

KNOWLEDGE



To know about **plants** and how they grow
To know about the **human body**, how it functions and how to keep it healthy
To know about the **classification of living things** and their **habitats**, and how they have **adapted** to suit their environment
To know about the physical properties of **materials** and how they **change**
To know how **light** travels and how **shadows** are formed
To know about **electricity**, conductors and insulators, and how to construct electrical **circuits** and manipulate their components
To know about different **forces**, including gravity, and the movement of the **planets** in our solar system

SCIENCE CURRICULUM INTENT



SKILLS



Plan, conduct and **conclude** investigations
Ask questions and **predict** results
Gather, analyse and **interpret** scientific data
Record observations over time and **compare** results
Set up and **use** a range of scientific equipment
Find and **explain** scientific patterns
Identify and **classify** scientific phenomena
Report and **evaluate** our findings

CULTURAL CAPITAL



Studying science helps us to **understand** and **predict** how the world operates. In an **ever-changing globalised society**, a firm understanding of science enables us to make **positive contributions** for a **sustainable** future. Science teaches us the importance of how our bodies work and a **healthy lifestyle**, as well as helping us to understand and celebrate the **diverse world** in which we live. Our participation in and engagement with science give opportunities to **broaden our horizons** for the next stage in our lives.

EXPERIENCES



Global & National Events:

British Science Week, Big Science Event (Science Oxford)

50 Things to do:

Farm to Fork; Fly a Kite; 10 Star Constellations; Eco-friendly; Dr Dolittle

Trips:

Science Oxford, Cotswold Wildlife Park, Cokethorpe Science show

Visitors:

Dentist, Sun Dome, Professional Scientists

CHARACTER



Roots that Strengthen: Our fundamental grasp of how the world works and our position within it.

Branches that Reach: Our asking questions about the world around us and thinking how to answer them scientifically.

Fruit that Flourishes: The excitement that comes from the discovery of new knowledge about the world.

IMPACT



We monitor & support the teaching through:

Developmental Drop Ins
Book Look Feedback

We measure the impact on learning by:

Pupil Conferencing
Summative Assessment
Baseline Questions

We record the impact through:

Target tracker

Core Vocabulary Progression

Topic	Year 1 & 2	Year 3 & 4	Year 5 & 6
Plants	Deciduous, Evergreen, Tree, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem, fruit Seeds, Bulbs, Water, Light, Suitable temperature, Grow, Healthy, Germinate, Decompose, growth, germinate, light, temperature, reproduce, lifecycle	Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower, seed formation, seed dispersal, pollination	
Animals, including humans	Fish, Reptiles, Mammals, Birds, Amphibians (+ examples of each) Herbivore, Omnivore, Carnivore, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak Survival, Water, Air, Food, Adult, Baby, Offspring, Exercise, Hygiene, reproduce, adult, baby, offspring, food chain, prey, predator, camouflage, protection exercise, balanced diet	Movement, Muscles, Bones, Skull, Nutrition, Skeletons, Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar, movement, support, protection, nutrition nutrients, absorb, canine, incisor, molar producer, consumer, apex predator	Foetus, Embryo, Womb, Gestation, Teenager, Elderly, Development, Puberty; Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration womb, foetus, embryo, gestation function, circulatory system, valve, vein, artery transport, oxygenated, deoxygenated lifestyle, drug
Living things and their habitats	Living, Dead, Habitat, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert microhabitat, meadow, hedgerow, pond Omnivore, Carnivore and herbivore	Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitat, invertebrates (+ 1 example of each) habitat, classification key	Mammal, Reproduction, Insect, Amphibian, Bird, Offspring; Classification, Vertebrates, Invertebrates, Microorganisms, Amphibians, Reptiles, Mammals, Insects life process, characteristic, classification, organism, micro-organism
Evolution and inheritance			Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics survival
Materials	Everyday Materials: Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth hard, rough, shiny, dull, bendy, stiff Materials Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil, brick, elastic, foil property, solid, flexible, twist, push, pull, roll, slide, bounce	States of Matter: Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating, Precipitation, hardness, transparency, conductivity (electrical, thermal) solubility, solution dissolve, filter, evaporate, sieve, reversible, irreversible	Properties, including changes of materials: Hardness, Solubility, Transparent, Opaque, Translucent, Magnetic, Filter, Evaporation, Dissolving, Mixing, Thermal conductor, thermal insulator, electrical conductor, electrical insulator
Rocks		Fossils, Soils, Sandstone, Granite, Marble, Pumice, Crystals, sedimentary, metamorphic, igneous, absorbent/porous, durable, permeable, impermeable organic matter, sandstone, granite, marble, pumice absorbent, crumble layer, magma, lava, gas bubbles (tiny holes/spaces) metamorphic, change, squeeze, pressure	
Seasonal Changes	Season, Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark		
Light		Shadows, Mirror, Dark, Reflection, light source, cast reflect, reflective, reflection blocked, transparent, translucent, opaque	refraction, reflection, spectrum, rainbow
Forces and Magnets		Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull surface, magnetic,	Forces: Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys, lever, force, pivot (fulcrum)
Sound		Volume, Vibration, Wave, Pitch, Tone, Speaker insulation	
Electricity		Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, brightness appliance, battery power, main power, cell, break in circuit	circuit - series, parallel voltage, volts, amps
Earth and Space			Earth, Sun, Moon, Axis, Rotation, Phases of the Moon, star, constellation, waxing, waning, full, new, year, month, solar system, phases of the moon, constellation
Energy & Climate Change			greenhouse effect, emissions, climate change, sustainable, solar power, wind power, hydro power, fossil fuels, carbon dioxide

