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EYFS

The most relevant statements for science are taken from the following areas of learning:

- Communication and Language
- Personal, Social and Emotional Development
- Understanding the World

National Curriculum statements – Key stage 1 pupils should be taught the following practical scientific methods, processes, and skills:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions.

National Curriculum statements – Lower key stage 2 pupils should be taught the following practical scientific methods, processes, and skills:

- 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
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

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National Curriculum statements – Upper key stage 2 pupils should be taught the following practical scientific methods, processes, and skills:
•planning different types of scientific enquiries to answer questions, including recognising, and controlling variables where necessary
• taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar, and line graphs
• using test results to make predictions to set up further comparative and fair tests
• reporting and presenting findings from enquiries, including conclusions, causal relationships, and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
• identifying scientific evidence that has been used to support or refute ideas or arguments.

Observing and measuring over time				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
SKILLS	• Use senses and simple equipment to explore the world around them, e.g., binoculars and magnifying glasses. • Look carefully and notice interesting details and changes they see. E.g., when making playdough/ seasons walks/ cooking.	•Understand that we can gather information about the world through our senses • Understand that observation involves all of the senses. • Use simple equipment provided, e.g. hand lenses, to make more accurate observations. • Recognise that some observable features may change over time, e.g. the size of a plant. • Observing closely, using simple equipment.	•Be able to select appropriate equipment to observe and measure. • Use new equipment such as data loggers, appropriately. • Accurately use standard measures. • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	•Make their own decisions about what observations to make, what measurements to use and for how long to make them, and whether to repeat them. • Choose the most appropriate equipment to make measurements and explain how to use it accurately. • Recognise that some measurements or observations may need to be repeated • Repeat observations or measurements appropriately. • Be able to select appropriate ranges or intervals of measurements. • Explain how repeating measurements impacts on data collection.

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		• Use a range of equipment correctly to observe and measure. • Be able to select appropriate equipment to observe	• Accurately use standard measures. • Use new equipment such as data loggers, appropriately. • Be able to select appropriate equipment to observe and measure.	• Recognise when measurements or data are unreliable and be able to take steps to improve this. • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate

Comparative and fair tests				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
SKILLS	• Find ways to solve problems / find new ways to do things / test their ideas.	• When prompted, say what is happening/has happened to things or events. • With help, make changes and say what has changed • Be able to compare features of two objects. • Be able to identify two variables in an investigation, e.g. water and light when investigating plant growth • Suggest a practical way to find something out. • Be able to identify things to measure and things to observe	• Suggest a practical way to find something out. • Make decisions about which practical method is best to find something out. • Be able to identify two variables in an investigation, e.g. water and light when investigating plant growth. • Be able to set up a comparative test. • Recognise when a simple fair test is necessary to answer a scientific question.	• Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions. • Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. • Be able to state clearly which is the change variable and which is the measurement variable in a fair test. • Systematically identify the effect of changing one variable at a time. • Recognise that some variables may be more significant than others in investigations.

		• Be able to set up a comparative test. • Performing simple tests. • Start to recognise when a test is not fair and suggest improvements.	• Be able to identify variables to measure and variables to observe. • With others, help to set up a fair test. • Start to recognise when a test is not fair and suggest improvements. • Setting up simple practical enquiries, comparative, and fair tests. • Be able to develop features of a test to give a better outcome.	• Be able to justify their choice of method as being appropriate to answer their investigative question. • Be able to use their results to identify when further tests and observations might be needed. • Compare their own results with others' and suggest reasons why there may be differences • Recognise the limitations of tests. • Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

Identifying and classifying				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
SKILLS	• Sort and match objects and living things using given criteria. • Begin to think or their own ways of sorting a selection of objects or living things. • Tell an adult why they have sorted things in a certain way.	• Sort and match objects and living things in their own way • Sort and group objects and living things in different ways. • Recognise similarities and differences	• Use simple observable features to compare objects or living things. • Be able to group objects and living things in different ways. • Talk about criteria for grouping, sorting and classifying.	• Be able, independently, to use simple databases or keys to identify or classify living things, objects or events. • Be able to discuss reasons why living things are placed in one group and not another.

