



**Science Curriculum
Year 1 and 2 – Cycle B**

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.

Scientific knowledge and conceptual understanding
The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Insecure, superficial understanding will not allow genuine progression: pupils may struggle at key points of transition (such as between primary and secondary school), build up serious misconceptions, and/or have significant difficulties in understanding higher-order content. Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. The social and economic implications of science are important but, generally, they are taught most appropriately within the wider school curriculum: teachers will wish to use different contexts to maximise their pupils’ engagement with and motivation to study science.

EYFS - Understanding the World
ELG: The Natural World Children at the expected level of development will: - 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.

Attainment targets
By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
<p>The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos. ‘Working scientifically’ is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.</p>	<p>The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. ‘Working scientifically’ must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.</p>	<p>The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. ‘Working and thinking scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read, spell and pronounce scientific vocabulary correctly.</p>

Working Scientifically - The nature, processes and methods of science
‘Working scientifically’ specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how ‘working scientifically’ might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data. ‘Working scientifically’ will be developed further at key stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control.

<p>During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <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. 	<p>During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> ♣ 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 	<p>During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</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
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<p>Plants</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ♣ identify and name a variety of common wild and garden plants, including deciduous and of a variety of common flowering plants, including trees. <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ♣ 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. 	<p>Plants</p> <p>Pupils should be taught to:</p> <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. 	
<p>Animals including Humans</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ♣ identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals ♣ identify and name a variety of common animals that are carnivores, herbivores and omnivores ♣ describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) ♣ identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ♣ 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. 	<p>Animals including Humans</p> <p>Pupils should be taught to:</p> <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. <p>Pupils should be taught to:</p> <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. 	<p>Animals including Humans</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ♣ describe the changes as humans develop to old age. <p>Pupils should be taught to:</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 <ul style="list-style-type: none"> ♣ describe the ways in which nutrients and water are transported within animals, including humans.
<p>Everyday Materials</p> <p>Pupils should be taught to:</p> <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. 	<p>Rocks</p> <p>Pupils should be taught to:</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. 	<p>Properties and changes of Materials</p> <p>Pupils should be taught to:</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 ♣ 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.
<p>Uses of Everyday Materials</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ♣ 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. 	<p>Light</p> <p>Pupils should be taught to:</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 	<p>Light</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ♣ recognise that light appears to travel in straight lines ♣ use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye ♣ explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes

	♣ find patterns in the way that the size of shadows change.	♣ use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Seasonal Changes Pupils should be taught to: ♣ observe changes across the four seasons ♣ observe and describe weather associated with the seasons and how day length varies.	Forces and Magnets Pupils should be taught to: ♣ compare how things move on different surfaces ♣ notice that some forces need contact between two objects, but magnetic forces can act at a distance ♣ observe how magnets attract or repel each other and attract some materials and not others ♣ compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials ♣ describe magnets as having two poles ♣ predict whether two magnets will attract or repel each other, depending on which poles are facing.	Earth and Space Pupils should be taught to: ♣ 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.
Living Things and their habitats Pupils should be taught to: ♣ 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.	Living Things and their habitats Pupils should be taught to: ♣ 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.	Living Things and their habitats Pupils should be taught to: ♣ 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. Pupils should be taught to: ♣ describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals ♣ give reasons for classifying plants and animals based on specific characteristics.
	States of matter Pupils should be taught to: ♣ 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.	Forces: Pupils should be taught to: ♣ 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.
	Sound Pupils should be taught to: ♣ 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.	Evolution and Inheritance Pupils should be taught to: ♣ 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
	Electricity Pupils should be taught to: ♣ 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.	Electricity Pupils should be taught to: ♣ associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit ♣ compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches ♣ use recognised symbols when representing a simple circuit in a diagram.
s - Working Scientifically		
Year 1	<ul style="list-style-type: none"> • ask simple questions • observe closely using simple equipment • perform simple comparative tests • identify, sort, group and classify • use my observations to help me suggest answers to questions • with guidance, begin to notice patterns and relationships • observe simple changes over time • find information using simple secondary sources 	

