

SCIENCE

Purpose of study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes

Aims

The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them

are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

EYFS Three and Four-Year-Olds

Communication and Language

- Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"

Personal, Social and Emotional Development

- Make healthy choices about food, drink, activity and toothbrushing.

Understanding the World

- ☑ Use all their senses in hands-on exploration of natural materials.
- ☑ Explore collections of materials with similar and/or different properties.
- ☑ Talk about what they see, using a wide vocabulary.
- ☑ Begin to make sense of their own life-story and family's history.
- ☑ Explore how things work.
- ☑ Plant seeds and care for growing plants.
- ☑ Understand the key features of the life cycle of a plant and an animal.
- ☑ Begin to understand the need to respect and care for the natural environment and all living things.
- ☑ Explore and talk about different forces they can feel.
- ☑ Talk about the differences between materials and changes they notice.

Reception

Communication and Language

- Learn new vocabulary.
- Ask questions to find out more and to check what has been said to them.
- Articulate their ideas and thoughts in well-formed sentences.
- Describe events in some detail.
- Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.
- Use new vocabulary in different contexts.

Personal, Social and Emotional Development

- Know and talk about the different factors that support their overall health and wellbeing:
 - regular physical activity
 - healthy eating
 - toothbrushing
 - sensible amounts of 'screen time'
 - having a good sleep routine
 - being a safe pedestrian

Understanding the World

- Explore the natural world around them.
- Describe what they see, hear and feel while they are 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

Science Knowledge Categories

<p>Plants</p> <ul style="list-style-type: none">• identify and name a variety of common wild, flowering and garden plants, including deciduous and evergreen trees• observe and describe how seeds and bulbs grow into mature 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, temperature, nutrients from soil, and room to grow) and how they vary from plant to plant	<p>Animals, including humans</p> <ul style="list-style-type: none">• identify, name, describe and compare 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• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense• 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• 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	<p>Uses of Everyday Materials</p> <ul style="list-style-type: none">• distinguish between an object and the material from which it is made• identify, name and describe the physical properties of a variety of everyday materials, including wood, plastic, glass, metal, water, and rock• 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• find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
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<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 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 describe the ways in which nutrients and water are transported within animals, including humans 	
<p>Seasonal Changes</p> <ul style="list-style-type: none"> observe changes across the 4 seasons observe and describe weather associated with the seasons and how day length varies 	<p>Living things and their Habitats</p> <ul style="list-style-type: none"> 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 microhabitats 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 recognise that living things can be grouped in a variety of ways 	<p>Rocks</p> <ul style="list-style-type: none"> 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

	<ul style="list-style-type: none"> • 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 • 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 micro-organisms, plants and animals • give reasons for classifying plants and animals based on specific characteristics 	
<p>Light</p> <ul style="list-style-type: none"> • 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 • recognise that light appears to travel in straight lines 	<p>Forces and Magnets</p> <ul style="list-style-type: none"> • compare how things move on different surfaces • notice that some forces need contact between 2 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 2 poles 	<p>States of Matter</p> <ul style="list-style-type: none"> • 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

<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • predict whether 2 magnets will attract or repel each other, depending on which poles are facing • 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 	<p>rate of evaporation with temperature</p>
<p>Sound</p> <ul style="list-style-type: none"> • 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 	<p>Electricity</p> <ul style="list-style-type: none"> • 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 	<p>Properties and Changes of Materials</p> <ul style="list-style-type: none"> • 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

<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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
<h3>Earth & Space</h3> <ul style="list-style-type: none"> • 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 	<h3>Evolution & Inheritance</h3> <ul style="list-style-type: none"> • 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 	
<h3>Working Scientifically</h3> <ul style="list-style-type: none"> • 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
- 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.
- 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 a 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




Year 1 - Science

	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
Enquiry Question			Which material makes a good house?		Which wild creature are you?	What's growing in your garden?
Milestone Coverage			<p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock by matching a material to its name.</p> <p>To describe the simple physical properties of a variety of everyday materials.</p> <p>To distinguish between an object and the material from which it is made by naming objects and identifying the material which they are made from..</p> <p>To compare and group together a variety of everyday materials on the basis of their simple</p>		<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets).</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Identify, name, draw and label the basic parts of the human body.</p>	<p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Observe changes across the 4 seasons.</p> <p>Observe and describe weather associated the seasons and how day length varies.</p> <p style="color: red;">Asking simple questions and recognising that they can be answered in different ways.</p> <p style="color: red;">Observing closely, using simple equipment.</p>