	• Develop ideas of grouping, sequences, cause and effect Know about similarities and differences in relation to places, objects, materials and living things	• Use simple observable features to compare objects or living things • Be able to describe how they sorted objects. • Use observable features of objects to identify them. • Identifying and classifying • Begin to classify and identify by linking observable features to already known objects or things. • Explain which observable features have led them to classify in a particular way.	• Use observable features of objects to identify them. • Use simple keys • Begin to classify and identify by linking observable features to already known objects or things • Begin to classify by behavioural features, e.g. conducts electricity, and is magnetic. • Explain which observable or behavioural features have led them to classify in a particular way. • Identifying differences, similarities or changes related to simple scientific ideas or processes. • Be able, independently, to use simple databases or keys to identify or classify living things, objects or events	• Suggest reasons for similarities and differences. • Begin to understand that broad groupings, such as microorganisms, plants and animals can be subdivided • Identify the positive aspects and limitations of some forms of classification. • Use and develop keys and other information records to identify, classify and describe living things and materials. • Create more complex forms of classification tools, e.g. databases, branching keys • Create and use a variety of sources to identify and classify living things, objects and phenomena

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Looking for naturally occurring patterns and relationships				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
SKILLS	• Notice and talk about similarities and difference in objects and living things. • Talk about what changes they have observed. • Make predictions with support or prompting, talk about what they think might happen based on their own experiences.	• Notice what has changed when observing things or events. • Talk about what they have found out or what they think may happen. • Begin to recognise links between observations and answers to questions. • With help, begin to notice patterns and relationships • Begin to use simple scientific language to talk about what they have found out. • Be able to communicate their ideas to a range of audiences in a variety of ways. • Using their observations and ideas to suggest answers to questions. • Use evidence to suggest answers to questions and make predictions. • Say whether what happened was what they expected.	• Recognise links between observations and answers to questions • Notice patterns and relationships. • Look for naturally occurring patterns and relationships and decide what data to collect to identify them. • Be able to collect data from their own observations and measurements. • With help, look for changes, patterns, similarities and differences in their data. • Use patterns in their data to draw simple conclusions and answer questions. • Use evidence to answer questions and make predictions. • Say whether what happened was what they expected • With support, identify new questions arising from the data	• Identify patterns that might be found in the natural environment. • Systematically investigate the relationship between phenomena, e.g. light and shadows. • Look for different causal relationships in their data and identify evidence that refutes or supports their ideas. • Analyse functions, relationships and interactions more systematically. • Find out about how scientific ideas have changed and developed over time as new evidence is discovered, e.g. ideas about the solar system. • Recognise when evidence supports an idea or not • Be able to identify and offer explanations for anomalous result • Identifying scientific evidence that has been used to support or refute ideas or arguments.

			• Make predictions for new values within or beyond the data they have collected. • Find ways of improving what they have already done. • Link results to their own experiences. • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • Recognise when a result seems unusual when compared with other values. • Identify when repeated results are necessary.	

Researching using secondary sources				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
SKILLS	•Understand they can find out more information from nonfiction books. • Talk about what they have found out from books, photographs, videos.	• Use simple secondary sources, e.g. books, film, internet, to find information. • Use information from secondary sources to help answer a question.	Use information from secondary sources to help answer a question. • Recognise when and how secondary sources might help answer questions that cannot be	• Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. • Use secondary sources, e.g. internet links to research objects, events and phenomena that cannot be experienced in the

			answered through practical investigations.	classroom, e.g. planetary movements, animals from around the world. • Gather and record data to help in answering questions.

Recording and reporting findings				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
SKILLS	• Talk about what happened and what they found out. • Contribute to class displays/ charts/ records of their science learning. • Some children may choose to represent their science learning through mark making/ creative self-chosen activities	• Be able to record their findings in charts. • Gathering and recording data to help in answering questions. • Make some independent choices about appropriate ways to record data. • Select the best way of presenting information from a range of options	• Use notes, simple tables and standard units. • Help to make decisions about how to record and analyse data. • Make independent choices about appropriate ways to record data • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • Use relevant scientific language to discuss their ideas. • Communicate findings in ways that are appropriate to different audiences. • Identify relevant evidence used to draw conclusions.	•Decide how to record data from a choice of familiar approaches. • Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and talk about how scientific ideas have developed over time • Decide on the most appropriate method to present findings graphically, e.g. using a line graph or bar chart for different types of data. • Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and talk about how scientific ideas have developed over time • Decide on the most appropriate method to present findings graphically, e.g. using a