Year 2	<ul style="list-style-type: none"> ask simple questions and recognise they can be answered in different ways observe closely using simple equipment perform simple comparative tests identify, sort, group and classify use my observations to help me suggest answers to questions gather and record simple data to help me answer questions with guidance, begin to notice patterns and relationships use simple secondary sources observe changes over time communicate ideas in a variety of ways 					
	Autumn		Spring		Summer	
Hierarchies	<p>Where do the minibeasts live?</p> <p><u>Animals including humans</u></p> <p>B5: Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.</p> <p>B7: Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets).</p> <p><u>Living things in their habitats</u></p> <p>B12: Explore and compare the differences between things that are living, that are dead and that have never been alive.</p> <p>B13: 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>B14: Identify and name a variety of plants and animals in their habitats, including micro-habitats.</p>	<p>How do I sense the world around me?</p> <p>Children will explore their senses of smell, sight, taste, touch and hearing. They will explore light and sound.</p> <p><u>B8:</u> 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>Will it bend or break?</p> <p><u>Investigating Materials -Changing Materials</u></p> <p>C3: Describe the simple physical properties of a variety of everyday materials.</p> <p>C4: Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>C6: Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses.</p> <p>C5: Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>Where are the baby butterflies hiding?</p> <p>Children will explore life-cycles.</p> <p><u>Understand Animals Including Humans</u></p> <p>B5: Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.</p> <p>B6: Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>B7: Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets).</p> <p>B9: Notice that animals, including humans, have offspring which grow into adults.</p> <p><u>Understand Evolution and Inheritance</u></p> <p>B16: Identify how humans resemble their parents in many features.</p>	<p>What is the best material to make a _____?</p> <p><u>Investigate Materials</u></p> <p>C2: Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p> <p>C3: Describe the simple physical properties of a variety of everyday materials.</p> <p>C4: Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>C3: Describe the simple physical properties of a variety of everyday materials.</p> <p>C4: Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>C6: Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and</p>	<p>How can we grow the tallest Sunflower?</p> <p>Children will learn about planting, growing and harvesting plants in the classroom and find out about commercial plant growers.</p> <p><u>Understanding Plants</u></p> <p>B1: Identify and name a variety of common plants, including garden plants, wild plants and trees and those classified as deciduous and evergreen.</p> <p>B2: Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers.</p> <p>B3: Observe and describe how seeds and bulbs grow into mature plants.</p> <p>B4: Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>
Resources	Clipboard, bug finders, pictures of minibeasts, squared paper	Food for tasting, plates, spoons, torches, musical instruments, household objects	Where possible, have actual examples of wood, plastic, glass, metal, rock, brick, paper and cardboard (as opposed to objects made from these materials), objects to be manipulated: play dough, pipe cleaners, tea towels, socks, drink can, elastic bands, drinking straws and sponges. Scissors, pensils, glue,	topic books about life cycles. Book about life cycles as 'Are you a ladybird?' Allen and Humphries, Life cycles - Frog by L Spilbury, Is that a frog? by C Llewellyn and A Parker, Growing Frogs by V French and A Bartlett. Amphibians by R Theodorou, Watch it Grow – Frog by B Watts, Oscar and the Frog by Geoff Waring. 'Life Cycle of a Sunflower' by Angela Royston, Soft paintbrushes, containers. Plastic models of mini-beasts. Compost in a tray, Stones, leaves, wood for different habitats. Paper, scissors and glue sticks. Sunflower seeds (2 per child). Sunflower head with seeds. Nature area (if available), Paper for zigzag book. Tanks etc for keeping tadpoles, Set of plastic minibeasts, life cycle topic books, string, scissors, thin black pens. Compost in a tray, plastic minibeasts to play with. Stones, leaves, wood for different habitats. collection of seeds that grow into trees (e.g. apple pips, acorns, seeds out of pine cones, conkers). cross section of a tree trunk, a tree seedling, plasticine, tape measures, different types of apples.	Collection of objects found/taken at the seaside, sand, wood, plastic,	Trowels, gardening gloves, seeds, plant pots, watering cans, garden area, seed trays,

