



Adel Primary School

SCIENCE Curriculum

Early Years to Year 6

Our science curriculum is designed to ensure that all pupils:

- Develop scientific knowledge and conceptual understanding across the disciplines of biology, chemistry, and physics.
- Understand the nature, processes, and methods of science through a variety of scientific enquiries, enabling them to answer questions about the world around them.
- Acquire the scientific knowledge needed to appreciate the uses and implications of science in today's society and for the future, including the need to ensure sustainability in the use of materials and natural resources.

The curriculum follows a clear sequence of knowledge and concepts, ensuring pupils build secure understanding at each stage before progressing. This approach prevents misconceptions and supports smooth transitions between year groups. Pupils are encouraged to:

- Use accurate technical terminology and develop an extended scientific vocabulary.
- Apply mathematical skills to scientific contexts, including data collection, presentation, and analysis.
- Engage with science in meaningful contexts to foster motivation and curiosity.



EYFS

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
What makes me a me? Amazing Autumn	How do people celebrate? Wonderful Winter	Where will we explore today? Super Spring	What makes a story amazing? Super Spring	Where in the world do animals live? Sizzling Summer	What makes our world amazing? Sizzling Summer
<p>Humans (senses) / Seasons and weather Explore each of our senses. Welly walk into Conservation area to look at Autumn – using senses to explore. Create an autumn collection. Introduce daily weather chart.</p> <p>Human growth Talk about similarities and differences between us now and as a baby.</p> <p><i>Vocabulary: body, senses</i></p>	<p>Humans (senses) / Seasons and weather Winter welly walk – look at seasonal changes and explore the natural world around us. Record weather on large weather chart - what do we notice each month? Begin to describe what they see, hear and feel whilst outside.</p> <p>Changing states of matter Investigate the melting of ice.</p> <p><i>Vocabulary: seasons, weather, freezing, melting</i></p>	<p>Seasonal changes Welly Walk – look at seasonal changes.</p> <p>Space Space adventures.</p> <p><i>Vocabulary: galaxy, solar system, planet, nest</i></p>	<p>Plants Plant beans to create our own beanstalk and understand what they will need to help them to grow.</p> <p>Properties of materials Explore what makes the strongest house. Explore what makes the best mattress for the princess.</p> <p>Humans (senses) / Seasonal changes Welly walk – explore seasonal changes and describe what they see, hear and feel whilst outside.</p> <p><i>Vocabulary: growth, materials</i></p>	<p>Seasonal changes Welly walk – explore seasonal changes and the natural world around them.</p> <p>Animals – habitats, life cycles, animals and their young To explore the differing habitats of animals (jungle and Polar regions). To understand the lifecycle of chicks - explore the growth of chicks from egg to chick.</p> <p><i>Vocabulary: habitat, chick, lifecycle, froglet, minibeast</i></p>	<p>Seasonal changes / living things and their habitat Welly walk – explore seasonal changes.</p> <p>ELG: The Natural World</p> <ul style="list-style-type: none"> • Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps. • 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.



