evidence - Relates explanations of patterns in results to scientific knowledge and understanding when explaining reasoning Evaluating Outcome - Suggest how much to trust results, identifying some of the limitations of evidence. - Suggests new questions and predictions for setting up further tests
Vocab	Electricity, batteries, mains electricity, device, wires, circuit, conductor, insulator	
Year Five		
Project	Why does parliament run the country rather than the King?	
SCIENCE Focus	Making new substances <u>How and why do things move – pt 1 (Forces that oppose motion)</u>	
Knowledge and Skills	Crucial knowledge: - Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. - Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. - Use knowledge of solids, liquids, and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. - Give reasons based on evidence from comparative and fair tests, for the particular uses of everyday materials, including wood, metals and plastic. - Demonstrate that dissolving, mixing and changes of state are reversible changes.	Using knowledge as a skill: Asking Questions - Independently asks questions and offers ideas for scientific enquiry, which have a clear scientific purpose. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry - Children use change, measure and same confidently and start recognising when error makes conclusions unreliable and seeks ways to overcome error - Identifies the most appropriate enquiry methods to use to generate evidence needed

	• Explain that some changes result in the formation of new materials, and this kind of change is usually not reversible, including changes associated with burning and the action of acid on bicarbonate of soda. • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object and the impact of gravity on our lives. • Identify the effects of air resistance, water resistance and friction, which act between moving surfaces. • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. •	to solve problems and answer scientific questions. • Plan familiar enquiry types in appropriate detail. Using equipment • Selects the most appropriate equipment to use in a range of contexts and enquiries. • Takes measurements using a range of science equipment with increasing accuracy and precision. Making Observations and measuring • Chooses to make a series of observations or measurements that will add to the quality of the evidence collected while investigating. • Makes their own decisions on how long a observation will be, what they are observing and what measurements to take. Presenting evidence • Records data and results of increasing complexity using scientific diagrams, classification keys, tables, bar and line graphs and models. • Communicates findings in written form, displays and uses other forms of presentation. • Uses scientific language to communicate increasingly detailed analysis. • Interprets a line graph independently. Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. They also use an understanding of error to describe how confident they are in their conclusion with support. • Where appropriate, makes a comparative statement, describing relationships between factors being investigated. • Uses simple models to help describe scientific ideas. Explaining Evidence • Relates explanations of evidence gathered to scientific knowledge and understanding. • Makes generalisations about what that evidence seems to indicate. Evaluating Outcome • Recognises some of the limitations of their evidence and can suggest why it should not be trusted. • Uses test results to set up further comparative tests.
Vocab	Water resistance, air resistance, friction, undulations, interlock, gears, pulley, lever	

Year Six		
Project	Which countries grow cocoa and how do we get chocolate?	
SCIENCE Focus	Sound	
Knowledge and Skills	Crucial knowledge: • identify how sounds are made, associating some of them with something vibrating • recognise that vibrations from sounds travel through a medium to the ear • find patterns between the pitch of a sound and features of the object that produced it • find patterns between the volume of a sound and the strength of the vibrations that produced it • recognise that sounds get fainter as the distance from the sound source increases.	Using knowledge as a skill: Asking Questions • Recognises scientific questions that do not yet have definitive answers. Predict and hypothesise • Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. • Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry • Children recognise that error plays an important role in being able to draw reliable conclusions. This may not be apparent when first planning the enquiry. They also realise that the data they gathered is not good enough and changed will need to be made to the planning mind map. • Children confidently understand that there can be more than one thing that affects what they are measuring. Children make changes, adaptations to their mind map when needed. • Selects methods to use to solve problems or answer questions, including a full range of enquiry methods, which are planned in detail. Using equipment • Explains why particular pieces of equipment or information sources will provide better quality evidence. Making Observations and measuring • Repeats sets of observations or measurements, where appropriate, selecting suitable ranges and intervals, to give sufficient depth of evidence. Presenting evidence • Decides on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables. • Communicates findings in written form, across a range of genre, and uses multi-media and other forms of presentation. Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. They also use an understanding of error to describe how confident they are in their conclusion.