			<p>physical properties by sorting objects.</p> <p>To observe closely by watching what happens to teddy. To perform simple tests to find out which material would be suitable to make an umbrella from. To use their observations and ideas to suggest answers to questions by deciding which materials would be suitable to make an umbrella from.</p>		<p>Say which part of the body is associated with each sense. To perform simple tests.</p> <p>Identifying and classifying.</p> <p>Perform simple tests</p> <p>Gathering and recording data to help in answering questions..</p>	<p>Identifying and classifying. Using their observations and ideas to suggest answers to questions.</p>
Knowledge Categories			<p>Uses of Everyday Materials</p> <p>Working Scientifically</p>		<p>Animals, including humans</p> <p>Working Scientifically</p>	<p>Plants</p> <p>Seasonal Changes</p> <p>Working Scientifically</p>
Continuous Provision for Y1 & 2	<p>Seasonal changes/ Geography- weather & climate in UK & world</p> <p>Food Chains / Geography – describing physical features, continents and oceans</p> <p>Materials/DT – selecting materials for construction</p> <p>Exercise, food & hygiene /PE & PSHE – leading a healthy lifestyle</p> <p>Describing animals Range of books about plants & trees</p> <p>Range of books about animals</p> <p>Small world animals</p> <p>Observe seasonal changes in school environment</p> <p>Grow fruit and veg in school</p> <p>Grow bulbs and seeds and observe growth</p> <p>Range of materials that can be sorted in different ways</p> <p>Mirrors – explore reflections</p> <p>Cars and ramps – provide vocab cards - fast/slow, left/right, up/down etc</p> <p>Weather chart completed daily – connections to Maths(time), Geog (weather)</p>					

Enrichment-trip/visitor/Wow Day	Science – Umbrellas Wow Day		Science – Mark’s Ark Science – Trelissick Visit

	Year 2 - Science					
	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
Enquiry Question	What makes our world so wonderful?				What’s for dinner?	Plants
Milestone Coverage NB milestones in Science are same as the skills	<p>To notice that animals, including humans, have offspring which grow into adults.</p> <p>To find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p>Perform simple tests. Observe closely, using simple equipment. Identify and classify.</p>		<p>To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses, by identifying the uses of different materials.</p> <p>To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>		<p>To explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>To identify and name a variety of plants and animals in their habitats, including microhabitats.</p> <p>To identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic</p>	<p>To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p> <p>To observe and describe how seeds and bulbs grow into mature plants.</p> <p>Observing closely, using simple equipment. of a plant. Perform simple tests. Using their observations and ideas to suggest answers to questions. To</p>

	<p>Gathering and recording data to help in answering questions. Asking simple questions. Using their observations and ideas to suggest answers to questions.</p>		<p>Gather and record data to help in answering questions, by exploring the purposes of different objects. Record my observations.</p> <p>To use their observations and ideas to suggest answers to questions.</p>		<p>needs of different kinds of animals and plants, and how they depend on each other by considering the adaptations of animals, and how living things in a habitat depend on each other. 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.</p> <p>Use their observations and ideas to suggest answers to questions.</p> <p>To gather and record data to help in answering questions.</p> <p>To ask simple questions and recognise that they can be answered in different ways</p>	<p>design and set up a test to find out what plants need to stay healthy.</p>
<p>Knowledge categories</p>	<p>Animals, including humans</p> <p>Working Scientifically</p>		<p>Working Scientifically</p> <p>Uses of Everyday Materials</p>		<p>Working Scientifically</p> <p>Living things and their Habitats</p>	<p>Working Scientifically</p> <p>Plants</p>