Year 1

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Seasonal Changes Lesson 1: Are all leaves the same? Observe changes across the four seasons, day length and weather. Know that differences in leaves can be used to help identify plants. (<i>identify, leaf/leaves, plant, weather</i>)</p>	<p>Seasonal Changes Lesson 2 Which animals share our space? Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Know that different animals live in different places (<i>bird, season</i>) Lesson 3 Do all trees shed their leaves? Know the difference between deciduous and evergreen trees (<i>deciduous, evergreen, tree, season</i>)</p>		<p>Seasonal Changes Lesson 4 Are all flowers the same? Know that spring is the season where the temperatures and the amount of daylight begin to rise, plants begin to grow and hibernating animals emerge. (<i>flower, petal</i>) Lesson 5 Which birds visit our bird feeders? Know that different types of birds can be seen at different times of the year. (<i>observe, bird, colour, insect, nest</i>)</p>		<p>Seasonal Changes Lesson 6: How has our space changed over the year? Learn that summer is the warmest season of the year, when the sun is highest in the sky, the days are longest and some flowering plants produce fruit.</p>
<p>Human body and senses Lesson 1: Is everybody's body the same? Identify, name, draw and label basic parts of the human body and say which part of the body is associated with each sense (<i>group, diagram, brain, mammal, sense, sight, torso</i>) Lesson 2: How can we explore the world using our sense of touch? Learn that we can use any part of our skin to feel things and that this is our sense of touch. (<i>sense, brain, touch</i>) Lesson 3: What can we hear? Learn that our ears enable us to hear and that this is our sense of hearing. Sort sounds into loud and quiet (<i>hearing</i>) Lesson 4. What smells do we like and dislike? Learn that our nose enables us to smell and is our fourth sense. Explore which smells they like and dislike (<i>pattern, smell</i>) Lesson 5. What differences can our tongues taste? Learn that our tongues, along with noses and eyes, help us taste food and drink. Sort different foods into sweet and sour (<i>rank</i>)</p>	<p>Naming and describing materials Lesson 1. What material is this (part 1)? Identify and name a variety of everyday materials, including wood, plastic, metal. Learn that some materials are manufactured materials, natural materials that have been made into another material. (<i>manufactured, material, natural, property</i>) Lesson 2. What material is this (Part 2)? Group objects by the type of material they are made from. Learn that materials should be used carefully and can often be reused or recycled. (<i>magnifier, recycle, transparent</i>) Lesson 3. Is all paper the same? Learn that paper is a manufactured material made from wood, a natural source and that there are different types of paper. Sort types of paper into those that can be reused or recycled and those that can't. (<i>absorb/absorbent</i>) Lesson 4: Is all fabric the same? Know that there are different types of fabric with different properties. Learn that fabrics should be reused or recycled whenever possible (<i>reuse</i>) Lesson 5: How can we group objects made of different materials?</p>	<p>Properties and uses of materials Lesson 1. Can the same object be made from different materials? To distinguish between an object and the material from which it is made. Lesson 2 What properties do materials have? To describe the simple physical properties of a variety of everyday materials (<i>Adjectives and comparatives to describe properties of materials, opaque, transparent</i>) Lesson 3: Does it bend or stretch? To compare and group together a variety of everyday materials on the basis of their simple properties (<i>bar chart, bend, flexible, property, rigid</i>) Lesson 4 Do all materials get wet? Learn that some materials are absorbent, while others are not, and that this makes them useful for different purposes. (<i>absorb/absorbent, waterproof</i>)</p>		<p>Animals (vertebrates). Lesson 1: Who's who in the animal (vertebrate) world? Identify, name, describe and compare a variety of common animals including fish, amphibians, reptiles, birds and mammals. (<i>amphibian, bird, diet, fish, mammal, reptile, vertebrate</i>) Lesson 2: What's so special about birds? Learn that the features that make birds a distinct group are: eggs, beaks, claws, wings and feathers. Lesson 3: What makes an amphibian an amphibian? Learn that the things that make amphibians a distinct group are: they lay eggs, they live on land and in water and their diet changes with their stage of life. Lesson 4. Do fish have fingers? Learn that the things that make fish a distinct group are: they lay eggs, they have gills to help them breathe underwater, they have fins and a tail to help them swim and most fish have scales to protect them. Lesson 5. Are humans mammals? Learn the things that make mammals a distinct group. Identify and name a variety of common animals that are carnivores, herbivores and</p>	<p>Identifying plants and their parts. Lesson 1: What wild and garden plants can we find around school? To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees (<i>roots, stem</i>) Lesson 2: What parts of the plant grow above the ground? To identify and describe the basic structure of a variety of common flowering plants, including trees. Lesson 3: What parts of the plant grow under the ground? Learn that there are two types of roots: tap roots and branching roots. Observe roots on living plants to notice similarities between different types of roots. Lesson 4 Why are trees plants? Learn that trees have stems which are called trunks and that these are covered in bark. Know that trees have leaves, roots and that most have flowers (<i>trunk</i>). Lesson 5: What are the similarities and differences between plants that have flowers? Name and compare the parts of different plants. Design own plant including the correct parts.</p>



	Distinguish between an object and the material from which it is made.			omnivores (<i>carnivore, classify, diet, herbivore, omnivore</i>)	
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Year 2