Vocabulary	Minibeast, invertebrate, habitat, micro-habitat, alive, dead, never alive. (List of mini beasts and microhabitats)	Ears, eyes, mouth, skin, nose, sense, sight, touch, smell, sound, taste	Identify, materials, wood, plastic, glass, metal, rock, brick, paper, cardboard, uses, used, properties, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, not bendy, absorbent, not absorbent, waterproof, not waterproof, transparent, opaque. observations, record, classify, group, similar, safe, unusual. compare, suitability, suitable, unsuitable, purpose, change, squash, bend, twist, stretch,	Life-cycle, young, adult, egg, nymph, larva, chrysalis, pupae, nymph, min-beast, insect, roots, stem, flower and leaves, plant names	Identify, materials, wood, plastic, glass, metal, rock, brick, paper, cardboard, uses, used, properties, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, not bendy, absorbent, not absorbent, waterproof, not waterproof, transparent, opaque. observations, record, classify, group, similar, safe, unusual. compare, suitability, suitable, unsuitable, purpose, change, squash, bend, twist, stretch	Plant, soil, grow, seed, germinate, harvest, cultivate, root, stem, water, light,
Flashback	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. A habitat is where things lives. It provides shelter, food and protection. Different animals are found in each habitat because they are suited to them. 	<ul style="list-style-type: none"> Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. We can sort all objects into 3 categories living, non-living, never alive (examples given) The 5 senses are touch, taste, smell, sight, hearing. Touch is linked with skin, taste with the tongue, hearing with the ears, sight with the eyes, smell with the nose. 	<ul style="list-style-type: none"> A prediction suggests the outcome based on what they already know. Wood, metal, plastic, fabric, glass, brick and paper are common materials. We can group objects together based on their properties. 	<ul style="list-style-type: none"> The properties of materials make them suitable for purposes. The shape of an object can be changed by squashing, twisting, bending, stretching. This is used in the process of recycling. All living things have a life cycle and this involves young growing into adults and producing offspring. The offspring then grows into an adult and this repeats. The four stages of a butterflies lifecycle. 	<ul style="list-style-type: none"> The lifecycle of a plant. The lifecycle of a tree. Materials have specific properties that make them suitable for different uses. We should only change one variable (the material) when investigating.
Lesson 1	<p>Year 1/2: To identify and name a range of UK minibeasts.</p> <p>Activities: Go on a minibeast hunt around the school and keep a tally of the number of each minibeast that has been found</p> <p>Children will know:</p> <p>the name of some common minibeasts in their local environment.</p> <p>the parts of the school that have the most of each type of minibeast. (suggest answers to questions.)</p> <p>How to record information in a table (Year 1 pictogram/ Year 2 tally)</p>	<p>Year 1/2: To recognise each sense and their associated body part.</p> <p>Activities: Children to complete a few quick activities in which they need to use each sense (just briefly as this will be explored in more detail during each lesson)</p> <p>Play sense bingo. Children to match the sense to the body part.</p> <p>Children will know:</p> <p>the name of the 5 senses.</p> <p>which body part is associated with each sense.</p> <p>the purpose of each sense</p>	<p>Year 1/2: To identify and compare the suitability of a variety of everyday materials.</p> <p>Activities: Recap of everyday materials - Some materials are natural and are found in the world around us, such as wood and rock and others are man-made such as plastic and glass. Children look and/or move around the classroom to identify where different materials have been used to make familiar objects. Are children able to spot where everyday materials have been used to make familiar objects?</p> <p>Children will know:</p> <p>the names of different everyday materials.</p> <p>What materials familiar every day objects are made from.</p> <p>what 3 different materials are used for.</p>	<p>Year 1/2: To understand that animals have a life cycle.</p> <p>Activities: Read book about life cycle of a ladybird such as 'Are you a ladybird?' Introduce the term 'life cycle' children to help you draw a diagram of what happens in the book. Taking suggestions from the chn on f/c draw eggs on leaf, then an arrow to picture larvae, larva growing, pupa, pupa hatching, and ladybird and explain how it all starts again. If possible collect ladybirds in advance or go on a ladybird hunt and collect ladybirds, ladybird larvae, (or other beetles) to look at and draw. Talk about how to handle small creatures. Use a soft paintbrush to pick them up and put them in a container. Use plastic models as an alternative. In a small group look carefully at ladybird with hand lenses. Demonstrate how to use lens. Ask What do you notice about the ladybird? How many legs does it have? Do you think it has wings? Where are the wings? Where does it live? What does it eat?</p> <p>Children will know:</p> <p>how to treat living creatures with sensitivity and care.</p> <p>that animals have a life cycle.</p> <p>that a life cycle is when humans and other animals can produce offspring and that these offspring grow into adults who produce new offspring.</p>	<p>Year 1/2: To predict the suitability of materials based on their properties.</p> <p>Activities: Once the class has decided what they are going to make they need to make predictions about the best materials they will need. They need to consider each aspect of what they are making and give at least 3 possible materials.</p> <p>Children will know:</p> <p>the names of a wide range of materials.</p> <p>some properties of these materials.</p> <p>how to predict which is the best material to make an object based on its properties</p>	<p>Year 1/2: To find out what plants need to grow.</p> <p>Activities: Children will consider the things a plant needs to grow and mature, how plants in the wild get them, and how and why plant growers grow plants in nurseries and on farms. They may then either conduct a simple comparative test to determine how light levels affect seed germination, or discuss a variety of statements about plant growth.</p> <p>Children will know:</p> <p>what most plants need to germinate and mature</p> <p>why we cultivate plants</p> <p>how light affects germination (comparative test)</p>

