

Year 1 Science

Block 1 Theme: Humans & Health Use local habitats where possible	Block 2 Theme: Plants & Forests Use the local environment where possible
Knowledge	Knowledge
<ul style="list-style-type: none"> • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense 	<ul style="list-style-type: none"> • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • identify and describe the basic structure of a variety of common flowering plants, including trees
Skills	Skills
<ul style="list-style-type: none"> • using observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them • grouping animals according to what they eat • using their senses to compare different textures, sounds and smells. 	<ul style="list-style-type: none"> • observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants • describing how they were able to identify and group them • drawing diagrams showing the parts of different plants including trees. • Pupils might keep records of how plants have changed over time, for example, the leaves falling off trees and buds opening • compare and contrast what they have found out about different plants
Working scientifically over both topics:	
<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 question 	

Year 2 Science

Block 1 Theme: Living things and their habitats; Humans and Health: Plants (recapping year 1)	Block 2 Theme: Materials
<u>Knowledge</u>	<u>Knowledge</u>
<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 • <i>notice that animals, including humans, have offspring which grow into adults</i> • <i>find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</i> • <i>describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</i> • 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 	<ul style="list-style-type: none"> • distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • describe the simple physical properties of a variety of everyday materials • compare and group together a variety of everyday materials on the basis of their simple physical properties • 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 f can be changed by squashing, bending, twisting and stretching
<u>Skills</u>	<u>Skills</u>
<ul style="list-style-type: none"> • sort and classify things according to whether they are living, dead or were never alive, and recording their findings using charts. • describe how they decided where to place things, exploring questions like: 'Is a flame alive? Is a deciduous tree dead in winter?' and talk about ways of answering their questions. construct a simple food chain that includes humans (eg, grass, cow, human). • describe the conditions in different habitats and microhabitats (under log, 	<ul style="list-style-type: none"> • perform simple tests to explore questions, for example: 'What is the best material for an umbrella? ... for lining a dog basket? ... for curtains? ... for a bookshelf? ... for a gymnast's leotard?' • compare the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs) • observe closely, identifying and classifying the uses of different

on stony path, under bushes); and find out how the conditions affect the number and type(s) of plants and animals that live there.

- *observe, through video or first-hand observation and measurement, how different animals, including humans, grow;*
- *ask questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions.*
- Observe and record, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.

materials, and recording their observations.

Working scientifically over both topics:

- 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 question

Year 3 Science

Block 1 Theme: Materials and Rocks	Block 2 Theme: Living things and habitats
<u>Knowledge</u>	<u>Knowledge</u>
<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 • 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 	<ul style="list-style-type: none"> • 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 • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal • 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
<u>Skills</u>	<u>Skills</u>
<ul style="list-style-type: none"> • observe rocks, including those used in buildings and gravestones, and explore how and why they might have changed over time • use a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them • research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed • explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water raise and answer questions about the way soils are formed 	<ul style="list-style-type: none"> • compare the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser • discover how seeds are formed by observing the different stages of plant life cycles over a period of time • look for patterns in the structure of fruits that relate to how the seeds are dispersed • observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers. • identify and group animals with and without skeletons and observing and comparing their movement • explore ideas about what would happen if humans did not have skeletons

- group and classify a variety of different materials
- explore the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party)
- research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid
- observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting.

- compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat
- research different food groups and how they keep us healthy, and design meals based on what they find out.

Working scientifically over both topics:

- 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.

Year 4 Science

Block 1 Theme: Living things and habitats	Block 2 Theme: Forces
Knowledge	Knowledge
<ul style="list-style-type: none"> • 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 • 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 	<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 • predict whether 2 magnets will attract or repel each other, depending on which poles are facing
Skills	Skills
<ul style="list-style-type: none"> • identify and group animals with and without skeletons and observing and comparing their movement • explore ideas about what would happen if humans did not have skeletons • compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat • research different food groups and how they keep us healthy, and design meals based on what they find out. • use and make simple guides or keys to explore and identify local plants and animals • make a guide to local living things raise and answer questions based on their observations of animals and what they have found out about other animals that they have researched 	<ul style="list-style-type: none"> • comparing how different things move and grouping them • raising questions and carrying out tests to find out how far things move on different surfaces, and gathering and recording data to find answers to their questions • exploring the strengths of different magnets and finding a fair way to compare them • sorting materials into those that are magnetic and those that are not • looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another • identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.

Working scientifically over both topics:

- 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
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- 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.

Year 5 Science

Block 1 Theme: Light, Sound, Electricity	Block 2 Theme: Properties and changes of materials The Earth and Space
<u>Knowledge</u>	<u>Knowledge</u>
<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• 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• 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	<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• 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• 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

Skills	Skills
<ul style="list-style-type: none"> • look for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes. • find patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. • make earmuffs from a variety of different materials to investigate which provides the best insulation against sound • make and play their own instruments by using what they have found out about pitch and volume. • observe patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit. 	<ul style="list-style-type: none"> • carry out tests to answer questions, for example, 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?' • compare materials in order to make a switch in a circuit • observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes • research and discuss how chemical changes have an impact on our lives, for example, cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials. • compare the time of day at different places on the Earth through internet links and direct communication • create simple models of the solar system construct simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day • find out why some people think that structures such as Stonehenge might have been used as astronomical clocks.
<p>Working scientifically over both topics:</p> <ul style="list-style-type: none"> • 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 6 Science

Block 1 Theme: Humans, Evolution & Darwin	Block 2 Theme: Revision
<p><u>Knowledge</u></p> <ul style="list-style-type: none">• 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• 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	<p><u>Knowledge</u></p>
<p><u>Skills</u></p> <ul style="list-style-type: none">• exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.• observing and raising questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels. They might analyse the advantages and disadvantages of specific adaptations, such as being on 2 feet rather than 4, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.	<p><u>Skills</u></p>
<p><u>Working scientifically over both topics:</u></p>	

- 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