		• Uses scientific evidence to answer questions or support findings. • Draws valid conclusions that utilise more than one piece of supporting evidence. Explaining Evidence • Provides explanations for differences repeated observations or measurements, identifying reasons for any anomalies noticed. Evaluating Outcome • Evaluates the effectiveness of their working methods, making practical suggestions for improving them. • Identifies scientific evidence that has been used to support or refute ideas or arguments.
Vocab	Sound, pitch, volume, vibration, ear drum, frequency, amplitude	

Term	Summer One	
Year R		
Project	How does your garden grow?	
SCIENCE Focus	Seasonal changes – spring, how animals and plants grow and develop. Animal life cycles – chicken, butterfly, frog. To plant wild flower seeds. To plant beans. To observe the growth of seeds and talk about the changes. To know how to care for growing plants. To learn the life cycles of plants. To know that some things in the world are man-made and some things are natural.	
Knowledge and Skills	Crucial knowledge:	Using knowledge as a skill: Asking Questions • Asks questions about aspects of their familiar world. • Show curiosity about objects, events and people. <u>Predict and hypothesise</u> • Comment and ask questions about aspects of their familiar world such as the place where they live or the natural world <u>Planning and setting up for different types of enquiry</u> • Find ways to solve problems/find new ways to do things/ test their ideas • Develop ideas of grouping, sequencing, cause and effect

		- Know about similarities and differences in relation to place, object, materials and living things Using equipment - Measure by direct comparison. - Non-standard units of measurement. - Simple comparative vocabulary – bigger, smaller. - Choose the resources they need for their chosen activity - Handle equipment and tools effectively Making Observations and measuring - General sensory observations of animals and plants. - Simple descriptions of the world around them. - Looking at objects and pictures and discussing what they can see. - Take a risk, engage in new experience and learn by trial and error Presenting evidence - Talking about objects and events. Answers how and why questions about their experiences - Simple recording – pictures/images Drawing conclusions - Noticing ‘which worked best’ – simple comparative statements. - Answer initial question simply. - Answer how and why questions about their experiences Explaining Evidence - Noticing ‘which worked best’ – simple comparative statements. - Answer initial question simply. - Answer how and why questions about their experiences Evaluating Outcome - Develop their own narratives and explanations by connecting ideas or events Build up vocabulary that reflects the breadth of their experience
Vocab		
Year One		
Project	What makes the seaside the seaside?	
SCIENCE Focus	Do seasons affect habitats? (7 sessions)	
Knowledge and Skills	Crucial knowledge: - Observe changes across the four seasons - Observe and describe weather associated with the seasons and how day length varies.	Using knowledge as a skill: Asking Questions - Recognises the difference between a statement and a question. - Begins to shape questions using different question stems. What, How, When - Explore the world around them and raise their own simple questions. Predict and hypothesise - With support the children use ideas from the learning journey of that phase to accurately

		predict and hypothesise, even if their prediction or hypothesis is ‘known’ to be incorrect. Planning and setting up for different types of enquiry • Children to recognise that if we change what we think the cause is then there will be an effect. • With support the children can identify the cause and recommend changes. • Decides which questions can be answered practically and which cannot. • Suggests next step, or a sequence of steps, in a plan Using equipment • Children begin to choose appropriate equipment to use to make observations and follows simple instructions for using it correctly and safely. Making Observations and measuring • Makes relevant observations in familiar contexts. • With support take some non-standard measurements • With support observe changes over time. • With support, children should notice patterns and relationships. Presenting evidence • Use drawings and labels to present evidence. • With support, uses prepared simple tables and charts, including ICT forms. • This should be included on the enquiry mind map Drawing conclusions • Children can identify if there is a relationship between what they changed and measure (Cause and effect) with support • Describes simple observations of an object or objects or of an event and with support makes a simple comparison. Explaining Evidence • With support, recognises the links between cause and effect in simple, familiar situations. Evaluating Outcome • Reviews their work and with support, recognises some of the difficulties encountered.
Vocab	Spring, summer, autumn, winter, hibernating, migration, evergreen, deciduous	
Year Two		
Project	How did the fire change London?	
SCIENCE Focus	Pushes and Pulls	
Knowledge and Skills	Crucial knowledge: • Find out how the shapes of solid objects made from some materials	Using knowledge as a skill: Asking Questions