<p>Continuous Provision Y1 & 2</p>	<p>Seasonal changes/ Geography- weather & climate in UK & world Food Chains / Geography – describing physical features, continents and oceans Materials/DT – selecting materials for construction Exercise, food & hygiene /PE & PSHE – leading a healthy lifestyle Describing animals & habitats/ Reading – non fiction texts, retrieval Range of books about plants & trees Range of books about animals Small world animals Observe seasonal changes in school environment Grow fruit and veg in school Grow bulbs and seeds and observe growth Range of materials that can be sorted in different ways Mirrors – explore reflections Cars and ramps – provide vocab cards - fast/slow, left/right, up/down etc Weather chart completed daily – connections to Maths(time), Geog (weather)</p>	
<p>Enrichment-trip/visitor/ Wow Day</p>	<p>Science – school nurse visit - hygiene</p>	<p>Science – Blue Reef Aquarium/ Newquay Zoo</p>




Year 3 - Science

	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
Enquiry Question	How do we keep our bodies strong?	What clues did the prehistoric people leave behind?	Magic or Magnets?		Plants, pretty, poisonous, practical or pointless?	Should I be afraid of the dark?
<u>Milestone Coverage</u>	<p>To identify that animals, including humans, need the right types and amounts of nutrition, and that they cannot make their own food, they get their nutrition from what they eat.</p> <p>To identify that humans and some other animals have</p>	<p>To compare and group different kinds of rocks based on their appearance.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>To recognise that soils are made from rocks and organic matter.</p>	<p>To notice that some forces need contact between two objects but magnetic forces can act at a distance.</p> <p>To compare how things move on different surfaces.</p> <p>To observe how magnets attract or repel each other and attract some materials and not others.</p> <p>To 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.</p> <p>To describe magnets as having two poles and to predict whether two magnets will</p>		<p>To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>To 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.</p> <p>To investigate the way in which water is transported within plants.</p>	<p>To recognise that we need light in order to see things and that dark is the absence of light.</p> <p>To notice that light is reflected from surfaces. To recognise that light from the sun can be dangerous and that there are ways to protect our eyes</p> <p>To recognise that shadows are formed when the light from a light source is blocked by a solid object. To find patterns in the way that the size of shadows change</p> <p style="color: red;">Set up simple practical enquiries. Take accurate measurements.</p>

	<p>skeletons and muscles for support, protection and movement. Identify differences, similarities or changes related to simple scientific ideas Ask relevant questions and use different types of scientific enquiry to answer them.</p>	<p>Make systematic and careful observations. Take accurate measurements. Use straightforward scientific evidence to answer questions or to support findings.</p>	<p>attract or repel each other, depending on which poles are facing. Use straightforward scientific evidence to answer questions or to support findings. Set up simple practical enquiries. Take accurate measurements. Gather, record and present data in a variety of ways to help answer questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.</p>		<p>To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Use straightforward scientific evidence to answer questions or to support findings. Identify differences, similarities or changes related to simple scientific ideas and processes. Set up simple practical enquiries. Take accurate measurements. Gather, record and present data in a variety of ways to help answer questions. Use results to draw conclusions, make predictions for new values and suggest improvements.</p>	<p>Gather, record and present data in a variety of ways to help answer questions. Use results to draw conclusions, make predictions for new values and suggest improvements. Make systematic and careful observations. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p>
Knowledge Categories	<p>Animals, including humans Working Scientifically</p>	<p>Working Scientifically Rocks</p>	<p>Forces and Magnets Working Scientifically</p>		<p>Working Scientifically Plants</p>	<p>Working Scientifically Light</p>

<p>Continuous Provision</p>	<p>Plants/ identifying plants and animals and function of plant parts Rocks & Fossils/ Geography – key features of physical geography/ Science – how fossils are formed Analyse data/ Maths - statistics Sound/ Music - combining sounds and describing music Electricity/ DT- using electrical systems in designs Materials/DT – select materials according to functions and aesthetics/ Forces – group magnetic ,non-magnetic materials/ Electricity – conductors. States of matter/Maths – counting, measuring changes in temp scales/ Geography – evaporation, condensation linked to the Water Cycle Keep a range of plants for pupils to care for Range of books about plants and trees Model skeletons Nutrition – food group posters/ food diaries Tooth models Keep abreast of environmental news both locally and globally. Fossils & rocks display Geological chart showing the eras</p>	
<p>Enrichment-trip/visitor/ Wow Day</p>		<p>Science Wow Day – Plant Bombs Science – Heligan visit</p>