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			• Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Using straightforward scientific evidence to answer questions or to support their findings. • Use scientific language and facts to describe processes and what they have observed. • Explain findings reported and recorded using more complex scientific language.	line graph or bar chart for different types of data • Justify what type of presentation is appropriate to use. • Explain findings using data to identify causal relationships. • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations

General/ Asking and answering questions				
Knowledge	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
SKILLS	• Ask questions. • Demonstrate curiosity about the world around them.	Demonstrate curiosity, e.g. ask 'why?' or 'how?' about the world around them • Understand the concept of 'a question'. • Be able to ask a question	•Make own decisions about which method of enquiry is best to answer a question •Asking relevant questions and using different types of scientific enquiries to answer them.	• Explore and talk about their own ideas. • Ask pertinent questions. • Explore ideas and raise different kinds of questions about scientific phenomena. • Refine a scientific question so that it can be tested.

		• Be able to suggest one way of finding an answer to a question. • Understand that some questions can be answered by testing. • With help, identify evidence that can be used to answer questions. Present evidence they have collected in simple tables, charts or diagrams.	•Be able to refine a question. •Draw simple conclusions and write about what they have found out using some scientific language. •Use relevant scientific language to discuss their ideas. •Use relevant scientific language to communicate their findings. •Communicate their ideas in ways that are appropriate for different audience •Use a variety of written communication methods, e.g. guides, keys, drawings and other pictorial representations which are suggested to them •Choose their own way of communicating ideas to different audiences •Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	• Understand that some scientific questions cannot be answered by a particular investigation. • Be able to suggest changes to questions following collection/analysis of data • Understand a range of enquiries can be used together to explore an answer to a question • Recognise key aspects of a scientific question.

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Animals including humans				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	· Look at different animals and identify what makes them the same and different · Think about changes between birth to adulthood	· 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 · Understand that animals, including humans, have offspring which grow into adults · Describe the basic needs of animals, including humans, for survival (water, food and air)	· Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat · Identify that humans and some other animals have skeletons and muscles for support, protection and movement. · 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	· Describe the changes as humans develop to old age · 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

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		· Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		

Living things and their habitat				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	· Local walks around school and the area observing the natural world around them and its features. · Comment and discuss how they can care for their environment and living things	· Explore and compare the differences between things that are living, dead, and things that have never been alive · Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other · Identify and name a variety of plants and animals in their habitats, including micro-habitats · Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify	· 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 and have an impact on living things	· Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird · Describe the life process of reproduction in some plants and animals · Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals · Give reasons for classifying plants and animals based on specific characteristic

		and name different sources of food		

Seasonal Change				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	· Observe changes where they live or the natural world. · Observe changes over time · Seasonal walks around the local area observing the changes in the leaves, trees.	· Use their observations and ideas to suggest answers to questions about the changes over the seasons · Observe changes across the four seasons · Observe and describe weather associated with the seasons and how day length varies		

Materials and states of matter				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	· Learn the differences in properties of materials · Understand why some materials are chosen · Floating and sinking of objects	· Distinguish between an object and the material from which it is made · Identify and name a variety of everyday materials, including	· Compare and group materials together, according to whether they are solids, liquids or gases · Observe that some materials change state when they are	· 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

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	· Waterproof materials	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 · Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses · Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) · Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	· Recognise 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 metals, wood 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 that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda

Plants				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	•Show care and concern for living things and the environment	•Identify and name a variety of common wild and garden	•Identify and describe the functions of different parts of	

	•Observe changes over time •Develop an understanding of growth •Make observations of plants and explain why some things occur, and talk about changes.	plants, including deciduous and evergreen trees •Identify and describe the basic structure of a variety of common flowering plants, including trees •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	flowering plants: roots, stem/trunk, leaves and flowers •Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant •Investigate the way in which water is transported within plants •Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	

Light				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	•Observe changes over time – looking at the differences between light and dark •Provision in areas allow children to access torches		•Recognise that he/she needs light in order to see things and that dark is the absence of light •Notice that light is reflected from surfaces	•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