	can be changed by squashing, bending, twisting and stretching • Objects can move (be in motion) in various ways, rolls, slide and bounce • The pushing and pulling of an object can affect its motion. • Pushing or pulling can do 3 things: slow down, speed up or change direction of an object. • The larger the push/ pull the bigger the effect on the motion. • Pushing and pulling objects can change their shapes.	• With support, suggest own questions that they might investigate. Predict and hypothesise • With support the children use ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. Planning and setting up for different types of enquiry • Children to recognise that if we change what we think the cause is then there will be an effect. • Children can identify the cause and recommend changes. • Decides independently simple questions that could be answered practically and some that cannot. Using equipment • Children chooses appropriate equipment from a selection and follows instructions for using it, sometimes working independently of adult support. Making Observations and measuring • Makes relevant observations. • Takes non-standard measurements. Begins to use basic equipment for measuring length or mass, in standard units.(Hands lenses, egg timers) Presenting evidence • Uses drawings and labels to present evidence. • Uses prepared tables and block graphs, including ICT forms • This should be included on the enquiry mind map Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) • Describes what has happened, making comparisons where appropriate. With support, sequences results, e.g. from smallest to largest. Explaining Evidence • Recognises the link between cause and effect in simple, familiar situations. • Begins to notice simple patterns in results. Evaluating Outcome • Reviews their work and recognises some of the difficulties encountered. With support, suggests how these might have been avoided.
Vocab	Motion, pushing, pulling, slow down, speed up, direction	
Year Three		
Project	Who were the Romans? What did they do for us?	
SCIENCE Focus	Light	

Knowledge and Skills	Crucial knowledge: • Recognise that they need light in order to see things and that dark is the absence of light • Notice that light is reflected from surfaces • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes • Recognise that shadows are formed when the light from a light source is blocked by an opaque object • Find patterns in the way that the size of shadows change.	Using knowledge as a skill: Asking Questions • Asks questions independently and generate own ideas to explore through Scientific enquiry. Predict and hypothesise • Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. • Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry • Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. • Children are starting to understand that there can be more than one thing that affects what they are measuring • Recognises when to answer a question by using a fair test method and when other methods might be needed. • In a fair test identifies what to keep the same and sometimes ant to change and measure. Using equipment • Children selects from a wider range of equipment what to use in an investigation. • Uses basic equipment correctly, safely and with increasing accuracy. Making Observations and measuring • Makes relevant, careful observations throughout an investigation. • Help make decisions on how long to make observations • Uses standard measuring equipment for quantities, such as volume and temperature. Presenting evidence • Gathers, records, classifies and presents data in a variety of ways to help in answering questions. • Sometimes creates own tables and bar charts, using ICT where appropriate. • Interprets a line graph with support. • This should be included on the enquiry mind map Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) With support include the variables that they kept the same in their conclusion, commenting on their potential effect. • Reports on findings from enquiries, including oral and written, displays or presentations of results and conclusions. • Makes a general statement about simple patterns they notice in a set of results.
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		Explaining Evidence - Provides explanations for simple patterns in results, referring to everyday experiences when explaining reasoning. Evaluating Outcome - Suggests how an enquiry might be improved. - With support, recognises some of the limitations and significance of evidence.
Vocab	Light source, shiny, transparent, opaque, reflection, translucent	
Year Four		
Project	Anglo Saxons in Britain – “Was King Alfred really great?”	
SCIENCE Focus	Living Things	
Knowledge and Skills	Crucial knowledge: - recognise that living things can be grouped in a variety of ways - explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - recognise that environments can change and that this can sometimes pose dangers to living things	Using knowledge as a skill: Asking Questions - Asks questions and offers ideas for a range of scientific enquiry. - With support, improves focus of question to clarify its scientific purpose. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is ‘known’ to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc Planning and setting up for different types of enquiry - Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. - Children understand that there can be more than one thing that affects what they are measuring. Knows when to answer a question by using a fair test method and when better evidence could be generated in other ways, e.g. through a survey, diary/log or research. - Sets up a fair test controlling variables, what to keep the same, what to change, measure or observe. Using equipment - Children use a wide range of equipment for example thermometers and data loggers, correctly, safely, and accurately. - Deals with most equipment difficulties independently before asking for help if necessary. Making Observations and measuring - Chooses to make a series of observations that will add to the evidence they collect while investigating. - With support, takes accurate readings on measuring equipment, recognising when to repeat them. Presenting evidence