	Year 4 -					
	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
Enquiry Question				How do my headphones play sounds?		
Milestone Coverage			<p>To compare and group materials together, according to whether they are solids, liquids or gases</p> <p>To 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).</p> <p>To identify the part played by evaporation and</p>	<p>To identify how sounds are made, associating some of them with something vibrating.</p> <p>To find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>To recognise that sounds get fainter as the distance from the sound source increases.</p> <p>To recognise that vibrations from sounds travel through a medium to the ear. To find patterns between the pitch of a sound and features of the object that produced it.</p> <p><u>Electricity:</u></p>		<p>Identify the different types of teeth in humans and their simple functions.</p> <p>Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>Recognise that living things can be grouped in different ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>

			<p>condensation in the water cycle.</p> <p>Gather, record and present data in a variety of ways to help answer questions.</p> <p>Make systematic and careful observations.</p> <p>Take accurate measurements</p> <p>Setting up simple practical enquiries, comparative and fair tests.</p> <p>Use straightforward scientific evidence to answer questions or to support findings.</p>	<p>Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>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.</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations, using a range of equipment. Using results to draw simple conclusions.</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Using straightforward scientific evidence to answer questions or to</p>	<p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</p> <p>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.</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes. Using straightforward scientific evidence to answer questions or to support their findings.</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</p> <p>Ask relevant questions and use different types of scientific enquiry to answer them</p>
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Knowledge Categories			<p>States of Matter</p> <p>Working Scientifically</p>	<p>Sound</p> <p>Electricity</p> <p>Working Scientifically</p>		<p>Working Scientifically</p> <p>Animals, including humans</p> <p>Living things and their Habitats</p>
Continuous Provision	<p>Sound/ Music - combining sounds and describing music</p> <p>Electricity/ DT- using electrical systems in designs</p> <p>Materials/DT – select materials according to functions and aesthetics/ Forces – group magnetic ,non-magnetic materials/ Electricity – conductors.</p> <p>States of matter/Maths – counting, measuring changes in temp scales/ Geography – evaporation, condensation linked to the Water Cycle</p> <p>Keep a range of plants for pupils to care for</p> <p>Range of books about plants and trees</p> <p>Model skeletons</p> <p>Nutrition – food group posters/ food diaries</p> <p>Tooth models</p> <p>Keep abreast of environmental news both locally and globally.</p> <p>Fossils & rocks display</p> <p>Geological chart showing the eras</p> <p>Phases of the moon</p>					
Enrichment-trip/visitor/ Wow Day						



Year 5 - Science

	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
Enquiry Question		Are you superhuman?	Are there other universes out there?	What happens when life grows?		Do all materials change?
Milestone Coverage		<p>To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object by identifying forces acting on objects. To identify the effects of air resistance, water resistance and friction by identifying forces acting on objects.</p> <p>To identify the effects of friction.</p> <p>To recognise that some mechanisms, including levers, pulleys and gears, allow a</p>	<p>To describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>To describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>To use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.</p> <p>To describe the movement of the Moon relative to the Earth.</p>	<p>To describe the life process of reproduction in some plants and animals.</p> <p>To describe the life cycle of a mammal, an amphibian, an insect and bird.</p> <p>To describe the changes as humans develop to old age.</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments.</p>		<p>To compare and group together everyday materials on the basis of their properties, including their hardness, conductivity, transparency and response to magnets.</p> <p>To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials,</p>