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			•Recognise that light from the sun can be dangerous and that there are ways to protect eyes •Recognise that light from the sun can be dangerous and that there are ways to protect eyes •Find patterns in the way that the size of shadows change	•Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes •Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

Rocks				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	•Observing the similarities and differences between materials. -Through provision the children access different rocks, observing their properties.		•Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties •Describe in simple terms how fossils are formed when things that have lived are trapped within rock •Recognise that soils are made from rocks and organic matter	•Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago

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Electricity				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	•Looking at the difference between light and dark and how light can be created.		•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	•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

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Sound				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	•Explore the different sounds of instruments •Experiment ways in which sound can be changed		•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	

Forces and Magnets				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	•Repelling and attraction – magnetic materials and sort		•Compare how things move on different surfaces	•Explain that unsupported objects fall towards the Earth because of the force of

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			•Notice that some forces need contact between two objects, but magnetic forces can act at a distance •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	gravity acting between the Earth and the falling object •Identify the effects of air resistance, water resistance and friction, that act between moving surfaces •Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect

Earth and Space				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	•Natural word – hot and cold •Moon			•Describe the movement of the Earth, and other planets, relative to the Sun in the solar system •Describe the movement of the Moon relative to the Earth •Describe the Sun, Earth and Moon as approximately spherical bodies

				•Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

Evolution and Inheritance				
	EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Knowledge	•How we change from birth •Baby clinic – provisions •How do we care for babies/children			•Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago •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

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Science Cycle A – (2021-2022)			
Autumn Term 1			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
Magical Me! Key Question – What makes me, me? Talk about members of their immediate family and community. Name and describe people who are familiar to them. Explore the natural world around them. Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them	Materials and their properties Material Hunters What would make a good material for a shield?	Sound: Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from a sound 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.	Evolution and inheritance: Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. 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.
Autumn Term 2			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
Celebrations! Key Question – What do people celebrate?	Working Scientifically focus. Basic heating and cooling – cooking biscuits, making ice cream (Kent scheme)	Rocks - Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties; Describe in simple terms how fossils are formed	Living things and their habitats - Describe how living things are classified into broad groups according to common observable characteristics and based on

Recognise that people have different beliefs and celebrate special times in different ways. Recognise some similarities and differences between life in this country and life in other countries. Understand the effect of changing seasons on the natural world around them		when things that have lived are trapped within rock; Recognise that soils are made from rocks and organic matter.	similarities and differences, including micro-organisms, plants and animals; Give reasons for classifying plants and animals based on specific characteristics.
Spring Term 1			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
All Creatures Great and Small Key Question – What are habitats? Explore the natural world around them. Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them	Trees (Deciduous Evergreen) Seasons of trees Plants and living things Ice and snow – melting, freezing	States of Matter: Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Light: 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 eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
Spring Term 2			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**

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Once Upon a Time… Key Question – where will your imagination take you? Explore the natural world around them. Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them	Local plants and bugs, South American bugs and plants – classify Life cycle of a minibeasts. Observe plants and bulbs over time - n record data about how much water they need as a group. Main parts of a flowering plants	Living things and their habitats: 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.	Animals including humans: Identify and name the main parts of the human circulatory system, and explain 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.
Summer Term 1			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
Nature detectives! Key Question – What is nature? Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.	Working Scientifically - focus Forces	Forces and magnets: 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	Electricity: 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.

Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.		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.	
Summer Term 2			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
Explorers! Key Question – Where on Earth are we, and where are we going? Draw information from a simple map. Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Classifying sea creatures – sea, land, amphibious. Understanding of sea creatures and the properties of the seas around the world	Scientific enquiry – address any gaps.	Forces: Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

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Science Cycle B (2022-2023)			
Autumn Term 1			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
Magical Me! Key Question – What makes me, me? Talk about members of their immediate family and community. Name and describe people who are familiar to them. Explore the natural world around them. Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them	All about me Key Question – What makes me special? Body Parts – key internal and external parts (link to Jigsaw) Sound and Senses – The Five senses – investigations and identifying on the body.	Animals including Humans -identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat - identify that humans and some other animals have skeletons and muscles for support, protection and movement.	Earth and space (5): Describe the movement of the Earth, and other planets, relative to the Sun in the solar system; Describe the movement of the Moon relative to the Earth; Describe the Sun, Earth and Moon as approximately spherical bodies; Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky
Autumn Term 2			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
Celebrations! Key Question – What do we celebrate?	Toys Key Question - What are toys like now and from the past?	Electricity: -identify common appliances that run on electricity - construct a simple series electrical	Properties and changes of materials (5): Compare and group together everyday materials on the basis of