		• Selects the most appropriate way to present evidence they have collected. • Records findings using drawings, labelled diagrams, bar charts, tables and graphs, using ICT where appropriate. • Uses simple scientific language effectively to communicate outcomes. • Interprets a line graph with increasing independence. • This should be included on the enquiry mind map Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. • Makes a comparative statement, sometimes referring to the factors under investigation. • Identifies differences, similarities, or changes related to simple scientific ideas and processes. • Uses straightforward scientific evidence to answer questions or to support their findings. Explaining Evidence • Relates explanations of patterns in results to scientific knowledge and understanding when explaining reasoning Evaluating Outcome • Suggest how much to trust results, identifying some of the limitations of evidence. • Suggests new questions and predictions for setting up further tests
Vocab	Classification , Classification key ,Vertebrates (from yr 3 'Animal skeletons and movement) , Invertebrates (from yr 3 'Animals, skeletons and movement') , Food chain (from yr 1 'Animal Survival') , Nutrients (from yr 3 'Plant food production') , Organism (from yr 1 'Animal Survival') , Mammal (from yr 1 'Animal Survival') , Amphibian (from yr 1 'Animal Survival') , Insect , Bird (from yr 1 'Animal Survival') , Environmental	
Year Five		
Project	Why would a refugee want to move to Andover?	
SCIENCE Focus	<u>How and why do things move – pt 2 (Forces that oppose motion)</u>	
Knowledge and Skills	Crucial knowledge: • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object and the impact of gravity on our lives. • Identify the effects of air resistance, water resistance and friction, which act between moving surfaces. • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	Using knowledge as a skill: Asking Questions • Independently asks questions and offers ideas for scientific enquiry, which have a clear scientific purpose. Predict and hypothesise • Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. • Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry

		• Children use change, measure and same confidently and start recognising when error makes conclusions unreliable and seeks ways to overcome error • Identifies the most appropriate enquiry methods to use to generate evidence needed to solve problems and answer scientific questions. • Plan familiar enquiry types in appropriate detail. Using equipment • Selects the most appropriate equipment to use in a range of contexts and enquiries. • Takes measurements using a range of science equipment with increasing accuracy and precision. Making Observations and measuring • Chooses to make a series of observations or measurements that will add to the quality of the evidence collected while investigating. • Makes their own decisions on how long a observation will be, what they are observing and what measurements to take. Presenting evidence • Records data and results of increasing complexity using scientific diagrams, classification keys, tables, bar and line graphs and models. • Communicates findings in written form, displays and uses other forms of presentation. • Uses scientific language to communicate increasingly detailed analysis. • Interprets a line graph independently. Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. They also use an understanding of error to describe how confident they are in their conclusion with support. • Where appropriate, makes a comparative statement, describing relationships between factors being investigated. • Uses simple models to help describe scientific ideas. Explaining Evidence • Relates explanations of evidence gathered to scientific knowledge and understanding. • Makes generalisations about what that evidence seems to indicate. Evaluating Outcome • Recognises some of the limitations of their evidence and can suggest why it should not be trusted.
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		Uses test results to set up further comparative tests.
Vocab	Water resistance, air resistance, friction, undulations, interlock, gears, pulley, lever	
Year Six		
Project	How have the Ancient Greeks influenced the modern western world?	
SCIENCE Focus	No science focus due to SATs	
Knowledge and Skills	Crucial knowledge:	Using knowledge as a skill:
Vocab		

Term	Summer Two	
Year R		
Project	Are you mad about animals?	
SCIENCE Focus	Discuss seasonal changes – spring to summer. To know about features of my own immediate environment and how they might vary from another. To know about different habitats. To learn the life cycle of a butterfly. To know that some animals are nocturnal. To know and recognise the signs of Summer.	
Knowledge and Skills	Crucial knowledge:	Using knowledge as a skill: Asking Questions - Asks questions about aspects of their familiar world. - Show curiosity about objects, events and people. <u>Predict and hypothesise</u> - Comment and ask questions about aspects of their familiar world such as the place where they live or the natural world <u>Planning and setting up for different types of enquiry</u> - Find ways to solve problems/find new ways to do things/ test their ideas - Develop ideas of grouping, sequencing, cause and effect - Know about similarities and differences in relation to place, object, materials and living things <u>Using equipment</u> - Measure by direct comparison. - Non-standard units of measurement.