Progression in Working Scientifically Vocabulary & Skills

EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
What...? How? Why ...? Same, Different Look, Sort, Group, Name	What...? How? Why ...? Compare, Similar Observe, Describe, Identity, Label, Investigate, Plan, Record, Measure, Change, Pattern, Notice, Predict	Gradually, Identify, Recognise, Investigate Record, Units, Table, Fair, Evidence, Research, Length Observations, Prediction, Similarities, Differences Research and Source Discovery, Process, Cycle, Measurements, Conclude, Evaluate Vary, Keep the same/constant, Bar graph, Table, Tally, Rank,	Classify, Interpret, Pattern, Relationship, Prediction Analyse, Interpret, Conclude, Evaluate, Rank, Variable, Constants, Control, Repeat, Key, Line graph, Hypothesis, Evaluate Conclude, Interpret, Classify, Categorise, Database, Enquiry Control, Repeat, Support, Refute, degree of trust, Scatter graph

At the end of Reception, children will be able to:	At the end of Year 2 children will be able to:	At the end of Year 4 children will be able to:	At the end of Year 6 children will be able to:
Early Learning Goals: Understanding the World 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.	Can ask simple questions and recognising that they can be answered in different ways Can observe closely, using simple equipment. Can perform simple tests Can identify and classify Can use their observations and ideas to suggest answers to questions Can gather and record data to help in answering questions	Can ask relevant questions and use different types of scientific enquiries to answer them. Can set up simple practical enquiries, comparative and fair tests. Can make systematic and careful observations and, where appropriate, take accurate measurements using standard units. Can gather, record, classify and present data in a variety of ways to help in answering questions. Can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Can use results to draw simple conclusions, make predictions and suggest improvements. Can identify differences, similarities or changes related to simple scientific ideas and processes. Can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Can use scientific evidence to answer questions or to support their findings.	Can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Can use tests results to make predictions to set up further comparative and fair tests. Can report and present 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. Can identify scientific evidence that has been used to support or refute ideas or arguments.

Useful websites: <https://edu.rsc.org/primary-science/science-ideas-webs/4013259.article> It is free to register and provides comprehensive cross-curricular links to Science. <https://pstt.org.uk/resources/curriculum-materials/cross-curricular-science-and-history>