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Choosing Materials Lesson 1: Is that a good choice of material? Learn that properties of materials can make them suitable or unsuitable for a purpose. Record their observations in simple drawings and/or a simple table. <i>(absorb/absorbent, durable, flexible, material, opaque, property, rigid, transparent, waterproof)</i> Lesson 2: Which ball bounces highest? Carry out a comparative test to investigate which ball is the bounciest. Record observations in a simple table. Learn how to present their results in a physical bar chart. <i>(bar chart, comparative test, enquiry, bouncy/bounciness, elastic/elasticity)</i> Lesson 3: Which materials are good for a toddler's play dungarees? Carry out a comparative test to investigate which fabric is the most durable. Record observations in a simple table. Lesson 4: Who develops new materials? Learn that inventors discover new uses for materials and create new materials. Learn that inventors design objects using their knowledge of the properties of materials. Learn about Charles Macintosh's invention of a material used to make the mackintosh coat. <i>(flexibility)</i></p>	<p>Changing Materials Lesson 1: How can I change the shape of an object? Learn that some materials have these properties: flexible, rigid, stretchy, squashy, elastic or stiff. Learn that squashing, bending, stretching and twisting can change the shape of some materials and objects. Test objects to find out whether their shapes can be changed. Recognise that different objects made from the same material can have different properties. <i>(squashy/squash, stretchy/stretch, twist)</i> Lesson 2: What properties allow a material to be changed? Learn that different properties allow the shape of materials to be changed in different ways. Test to identify whether materials are flexible, rigid, stretchy, squashy, elastic or stiff. <i>(rigid, stiff)</i> Lesson 3: Which material is fit for purpose? Apply knowledge about materials which are flexible, rigid, stretchy, squashy, elastic or stiff to revisit the idea that objects are made from materials with properties that make them fit for purpose. Lesson 4: What can pushes and pulls do? Extend knowledge of how inventors discover and create new materials. Describe actions (squashing, bending, twisting and stretching) used to change the shape of a material as 'pushes' or 'pulls'.</p>	<p>Growing Up (Animals and Humans) Lesson 1: How do animals change as they grow? To notice that animals, including humans, have offspring which grow into adults. Observe how animals grow and change through their life cycle (<i>adult, amphibian, bird, birth, fish, insect, invertebrate, life cycle, mammal, reptile, vertebrate</i>) Lesson 2: What do animals need to survive? To find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Learn that a human baby's essential needs are completely dependent on adults. <i>(survive)</i> Lesson 3: How can we sort food into groups? Learn more about food as one of the key needs for survival for humans and about using the Eatwell Guide to help them group, classify and identify simple foodstuffs. <i>(diet, healthy)</i> Lesson 4: How can humans stay clean? Learn why they need to be clean and what types of activity constitute good hygiene. Learn how to wash hands properly and practise brushing teeth. <i>(hygiene/hygienic)</i> Lesson 5: How can humans stay active? Learn about what constitutes physical activity and movement and the importance of being physically active for at least 60 minutes per day</p>	<p>Growing Seeds and Bulbs Lesson 1: How do plants grow and change over time? Observe and describe how seeds grow into mature plants. Learn that it is important for scientists to make accurate observations. <i>(accurate, enquiry, observing over time, flower, germinate / germination, leaf, mature, roots, seed, stem)</i> Lesson 2: How are seeds and bulbs different? Learn to identify the physical similarities and differences between seeds and bulbs. Learn how to plant a bulb so that it can sprout and grow into a mature plant. <i>(explain/explanation, bulb)</i> Lesson 3: What do seeds need to germinate? Learn how to set up a comparative test to determine which conditions are required for germination (water/no water; light/dark). Learn that in a comparative test only one condition should be changed at a time. <i>(comparative test, effect, fair/fairness, test conditions)</i> Lesson 4: How tall will they grow? Learn how to produce a bar chart showing the relationship between seed size and height of the mature plant that grows from it. <i>(bar chart, pattern, rank, mature)</i> Lesson 5: What have we learnt about how a seed germinates? Use the results of tests set up to learn what happens when a seed germinates and the conditions needed for germination.</p>	<p>Growing healthy plants Lesson 1: How can we care for our plants? Revisit the conditions required for seed germination. Learn that seeds germinate into seedlings, and seedlings grow into mature plants, which produce seeds. Identify whether a mature plant is healthy or unhealthy. Lesson 2: Do mature plants need light? Set up a comparative test to determine whether mature plants require light to grow. Make predictions based on prior knowledge to suggest what might happen in their enquiry. Lesson 3: Does temperature affect the growth of mature plants? Set up a pattern seeking enquiry to determine whether temperature has an effect on the growth of mature plants. Learn that some plants can live in hot conditions while others can live in cold conditions. <i>(pattern seeking, results, temperature, thermometer)</i> Lesson 4: Do mature plants need water? Compare mature plants which have received water with those that have not. Set up a comparative test enquiry to answer the lesson question. <i>(soil)</i> Lesson 5: What have we learnt about what mature plants need to grow healthily? Identify the conditions required for a mature plant to grow healthily and compare the conditions required for plant</p>	<p>Local habitats Lesson 1: Are the things I find alive, have never been alive or once were alive? To explore and compare the differences between things that are living, dead, and things that have never been alive <i>(alive, breathe, dead, never been alive, once alive)</i> Lesson 2: What lives in my tree? To identify that most living things live in habitats to which they are suited, describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other <i>(habitat, shelter, survive)</i> Lesson 3: What animals live in this woody habitat? To identify and name a variety of plants and animals in their habitats, including micro-habitats. <i>(decay, decompose, habitat)</i> Lesson 4: What animals live in this grassy habitat? Learn that different living things are suited to living in different parts of a grassy habitat Lesson 5: What do animals that live in the woods eat? To 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>(order, consumer, depend, food chain, omnivore, producer)</i> Lesson 6: What do animals that live in the pond eat? Learn that plants and animals in a pond habitat depend on each other for food, and that this</p>