		• Simple comparative vocabulary – bigger, smaller. • Choose the resources they need for their chosen activity • Handle equipment and tools effectively <u>Making Observations and measuring</u> • General sensory observations of animals and plants. • Simple descriptions of the world around them. • Looking at objects and pictures and discussing what they can see. • Take a risk, engage in new experience and learn by trial and error <u>Presenting evidence</u> • Talking about objects and events. Answers how and why questions about their experiences • Simple recording – pictures/images <u>Drawing conclusions</u> • Noticing ‘which worked best’ – simple comparative statements. • Answer initial question simply. • Answer how and why questions about their experiences <u>Explaining Evidence</u> • Noticing ‘which worked best’ – simple comparative statements. • Answer initial question simply. • Answer how and why questions about their experiences <u>Evaluating Outcome</u> • Develop their own narratives and explanations by connecting ideas or events Build up vocabulary that reflects the breadth of their experience
Vocab		
Year One		
Project	Who was Mary Anning and how did she change history?	
SCIENCE Focus	How plants grow? (8 sessions)	
	Plants	
Knowledge and Skills	Crucial knowledge: • Identify and name a variety of common wild and garden plants including deciduous and evergreen trees. (FOREST SCHOOL) • Identify and describe the basic structure of a variety of common flowering plants including trees.	Using knowledge as a skill: Asking Questions • Recognises the difference between a statement and a question. • Begins to shape questions using different question stems. What, How, When • Explore the world around them and raise their own simple questions. Predict and hypothesise • With support the children use ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is ‘known’ to be incorrect. Planning and setting up for different types of enquiry

		- Children to recognise that if we change what we think the cause is then there will be an effect. - With support the children can identify the cause and recommend changes. - Decides which questions can be answered practically and which cannot. - Suggests next step, or a sequence of steps, in a plan Using equipment - Children begin to choose appropriate equipment to use to make observations and follows simple instructions for using it correctly and safely. Making Observations and measuring - Makes relevant observations in familiar contexts. - With support take some non-standard measurements - With support observe changes over time. - With support, children should notice patterns and relationships. Presenting evidence - Use drawings and labels to present evidence. - With support, uses prepared simple tables and charts, including ICT forms. - This should be included on the enquiry mind map Drawing conclusions - Children can identify if there is a relationship between what they changed and measure (Cause and effect) with support - Describes simple observations of an object or objects or of an event and with support makes a simple comparison. Explaining Evidence - With support, recognises the links between cause and effect in simple, familiar situations. Evaluating Outcome - Reviews their work and with support, recognises some of the difficulties encountered.
Vocab	Seed, bulb, leaves, germination, roots, shoots	
Year Two		
Project	Could the Titanic have been saved?	
SCIENCE Focus	New plants	
Knowledge and Skills	Crucial knowledge: How are new plants made? Identify and name a variety of plants and animals in their habitats, including new habitats.	Using knowledge as a skill: Asking Questions With support, suggest own questions that they might investigate. Predict and hypothesise

	- Observe and describe how seeds and bulbs grow into mature plants. - Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	- With support the children use ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is ‘known’ to be incorrect. Planning and setting up for different types of enquiry - Children to recognise that if we change what we think the cause is then there will be an effect. - Children can identify the cause and recommend changes. - Decides independently simple questions that could be answered practically and some that cannot. Using equipment - Children chooses appropriate equipment from a selection and follows instructions for using it, sometimes working independently of adult support. Making Observations and measuring - Makes relevant observations. - Takes non-standard measurements. Begins to use basic equipment for measuring length or mass, in standard units.(Hands lenses, egg timers) Presenting evidence - Uses drawings and labels to present evidence. - Uses prepared tables and block graphs, including ICT forms - This should be included on the enquiry mind map Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) - Describes what has happened, making comparisons where appropriate. With support, sequences results, e.g. from smallest to largest. Explaining Evidence - Recognises the link between cause and effect in simple, familiar situations. - Begins to notice simple patterns in results. Evaluating Outcome - Reviews their work and recognises some of the difficulties encountered. With support, suggests how these might have been avoided.
Vocab	Flowering, reproduction (reproduce from animal life cycles year 2), germinate (germination from year 1 plants) generations	
Year Three		
Project	Andover- How do we use our land?	
SCIENCE Focus	Rocks and Soils - What is the Earth made from?	
Knowledge and Skills	Crucial knowledge: Compare and group together different kinds of rocks on the basis of their	Using knowledge as a skill: Asking Questions