EYFS: Ongoing Knowledge and Skills Development

<p>Characteristics of Effective Learning Playing & exploring – engagement: <i>Finding out and exploring; playing with what they know; being willing to ‘have a go’</i> Active learning – motivation: <i>Being involved and concentrating; keeping trying; enjoying achieving what they set out to do</i> Creating and thinking critically – thinking: <i>Having their own ideas; making links; choosing ways to do things</i></p>	<p>Understanding the World ELG: Explore the natural world around them, making observations and drawing pictures of animals and plants;</p>	<p>Understanding the World ELG: 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;</p>	<p>Understanding the World ELG: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>
<p>Show curiosity about objects, events and people</p> <p>Questions why things happen</p> <p>Engage in open-ended activity</p> <p>Take a risk, engage in new experiences and learn by trial and error</p> <p>Find ways to solve problems / find new ways to do things / test their ideas</p> <p>Create simple representations of events, people and objects</p> <p>Build up vocabulary that reflects the breadth of their experience</p> <p>Choose the resources they need for their chosen activities</p> <p>Handle equipment and tools effectively</p> <p>Answer how and why questions about their experiences</p> <p>Make observations</p> <p>Develop their own narratives and explanations by connecting ideas or events</p> <p>Explain why some things occur and talk about changes</p>	<p>Plant seeds and care for growing plants</p> <p>Understand the features of the life cycle of a plant and an animal.</p> <p>Begin to understand the need to respect and care for the natural environment and all living things</p> <p>Use senses to explore the world around them: Describe what they see, hear and feel whilst outside.</p> <p>Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world</p> <p>Develop ideas of grouping, sequences, cause and effect</p> <p>Explain why some things occur and talk about changes</p>	<p>Recognise some environments that are different to the one in which they live.</p> <p>Understand the effect of changing seasons on the natural world around them.</p> <p>Describe what they see, hear and feel whilst outside.</p> <p>Develop ideas of grouping, sequences, cause and effect</p> <p>Make links and notice patterns in their experiences</p>	<p>Explore and talk about different forces they can feel</p> <p>Talk about the differences between materials and changes they notice.</p> <p>Use all their senses in hands-on exploration of natural materials</p> <p>Explore collections of materials with similar and/or different properties</p> <p>Describe what they see, hear and feel whilst outside.</p> <p>Develop ideas of grouping, sequences, cause and effect</p> <p>Explain why some things occur and talk about changes</p>

Year 1 & 2	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<p>National Curriculum Objectives</p>	<p>Animals Including humans</p> <p>notice that animals, including humans, have offspring which grow into adults</p> <p>find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p>	<p>Everyday materials</p> <p>identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>Living things and their habitats</p> <p>explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>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>Big Science Event</p> <p>Chn create, plan and conduct their own investigations in small teams as part of the Science Oxford annual competition.</p> <ul style="list-style-type: none"> - Ask relevant questions - Set up practical enquiries to answer them - Make systematic and careful observations - Use results to draw conclusions - Present and report on findings 	<p>Plants</p> <p>observe and describe how seeds and bulbs grow into mature plants</p> <p>find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>Living things and their habitats</p> <p>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.</p> <p>identify and name a variety of plants and animals in their habitats, including microhabitats</p>
<p>Key themes to cover</p>		<p>To know the names of different materials</p> <p>To know how to describe the properties of different materials</p> <p>To know the difference between an object and the material from which it is made</p> <p>To know the suitability of different materials for particular uses</p>	<p>To know that all living things have certain characteristics that are essential for keeping them alive and healthy</p> <p>To know the differences between things that are living, dead, and things that have never been alive</p> <p>To know how animals obtain their food from plants and other animals</p> <p>To know the names of some different sources of food</p>	<p>To know that science investigations start with a question</p> <p>To know that your investigation should lead to an answer</p> <p>To know that your investigation will involve collecting information (data) and that this should be measurable</p> <p>To know that you can present your results in different ways</p>	<p>To know what a seed is and that it germinates</p> <p>To know how seeds and bulbs grow into mature plants</p> <p>To know that plants need water, light and a suitable temperature to grow</p> <p>To know how to care for a plant</p>	<p>To know that all living things have certain characteristics that are essential for keeping them alive and healthy</p> <p>To know the differences between things that are living, dead, and things that have never been alive</p> <p>To know how animals obtain their food from plants and other animals</p> <p>To know the names of some different sources of food</p>