Lesson 2	<p>Year 1/2: To identify and describe the microhabitats that minibeasts live in.</p> <p>Activities: Explore the microhabitats that we have in our school environment. Discuss the difference between habitats and microhabitats. What specific minibeast can be found in each microhabitat.</p> <p>Children will know: Year 1/2: the difference between a habitat and microhabitat.</p> <p>identify some microhabitats in the school environment.</p> <p>How habitats support animals.</p>	<p>Year 1/2: To make observations and suggest answers to questions about light.</p> <p>Activities: Complete investigation about light and the dark (absence of light.) Can they give examples of things that make light and places where light is absent (dark)</p> <p>Children will know: that we use our eyes to see.</p> <p>that the dark is the absence of light.</p> <p>How to suggest some answers to questions based on their observations.</p>	<p>Year 1/2: To identify and classify the uses of everyday materials</p> <p>Activities: Classify a range of materials and group objects based on a what they are used for.</p> <p>Children will know: what 3 different materials can be used for.</p> <p>that we can group similar uses of materials together.</p> <p>the names of some simple properties of materials.</p>	<p>Year 1/2: To be able to explain the life cycle of a butterfly</p> <p>Activities: Recap last week. Read “The Very Hungry Caterpillar”. Which bits are based on fact and which bits are not true? What do they think caterpillars really eat? Do they really turn into butterflies? Ask children to describe to you how the caterpillar changes. Compare fiction/non-fiction. Children draw a picture of an egg, caterpillar, chrysalis and butterfly. They use arrows to link each stage and label each drawing.</p> <p>Children will know: the life cycle of a butterfly.</p> <p>that storybooks and information books are different.</p>	<p>Year 1/2: To plan a comparative test to test predictions.</p> <p>Activities: To plan their own comparative investigation to test the properties of the materials that they chose. They need consider which variable they need to change and which they need to keep the same.</p> <p>Children will know: That a variable is something that could</p> <p>what variable they need to change in the test.</p> <p>What variable they need to keep the same.</p>	<p>Year 1/2: To find out and explain what plants need to stay healthy</p> <p>Activities: Children will learn in greater detail how soil, water, light and air help young plants grow and mature. They will identify the features of young seedlings, then either study seedlings they have grown themselves or identify suitable locations around school for growing different types of plant.</p> <p>Children will know: why many seeds and bulbs are able to germinate without light</p> <p>in simple terms, how plants make their own food</p> <p>appropriate locations where plants will grow well, giving reasons.</p>
Lesson 3	<p>Year 1/2: To present data collected using a chart</p> <p>Activities: Children to present the data collected from the previous lesson in a bar chart – Choose a microhabitat and complete their own bar chart.</p> <p>Children will know: How to draw bars to represent a total.</p> <p>some animals that you find in each microhabitat.</p> <p>Some ways that animals are suited to their environment.</p>	<p>Year 1/2: To make predictions based on observation made.</p> <p>Activities: To complete an investigation where they cannot see the object but can only hear the object. Draw or write what the object is. Were their predictions accurate? Is hearing always reliable?</p> <p>Children will know: that they use their ears to hear sound.</p> <p>That a prediction suggests the outcome based on what they already know (not a guess)</p> <p>How to suggest answers to questions based on their observations (that they have heard).</p>	<p>Year 1/2: To compare the suitability of different everyday materials.</p> <p>Activities: Recap vocabulary for properties of materials. Why might objects be made from particular materials? Look at spoons made of different materials and discuss suitability for the purpose of the spoon. Children match the object with the most suitable material it could be made from.</p> <p>Children will know: that different materials can be used to make the same object.</p> <p>which properties make materials suitable for different purposes.</p> <p>which properties make some materials unsuitable for different purposes.</p>	<p>Year 1/2: To be able to explain the life-cycle of a plant</p> <p>Activities: Tell another story involving a life-cycle. Discuss story and consolidate the life cycle concept. Go for a walk to nature area (if available) look at plants, flowers, seeds as appropriate. Ask <u>Can you count 5 different kinds of plants?