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Recognise that people have different beliefs and celebrate special times in different ways. Recognise some similarities and differences between life in this country and life in other countries. Understand the effect of changing seasons on the natural world around them	Materials and their properties – identify and classify. Warm jumper for little bear experiment – what material is the most suitable to keep Little Bear warm?	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.	their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Understand 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.
Spring Term 1			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
All Creatures Great and Small Key Question – What are habitats? Explore the natural world around them. Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the one in which they live.	Into the woods Key Question – What grows in Ashdown Forest? Woodland animals and habitats – use text books and research to find information to make fact files and posters about chosen local animal. Identify and categorise Animals as humans – compare and contrast.	Plants: identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers -explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant -investigate the way in which water is transported within plants	Properties and changes of materials (5): Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood 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 that

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Understand the effect of changing seasons on the natural world around them		- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.
Spring Term 2			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
Once Upon a Time… Key Question – where will your imagination take you? Explore the natural world around them. Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them	Into the woods Key Question – What can we find out about animals in Ashdown Forest? Habitats – research different habitats of local woodland animals – identify and classify Monitoring growth of plants	Light: 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.	Living things and their habitats (5): Describe the differences in the life cycles of a mammal (tiger), an amphibian (British frog/toad), an insect (e.g. Chinese silk moth) and a bird (e.g. farmed hen). Describe the life process of reproduction in some plants (apple tree) and animals.
Summer Term 1			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
Nature detectives! Key Question – What is nature? Explore the natural world around them, making observations and	Pirates Key Question – Are pirates real? Floating and sinking – what materials float and sink – making	Animals including Humans -identify that animals, including humans, need the right types and amount of nutrition, and that they cannot	Plastics Challenge STEM

drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	pirate boats to float and sink using a variety of materials.	make their own food; they get nutrition from what they eat - identify that humans and some other animals have skeletons and muscles for support, protection and movement	
Summer Term 2			
EYFS	**Key Stage One**	**Lower Key Stage Two**	**Upper Key Stage Two**
Explorers! Key Question – Where on Earth are we, and where are we going? Draw information from a simple map. Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting	Africa Key Question – What is a community? Animals and their young Growing (Jigsaw link) SRE Classifying animals – identifying and classifying according to key features – size, legs, land animals, sea creatures etc.	Scientific Enquiry skills.	Animals including humans (5) - Describe the changes as humans develop from birth to old age.

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environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.			

Women in STEM:

- **Fei Fei Li** was born in China in 1976 and moved to the USA when she was 16. She is a **professor** of computer science at Stanford University, California.
- **Elizabeth Smith Friedman** was born in Indiana, USA in 1892. She left high school and studied English literature. One year later, she began working for Riverbank Laboratories, cracking codes that were thought to be hidden in the works of the famous writer, Shakespeare.
- **Claudia Alexander** was a specialist in geophysics and planetary science, the last project manager of NASA's *Galileo* mission to Jupiter, and served as a project manager and scientist for NASA on the European-led *Rosetta* mission to land a spacecraft on a comet. She was also a fierce advocate for women and minorities in science.
- **Vera Rubin** was a legendary astronomer who discovered that galaxies have flat rotation curves, the strongest evidence yet for dark matter. This discovery has driven physics theory and experiment for more than 40 years. She also spent her life advocating for women in science and mentored many aspiring female astronomers.
- **Vivienne Malone-Mayes** one of the first African-American women to earn a PhD in mathematics. An active participant in the civil rights movement, Malone-Mayes fought persistent racism and sexism throughout her long and distinguished career.
- **Mary Anning** was a self-taught pioneer, Anning discovered Jurassic remains in her hometown of Lyme Regis.
  She came across her first find - an ancient reptile later named an Ichthyosaurus - at the age of 12.

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- **Ada Lovelace** was a leading 19th century mathematician credited with creating early computer programs. She also created a method for the machine to repeat a series of instructions - a process known as "looping", which computer programs still use today.