Year 1 & 2	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
National Curriculum Objectives	<p style="text-align: center;">Animals including humans</p> <p>identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>notice that animals, including humans, have offspring which grow into adults</p>	<p style="text-align: center;">Plants and Seasonal changes</p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. They should become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures</p> <p>Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>	<p style="text-align: center;">Uses of Everyday materials</p> <p>identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p style="text-align: center;">Big Science Event</p> <p>Children create, plan and conduct their own investigations in small teams as part of the Science Oxford annual competition.</p> <ul style="list-style-type: none"> - Ask relevant questions - Set up practical enquiries to answer them - Make systematic and careful observations - Use results to draw conclusions - Present and report on findings 	<p style="text-align: center;">Everyday materials</p> <p>Distinguish between an object and the material from which it is made</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</p> <p>Describe the simple physical properties of a variety of everyday materials</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties</p>	<p style="text-align: center;">Animals including humans</p> <p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p>
Key themes to cover	<p>To know the different parts of the body</p> <p>To know the different senses and which body parts they are linked to</p> <p>(Recap) To know the basic needs that animals, including humans, need to survive</p> <p>(Recap) To know the importance of exercise and eating the right amounts of different types of food</p> <p>(Recap) To know the importance of good hygiene</p>	<p>To be able to identify and name common wild and garden plants, including deciduous and evergreen trees</p> <p>To be able to identify the different parts and structures of a plant</p> <p>To be able to name the observable changes between the seasons, including the weather and length of day</p>	<p>(Recap) To know the names of different materials</p> <p>(Recap) To know how to describe the properties of different materials</p> <p>(Recap) To know the difference between an object and the material from which it is made</p> <p>(Recap) To know the suitability of different materials for particular uses</p>	<p>To know that science investigations start with a question</p> <p>To know that your investigation should lead to an answer</p> <p>To know that your investigation will involve collecting information (data) and that this should be measurable</p> <p>To know that you can present your results in different ways</p>	<p>(Recap) To know the names of different materials</p> <p>(Recap) To know how to describe the properties of different materials</p> <p>(Recap) To know the difference between an object and the material from which it is made</p> <p>(Recap) To know the suitability of different materials for particular uses</p>	<p>To be able to name common animals, including fish, amphibians, reptiles' birds and mammals</p> <p>To know what a carnivore, herbivore and omnivores is</p> <p>To know what animals carnivores, herbivores and omnivores are</p>

Year 3 & 4	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<p>National Curriculum Objectives</p>	<p>Sound</p> <p>Identify how sounds are made, associating some of them with something vibrating</p> <p>recognise that vibrations from sounds travel through a medium to the ear</p> <p>find patterns between the pitch of a sound and features of the object that produced it</p> <p>find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>recognise that sounds get fainter as the distance from the sound source increases.</p>	<p>Rocks</p> <p>compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>recognise that soils are made from rocks and organic matter.</p>	<p>States of matter</p> <p>compare and group materials together, according to whether they are solids, liquids or gases</p> <p>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>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Big Science Event</p> <p>Chn create, plan and conduct their own investigations in small teams as part of the Science Oxford annual competition.</p> <ul style="list-style-type: none"> - Ask relevant questions - Set up practical enquiries to answer them - Make systematic and careful observations - Use results to draw conclusions - Present and report on findings 	<p>Light</p> <p>recognise that they need light in order to see things and that dark is the absence of light</p> <p>notice that light is reflected from surfaces</p> <p>recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>recognise that shadows are formed when the light from a light source is blocked by an opaque object</p> <p>find patterns in the way that the size of shadows change.</p>	<p>Living Things and their habitats</p> <p>recognise that living things can be grouped in a variety of 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>Key themes to cover</p>	<p>To know how sounds are made</p> <p>To know that vibrations from sounds travel through a medium to reach the ear</p> <p>To know that the pitch and volume of a sound can be changed by altering the features of the object that produced the sound</p> <p>To know how sound changes with the distance from the sound source</p>	<p>To know the names of a range of rocks</p> <p>To know how rocks differ from one another</p> <p>To know that rocks are formed in different ways</p> <p>To know that soils are made from rocks and organic matter</p> <p>To know how fossils are formed</p>	<p>To know that materials can be classified into different states based on their properties</p> <p>To know that particles behave in differently in different states</p> <p>To know that the temperature at which a material reaches can affect its states of matter</p> <p>To know that water moves in a cycle due to changes in temperature, causing water to change from one state to another</p>	<p>To know that there are 5 main types of scientific enquiry - designed to answer questions</p> <p>To know that the question I am asking will determine the type of enquiry I conduct and how to set up a scientific enquiry to answer my specific question</p> <p>To know what methods to use to carry out my investigation, record my results and how to draw conclusions</p> <p>To know that there are a range of ways of recording results, which are more or less effective for different enquiries</p> <p>To know how to report my findings succinctly, sharing the results of our enquiry with conclusions and an evaluation</p>	<p>To know that we need light to see and that darkness is the absence of light</p> <p>To know that light is reflected from surfaces</p> <p>To know that light from the sun can be dangerous and there are ways to protect your eyes</p> <p>To know that shadows are formed when light it blocked by opaque objects</p>	<p>To know how to group living things in different ways</p> <p>To know and use classification keys</p> <p>To know the implications for living things when environments change</p>