</u> (Bring back leaves, seeds, and flowers to look at in class). Could plant sunflower seeds and follow growth (depending on season). Draw pictures of what happens to plants in different seasons. Draw/Paint a picture of a sunflower showing roots, stem, flower and leaves and stick on real sunflower seed.</p> <p>Children will know: the life cycle of a plant.</p> <p>what plants need to grow.</p>	<p>Year 1/2: To conduct a comparative test and record the results.</p> <p>Activities: To conduct their own comparative investigation to test the properties of the materials that they chose. They need record their results in a table.</p> <p>Children will know: How to record measurements using ticks, crosses, words or numbers.</p> <p>To only change the material and attempt to keep other variables the same.</p>	<p>Year 1/2: To explore and compare plants that are living, dying or dead.</p> <p>Activities: Children will identify observable characteristics of living animals, going on to learn how they are present for all animals, even if it is difficult to observe them. They will then learn how plants have similar life processes, and why plants may die. After this children may either plant scraps and cuttings which re-grow, or identify dead and dying plants.</p> <p>Children will know: some observable life processes of animals and plants.</p> <p>when, and why, plants start to die once harvested.</p> <p>ways in which harvested plants can be kept alive, or helped to reproduce, by humans.</p>
Lesson 4	<p>Year 1/2: To observe the structure of invertebrates.</p> <p>Activities: Using bug finders observe the structure of different minibeasts. Compare the structure of a range of minibeasts using pictures.</p> <p>Children will know: that invertebrates do not have a backbone.</p> <p>the names of the main body parts of an invertebrate.</p> <p>The differences in structure of different types of invertebrates.</p>	<p>Year 1/2: To make predictions based on observations of taste and smell</p> <p>Activities: Taste test investigation – predict the food based on the flavour – focus on the main types of flavour (Sweet, salty, sour, bitter, umami)</p> <p>Children will know: that we use our tongue to taste and our nose to smell.</p> <p>that there are 5 main types of taste our tongue senses.</p> <p>how to make predictions based on observations that they make.</p>	<p>Year 1/2: To find out how the shapes of solid objects made from some materials can be changed.</p> <p>Activities: Discuss ways shapes might be changed. Model ways items can be manipulated – twist, bend etc. Model how to try and change the shape of the objects on the tables and record. Discuss not all item’s shape can be changed.</p> <p>Children will know: four ways the shapes of some objects can be changed.</p> <p>examples of materials that can and cannot change shape.</p>	<p>Year 1/2: To understand the life-cycle of a tree and how to care for the environment.</p> <p>Activities: Look at a collection of seeds that grow into trees (e.g. apple pips, acorns, seeds out of pine cones, conkers). Talk about the fact that huge trees can grow from tiny seeds. Ask <u>What will they need to grow?</u> Talk about why it is important to plant trees. Talk about how trees have a life cycle. See how far chn can get explaining it to you and draw the different stages on the flip chart. Draw out the difference in timescale between the life cycle of a sunflower and a tree. Plant seeds, Order leaves collected on walk by size or other criteria, stick on strip of paper in order, draw life-cycle.</p> <p>Children will know:</p>	<p>Year 1/2: To suggest answers to questions based on the results.</p> <p>Activities: Children to discuss their findings and draw conclusions from their results, suggesting possible explanations for this.</p> <p>Children will know: How to read their results and describe the changes that happened.</p> <p>How to draw a simple conclusion from their results.</p>	<p>Year 1/2: To observe and describe how plants grow.</p> <p>Activities: Children will discover how plants grow and 'move' as they require more space, light, water and nutrients. They will also consider how and why plant growers give plants the things they need to grow and reach maturity. They will then engage with a variety of activities relating to the continuing growth of young plants, and take care of any plants they have been growing themselves.</p> <p>Children will know how the roots of plants grow, and why</p> <p>some ways in which plants grow above ground, and why</p> <p>why plant growth may be negatively affected</p>