	appearance and simple physical properties • Recognise that soils are made from rocks and organic matter.	• Asks questions independently and generate own ideas to explore through Scientific enquiry. Predict and hypothesise • Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. • Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry • Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. • Children are starting to understand that there can be more than one thing that affects what they are measuring • Recognises when to answer a question by using a fair test method and when other methods might be needed. • In a fair test identifies what to keep the same and sometimes ant to change and measure. Using equipment • Children selects from a wider range of equipment what to use in an investigation. • Uses basic equipment correctly, safely and with increasing accuracy. Making Observations and measuring • Makes relevant, careful observations throughout an investigation. • Help make decisions on how long to make observations • Uses standard measuring equipment for quantities, such as volume and temperature. Presenting evidence • Gathers, records, classifies and presents data in a variety of ways to help in answering questions. • Sometimes creates own tables and bar charts, using ICT where appropriate. • Interprets a line graph with support. • This should be included on the enquiry mind map Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) With support include the variables that they kept the same in their conclusion, commenting on their potential effect. • Reports on findings from enquiries, including oral and written, displays or presentations of results and conclusions. • Makes a general statement about simple patterns they notice in a set of results. Explaining Evidence
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		- Provides explanations for simple patterns in results, referring to everyday experiences when explaining reasoning. Evaluating Outcome - Suggests how an enquiry might be improved. - With support, recognises some of the limitations and significance of evidence.
Vocab	Rock (from describing materials year 1), crystal, mineral, ore, grains, fossil, sedimentary, igneous, metamorphic, porosity, hardness, soil, humus, silt	
Year Four		
Project	European region study – Costa Blanca – Is the Costa Brava a world away from our local area?	
SCIENCE Focus	Living things	
Knowledge and Skills	Crucial knowledge: - recognise that living things can be grouped in a variety of ways - explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - recognise that environments can change and that this can sometimes pose dangers to living things	Using knowledge as a skill: Asking Questions - Asks questions and offers ideas for a range of scientific enquiry. - With support, improves focus of question to clarify its scientific purpose. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is ‘known’ to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc Planning and setting up for different types of enquiry - Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. - Children understand that there can be more than one thing that affects what they are measuring. Knows when to answer a question by using a fair test method and when better evidence could be generated in other ways, e.g. through a survey, diary/log or research. - Sets up a fair test controlling variables, what to keep the same, what to change, measure or observe. Using equipment - Children use a wide range of equipment for example thermometers and data loggers, correctly, safely, and accurately. - Deals with most equipment difficulties independently before asking for help if necessary. Making Observations and measuring - Chooses to make a series of observations that will add to the evidence they collect while investigating. - With support, takes accurate readings on measuring equipment, recognising when to repeat them.

		Presenting evidence • Selects the most appropriate way to present evidence they have collected. • Records findings using drawings, labelled diagrams, bar charts, tables and graphs, using ICT where appropriate. • Uses simple scientific language effectively to communicate outcomes. • Interprets a line graph with increasing independence. • This should be included on the enquiry mind map Drawing conclusions • Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. • Makes a comparative statement, sometimes referring to the factors under investigation. • Identifies differences, similarities, or changes related to simple scientific ideas and processes. • Uses straightforward scientific evidence to answer questions or to support their findings. Explaining Evidence • Relates explanations of patterns in results to scientific knowledge and understanding when explaining reasoning Evaluating Outcome • Suggest how much to trust results, identifying some of the limitations of evidence. • Suggests new questions and predictions for setting up further tests
Vocab	Classification , Classification key ,Vertebrates (from yr 3 'Animal skeletons and movement) , Invertebrates (from yr 3 'Animals, skeletons and movement') , Food chain (from yr 1 'Animal Survival') , Nutrients (from yr 3 'Plant food production') , Organism (from yr 1 'Animal Survival') , Mammal (from yr 1 'Animal Survival') , Amphibian (from yr 1 'Animal Survival') , Insect , Bird (from yr 1 'Animal Survival') , Environmental	
Year Five		
Project	Are we protecting our British wildlife?	
SCIENCE Focus	Circulation	
Knowledge and Skills	Crucial knowledge: • Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. • Describe the ways in which nutrients and water are transported within animals, including humans.	Using knowledge as a skill: Asking Questions • Asks questions and offers ideas for a range of scientific enquiry. • With support, improves focus of question to clarify its scientific purpose. Predict and hypothesise • Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect.