Year 3 & 4	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<p>National Curriculum Objectives</p>	<p>Forces and magnets</p> <p>compare how things move on different surfaces</p> <p>notice that some forces need contact between two objects, but magnetic forces can act at a distance</p> <p>observe how magnets attract or repel each other and attract some materials and not others</p> <p>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>describe magnets as having two poles</p> <p>predict whether two magnets will attract or repel each other, depending on which way poles are facing.</p>	<p>Animals, including humans</p> <p>Describe the simple functions of the basic parts of the digestive system in humans</p> <p>identify the different types of teeth in humans and their simple functions</p> <p>construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>Animals including humans</p> <p>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</p> <p>identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>Big Science Event</p> <p>Chn create, plan and conduct their own investigations in small teams as part of the Science Oxford annual competition.</p> <ul style="list-style-type: none"> - Ask relevant questions - Set up practical enquiries to answer them - Make systematic and careful observations - Use results to draw conclusions - Present and report on findings 	<p>Electricity</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 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>recognise some common conductors and insulators, and associate metals with being good conductors.</p>	<p>Plants</p> <p>identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>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>investigate the way in which water is transported within plants</p> <p>explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>
<p>Key themes to cover</p>	<p>To know that some forces need contact between two objects but magnetic forces can act at a distance</p> <p>To know that different surfaces can affect how things move</p> <p>To know that magnets have two poles</p> <p>To know that magnets attract some materials and not others</p>	<p>To describe the different functions of the basic parts of the human digestive system</p> <p>To know that animals have different digestive systems based on what they eat</p> <p>To know that living things are connected to each other in food webs that normal start with a producer</p> <p>To interpret a food web, identifying a producer, consumer, predator and prey</p>	<p>To know that we eat food to give us energy to grow, repair cells and fight disease</p>	<p>To know that there are 5 main types of scientific enquiry - designed to answer questions</p> <p>To know that the question I am asking will determine the type of enquiry I conduct and how to set up a scientific enquiry to answer my specific question</p> <p>To know what methods to use to carry out my investigation, record my results and how to draw conclusions</p> <p>To know that there are a range of ways of recording results, which are more or less effective for different enquiries</p> <p>To know how to report my findings succinctly, sharing the results of our enquiry with conclusions and an evaluation</p>	<p>To know how to stay safe around electricity</p> <p>To know which materials are conductors and insulators and why</p> <p>To know the components of a circuit</p> <p>To know what a switch does and why it is important</p>	<p>To know the names and functions of the different parts of flowering plants</p> <p>To know the requirements of plants for life can vary</p> <p>To know how water is transported within a plant</p> <p>To know the life cycle of a plant</p>