				<p>the names of plants and animals in the local environment.</p> <p>that we need to care for the environment.</p> <p>Ways that we can care for our environment.</p>		
Lesson 5	<p>Year 1/2: To present information using accurate scientific drawings</p> <p>Activities: Children to choose a minibeast and complete an accurate scientific drawing of the animal. They must then label the drawing with body part names.</p> <p>Children will know: The name of the main parts of the structure of a minibeast.</p> <p>How to observe and draw the structure of a minibeast.</p>	<p>Year 1/2: To explore how we use our sense of touch.</p> <p>Activity: Go on a sensory trail – Give children key words describing how things feel. Children have to identify something in the school grounds that feel that way.</p> <p>Children will know: that they use their skin to sense touch.</p> <p>that we can recognise lots of different textures.</p> <p>How to use accurate scientific vocabulary to describe texture.</p>	<p>Year 1/2: To know how we change an objects shape when recycling.</p> <p>Activities: What does recycling mean? Go through which materials can be recycled and look at examples that are easily found at home and school. Can children tell you which materials can be recycled? Discuss local recycling arrangements. Order the recycling process.</p> <p>Children will know: Which materials that can be recycled.</p> <p>that plastic materials are sorted and changed into new products.</p> <p>why it's important to recycle.</p>	<p>Year 1/2: To be able to explain the life cycle of a frog.</p> <p>Activities: Remind about life cycles studied so far. '<u>amphibian</u>' - means '<u>having two lives</u>' - can live on land or in water. The young (larvae) often look very different to their parents. Focus on frog life-cycle. If you are following development of real tadpoles make charts and drawings over time. Look at different species of frogs.</p> <p>Children will know: Children to be able to clearly explain the life cycle of a frog.</p> <p>Children relate life processes to animals and plants found in the local environment.</p> <p>Children understand how to treat animals with care and sensitivity.</p>	<p>Year 1/2: To create a product based on scientific findings.</p> <p>Activities: To make object using material that are best based upon the scientific findings.</p> <p>Children will know: Which materials to choose based on their</p> <p>They can use multiple materials where appropriate to create their object.</p> <p>how evaluate and adapt their ideas when necessary..</p>	<p>Year 1/2: To begin to describe how plants mature and reproduce.</p> <p>Activities: Children will learn about what happens when plants reach maturity and, hopefully, produce fruits containing seeds. They will also consider how they, and commercial plant growers, harvest mature plants, including how plants grown at home may be harvested in a way that allows them to re-grow and produce more edible leaves or fruits.</p> <p>Children will know: common features of mature plants</p> <p>some ways in which mature plants can disperse their seeds</p> <p>ways in which some mature crop plants may be harvested</p>
Lesson 6	<p>Year 1/2: To identify what is alive, dead and never been alive.</p> <p>Activities: Sort objects/living things into alive, dead and never been alive.</p> <p>Children will know: that some things are alive, dead and some have never been alive.</p> <p>How to sort objects into group based on if they have been alive, dead and never been alive.</p> <p>Some reasons for why things are alive, dead or never been alive</p>	<p>Year 1/2: To understand the relationship between different senses.</p> <p>Activity: explore how we use many sense together to create our view of the world. Anything that we sense shapes our view of the world. Design and make a food dish which considers all of the senses.</p> <p>Children will know: which body part is associated with each sense.</p> <p>that we use multiple senses at one time.</p> <p>how each sense is being used in a particular scenario.</p>	<p>Year 1/2: To find out about people who have developed useful new materials</p> <p>Activities: learn about the process of macadamisation and emphasise that this was a significant change in road building. Until then rural roads were often muddy, slippery and dangerous and urban roads were cobbled making them bumpy and uncomfortable to travel over. macadam roads were developed and how the use of tar was added to stabilise them. These roads then became known as tarmac roads and then tarmac. Children discuss where they think tarmac is used today. Are children able to explain how his invention has impacted on life today?</p> <p>Children will know: that new materials are being created to solve problems.</p> <p>that existing materials are combined to make new materials.</p> <p>Tarmac was invented to stop roads being muddy slippery and dangerous.</p>	<p>Year 1/2: To know the lifecycle of a dragon fly.</p> <p>Activities: Mini-beasts – scientist are always asking questions – what questions do we want to find out about the mini-beasts? the last lifecycle we are going to learn about is the dragonfly. Show the children the life cycle sequence</p> <p>Children will know: how to ask questions and decide how we can answer them.</p> <p>that all living things have a life cycle.</p> <p>the life-cycle of a dragon-fly.</p>		