	<p>smaller force to have a greater effect.</p> <p>To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter, graphs, bar and line graphs.</p> <p>To report and present findings from enquiries, including conclusions, casual relationship and explanations of and a degree of trust in results, in oral and written forms such as displays and other representations.</p>	<p>Identifying scientific evidence that has been used to support or refute ideas or arguments in the context of the shift from heliocentric models of the solar system to geocentric models.</p>		<p>including metals, wood and plastic.</p> <p>To know that some materials will dissolve in liquid to form a solution by investigating dissolving. To compare and group together everyday materials on the basis of their solubility by investigating dissolving.</p> <p>To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>To demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes</p>
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					<p>associated with burning and the action of acid on bicarbonate of soda.</p> <p>To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p> <p>To use test results to make predictions to set up further comparative and fair tests.</p>
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						To report and present findings from enquiries, including conclusions, casual relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.
Knowledge Categories		Working Scientifically Forces and Magnets	Working Scientifically Earth & Space	Working Scientifically Animals, including humans Living things and their Habitats		Properties and Changes of Materials Working Scientifically
. Continuous Provision	<p>Evolution & Inheritance/ History – link to changes in humans over History</p> <p>Animals & Humans/ PE – leading healthy lifestyles</p> <p>Working Scientifically/ Maths – statistics</p> <p>Forces & Magnets/DT – use gears, pulleys, levers and linkages</p> <p>States of matter/Maths – counting, measuring changes in temp scales/ Geography – evaporation, condensation linked to the Water Cycle</p> <p>Open investigation approach, suggested resources available:</p> <ul style="list-style-type: none"> • Skeleton model • Liquid measures/ funnels • Mirrors • Force meters • Microscope • Stop watches 					

	<ul style="list-style-type: none"> • Graded sieves and filters • Balance scales • Thermometers • Magnets • Electronics kits • Plants • Magnifiers • Tuning forks • Springs • Data loggers • Stethoscopes • Heart rate monitors <p>Lung capacity equipment</p>		
Enrichment-trip/visitor/Wow Day		Science – Spaceport Cornwall	



Year 6 - Science

	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
Enquiry Question	Can you create a lightbulb moment?			Why do we walk on 2 legs?		
Milestone Coverage	To recognise that light appears to travel in straight lines. To 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 by creating a model of light travelling. To explain that we see	To 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. To use recognised symbols when representing a simple circuit in a diagram. To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. To plan different types of scientific enquiries to answer questions,		To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. To identify how animals and plants are adapted to suit their environment in different ways.		Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics. Identify and name the main parts of the human circulatory system, and

	<p>things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments in the context of the shift from heliocentric models of the solar system to geocentric models.</p>	<p>including recognising and controlling variables where necessary. To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter, graphs, bar and line graphs.</p> <p>To report and present findings from enquiries, including conclusions, casual relationship and explanations of and a degree of trust in results, in oral and written forms such as displays and other representations.</p>		<p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments in the context of the shift from heliocentric models of the solar system to geocentric models.</p>		<p>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.</p> <p>To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter, graphs, bar and line graphs.</p> <p>To report and present findings from enquiries, including conclusions, casual relationship and explanations of and a degree of trust in results, in oral and written forms such as displays and other representations.</p>
Knowledge Categories	Working Scientifically	Electricity Working Scientifically		Working Scientifically		Working Scientifically

	Light			Evolution & Inheritance		Animals, including humans Living things and their Habitats
. Continuous Provision	<p>Evolution & Inheritance/ History – link to changes in humans over History</p> <p>Animals & Humans/ PE – leading healthy lifestyles</p> <p>Working Scientifically/ Maths – statistics</p> <p>Forces & Magnets/DT – use gears, pulleys, levers and linkages</p> <p>States of matter/Maths – counting, measuring changes in temp scales/ Geography – evaporation, condensation linked to the Water Cycle</p> <p>Open investigation approach, suggested resources available:</p> <ul style="list-style-type: none"> • Skeleton model • Liquid measures/ funnels • Mirrors • Force meters • Microscope • Stop watches • Graded sieves and filters • Balance scales • Thermometers • Magnets • Electronics kits • Plants • Magnifiers • Tuning forks • Springs • Data loggers • Stethoscopes • Heart rate monitors <p>Lung capacity equipment</p>					

Enrichment-trip/visitor/Wow Day			
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KS3	<p>Purpose of study A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world’s future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.</p> <p><u>Pupils should be taught to</u></p> <ul style="list-style-type: none"> ➤ develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics ➤ develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them ➤ are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.
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