Year 5 & 6	Term 1 Forces	Term 2 Light	Term 3 Electricity	Term 4 Big Science Event	Term 5 Properties & Changes of Materials	Term 6 Evolution
<p>National Curriculum Objectives</p>	<p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	<p>Recognise that light appears to travel in straight lines</p> <p>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</p> <p>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</p> <p>use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</p>	<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>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</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>	<p>Chn create, plan and conduct their own investigations in small teams as part of the Science Oxford annual competition.</p> <ul style="list-style-type: none"> - Ask relevant questions - Set up practical enquiries to answer them - Make systematic and careful observations - Use results to draw conclusions - Present and report on findings 	<p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>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.</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>recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>
<p>Key themes to cover</p>	<p>To know and understand gravitational pull</p> <p>To identify different types of resistance and friction and the impact it can have on movement</p> <p>To know how and why mechanisms allow a smaller force to have a greater effect</p>	<p>To know that light appears to travel in straight lines from a light source to our eyes or from light sources to objects and then our eyes</p> <p>To know that objects are seen because they give out or reflect light into the eye</p> <p>To know that refraction is the deflection of light</p> <p>To know that filters only allow through certain colours</p> <p>To know that shadows have the same shape as the object that casts them</p>	<p>To know that electricity is a form of energy and that it was discovered rather than invented</p> <p>To know a range of electrical symbols, such as for bulbs, switches, batteries and motors, and how they are used</p> <p>To know that parallel circuits can be expanded and if one component breaks the rest of the circuit will still work however, series circuits use less wire.</p> <p>To know that the higher the voltage, the more electricity flowing around the circuit at a higher rate</p> <p>To know that electrical circuits can be affected by the voltage of batteries, conductivity of components and the number of devices being powered.</p>	<p>To know that there are 5 main types of scientific enquiry - designed to answer questions</p> <p>To know that the question I am asking will determine the type of enquiry I conduct and how to set up a scientific enquiry to answer my specific question</p> <p>To know what methods to use to carry out my investigation, record my results and how to draw conclusions</p> <p>To know that there are a range of ways of recording results, which are more or less effective for different enquiries</p> <p>To know how to report my findings succinctly, sharing the results of our enquiry with conclusions and an evaluation</p>	<p>To know that when substances dissolve a solution is formed and that the original substance can be retrieved</p> <p>To know that mixtures of solids, liquids and gases can be separated through evaporation, condensation, sieving and filtration</p> <p>To know that some changes can be reversed, using these processes</p> <p>To know that some changes cannot be reversed and that a new material is formed when this happens</p>	<p>To know that fossils provide information about living things that inhabited the Earth</p> <p>To know that offspring can vary and are not identical to their parents</p> <p>To know that animals and plants adapt to suit their environment</p> <p>To know that adaptation may lead to evolution</p> <p>To know some ways in which plants and animals have adapted</p> <p>To know how selective breeding occurs and reasons why</p>

Year 5 & 6	Term 1 Earth and Space	Term 2 Animals including humans	Term 3 Properties and changes of materials	Term 4 Big Science Event	Term 5 Living Things and their habitats	Term 6 Animals including humans
<p>National Curriculum Objectives</p>	<p>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system</p> <p>Describe the movement of the Moon relative to the Earth</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies</p> <p>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>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>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</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p>	<p>Chn create, plan and conduct their own investigations in small teams as part of the Science Oxford annual competition.</p> <ul style="list-style-type: none"> - Ask relevant questions - Set up practical enquiries to answer them - Make systematic and careful observations - Use results to draw conclusions - Present and report on findings 	<p>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</p> <p>Give reasons for classifying plants and animals based on specific characteristics</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Describe the life process of reproduction in some plants and animals.</p> <p>Describe the changes as humans develop to old age.</p>
<p>Key themes to cover</p>	<p>To know how the planets move relative to the sun in our solar system</p> <p>To know how the moves relative to the Earth</p> <p>To know that the sun, moon and Earth are approximately spherical</p> <p>To know how night and day are caused by the sun's movement</p> <p>To know the planets in our solar system and the order they are from the sun</p>	<p>To know the names of the parts of the circulatory system</p> <p>To know the function of the heart, blood vessels and blood</p> <p>To know how water and nutrients are transported around the human body</p> <p>To know why having a good diet and exercise are important</p> <p>To know that our heart rate changes before, during and after exercise and that there are reasons why this happens</p> <p>To know that alcohol and drugs have an impact on the way the human body functions</p>	<p>To know that some materials will dissolve in liquid to form a solution</p> <p>To know that solids, liquids and gases can be separated having formed mixtures</p> <p>To know the properties of different materials</p> <p>To know that different materials have different uses</p> <p>To know that some changes to materials are reversible and some are irreversible</p>	<p>To know that science investigations start with a question</p> <p>To know that your investigation should lead to an answer</p> <p>To know that your investigation will involve collecting information (data) and that this should be measurable</p> <p>To know that you can present your results in different ways</p>	<p>To know why classifying species is helpful</p> <p>To know about the scientist Carl Linnaeus and his classification model</p> <p>To know that living things are classified in groups and that these can be subdivided</p> <p>To know that there are 'good' and 'bad' bacteria and the need for both</p> <p>To know how micro-organisms help the local environment</p> <p>To know what organisms we can find in our local environment and how to classify them</p>	<p>To know how plants reproduce through sexual and asexual reproduction</p> <p>To know the cycle from birth to death in mammals</p> <p>To know how transformations occur within life cycles of amphibians and insects</p> <p>To know life cycles of egg-laying and birds</p> <p>To know the work of Jane Goodall worked to understand and consider the conservation of chimpanzees</p>