		- Children to resent predictions in different ways, written, sketch graph etc Planning and setting up for different types of enquiry - Children become more familiar with the idea that cause and effect relationships and can be tested using the same, change and measure format. - Children understand that there can be more than one thing that affects what they are measuring. Knows when to answer a question by using a fair test method and when better evidence could be generated in other ways, e.g. through a survey, diary/log or research. - Sets up a fair test controlling variables, what to keep the same, what to change, measure or observe. Using equipment - Children use a wide range of equipment for example thermometers and data loggers, correctly, safely, and accurately. - Deals with most equipment difficulties independently before asking for help if necessary. Making Observations and measuring - Chooses to make a series of observations that will add to the evidence they collect while investigating. - With support, takes accurate readings on measuring equipment, recognising when to repeat them. Presenting evidence - Selects the most appropriate way to present evidence they have collected. - Records findings using drawings, labelled diagrams, bar charts, tables and graphs, using ICT where appropriate. - Uses simple scientific language effectively to communicate outcomes. - Interprets a line graph with increasing independence. - This should be included on the enquiry mind map Drawing conclusions - Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. - Makes a comparative statement, sometimes referring to the factors under investigation. - Identifies differences, similarities, or changes related to simple scientific ideas and processes. - Uses straightforward scientific evidence to answer questions or to support their findings. Explaining Evidence
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		- Relates explanations of patterns in results to scientific knowledge and understanding when explaining reasoning Evaluating Outcome - Suggest how much to trust results, identifying some of the limitations of evidence. Suggests new questions and predictions for setting up further tests
Vocab	Oxygen, sugar (glucose), lungs, muscles, circulation, heart	
Year Six		
Project	How have the Ancient Greeks influenced the modern western world?	
SCIENCE Focus	Sound (Part 2) How is sound produced?	
Knowledge and Skills	Crucial knowledge: - identify how sounds are made, associating some of them with something vibrating - recognise that vibrations from sounds travel through a medium to the ear - find patterns between the pitch of a sound and features of the object that produced it - find patterns between the volume of a sound and the strength of the vibrations that produced it - recognise that sounds get fainter as the distance from the sound source increases.	Using knowledge as a skill: Asking Questions - Recognises scientific questions that do not yet have definitive answers. Predict and hypothesise - Children uses ideas from the learning journey of that phase to accurately predict and hypothesise, even if their prediction or hypothesis is 'known' to be incorrect. - Children to resent predictions in different ways, written, sketch graph etc. Planning and setting up for different types of enquiry - Children recognise that error plays an important role in being able to draw reliable conclusions. This may not be apparent when first planning the enquiry. They also realise that the data they gathered is not good enough and changed will need to be made to the planning mind map. - Children confidently understand that there can be more than one thing that affects what they are measuring. Children make changes, adaptations to their mind map when needed. - Selects methods to use to solve problems or answer questions, including a full range of enquiry methods, which are planned in detail. Using equipment - Explains why particular pieces of equipment or information sources will provide better quality evidence. Making Observations and measuring - Repeats sets of observations or measurements, where appropriate, selecting suitable ranges and intervals, to give sufficient depth of evidence. Presenting evidence - Decides on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables. - Communicates findings in written form, across a range of genre, and uses multi-media and other forms of presentation. Drawing conclusions

		• Children consistently and accurately identify if there is a relationship between what they changed and measure (Cause and effect) They include the variables that they kept the same in their conclusion, commenting on their potential effect. They also use an understanding of error to describe how confident they are in their conclusion. • Uses scientific evidence to answer questions or support findings. • Draws valid conclusions that utilise more than one piece of supporting evidence. Explaining Evidence • Provides explanations for differences repeated observations or measurements, identifying reasons for any anomalies noticed. Evaluating Outcome • Evaluates the effectiveness of their working methods, making practical suggestions for improving them. • Identifies scientific evidence that has been used to support or refute ideas or arguments.
Vocab	Sound, pitch, volume, vibration, ear drum, frequency, amplitude	