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Knowledge</p>	<ul style="list-style-type: none"> • A habitat is where things lives. It provides shelter, food and protection. • Different animals are found in each habitat because they are suited to them. • We can sort all objects into 3 categories living, non-living, never alive (examples given) 	<ul style="list-style-type: none"> • The 5 senses are touch, taste, smell, sight, hearing. • Touch is linked with skin, taste with the tongue, hearing with the ears, sight with the eyes, smell with the nose. • A prediction suggests the outcome based on what they already know. 	<ul style="list-style-type: none"> • Wood, metal, plastic, fabric, glass, brick and paper are common materials. • We can group objects together based on their properties. • The properties of materials make them suitable for purposes. • The shape of an object can be changed by squashing, twisting, bending, stretching. This is used in the process of recycling. 	<ul style="list-style-type: none"> • All living things have a life cycle and this involves young growing into adults and producing offspring. The offspring then grows into an adult and this repeats. • The four stages of a butterflies lifecycle. • The lifecycle of a plant. • The lifecycle of a tree. 	<ul style="list-style-type: none"> • Materials have specific properties that make them suitable for different uses. • We should only change one variable (the material) when investigating. • We can draw conclusions from our investigations and use this to make products. 	<ul style="list-style-type: none"> • Most plants need sunlight, water, air warmth and nutrients to grow. • The main parts of a plant: roots, stem, leaves, flower, seed. • Plants begin life as a seed, they then germinate, grow roots into the soil. The stem grows towards the sunlight and eventually produces a flower.
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