	Learn about William Harbutt's invention of Plasticine.	Lesson 6: How do humans stay healthy? Apply learning about the importance of physical activity, eating the right amounts of different foods and being hygienic	(<i>effect, seedling, stem</i>)	growth with those for seed germination.	can be shown in a food chain. Learn that all food chains begin with a plant.
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Year 3

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Rocks, soils and fossils</p> <p>Lesson 1: How are rocks different and what rock is this? To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (<i>identifying and classifying, enquiry, crystal, rock, identify, material, observe/observation, property, test</i>)</p> <p>Lesson 2: What are rocks used for? Learn that specific properties of different rocks make them useful for different purposes and how rocks change over time depends on their physical properties. Test the properties of a selection of rocks; record evidence from their tests. (<i>hardness, weathering, absorb/absorbent, comparative test, durable, waterproof</i>)</p> <p>Lesson 3: How are soils different? To recognise that soils are made from rocks and organic matter. Test and identify different soils. (<i>Microscope, erosion, organic</i>)</p> <p>Lesson 4: Which soils hold water? Learn that different types of soil have different properties including permeability. Test a variety of soil samples. Record results in a table they have drawn. (<i>evidence</i>)</p> <p>Lesson 5: What is this fossil? To describe in simple terms how fossils are formed when things that have lived are trapped within rock. (<i>fossil, palaeontologist, remains, sediment</i>)</p>	<p>Light and shadows</p> <p>Lesson 1: What do we need to see? To recognise that they need light in order to see things and that dark is the absence of light (<i>bright, dark / darkness, dim, light, light source, Sun</i>)</p> <p>Lesson 2: Which object is the most reflective? To notice that light is reflected from surfaces. Use a data logger/light meter app to measure the amount of light in lux (lx). Use measurements to compare and rank how reflective objects are. (<i>data logger, lux, reflect, reflective, sensor</i>)</p> <p>Lesson 3: How are shadows made? Learn that a shadow is made when the light from a light source is blocked by an opaque object. Compare the darkness of shadows cast by objects made from materials of different opacity. (<i>predict/prediction, opaque, shadow, translucent, transparent</i>)</p> <p>Lesson 4: Is my shadow like me? Learn that sunlight can be dangerous but there are ways to protect ourselves. Learn that shadows are black, featureless and the same shape as the object creating them. Draw own shadow and explore how its size and shape can change. (<i>sunlight, ultraviolet (UV)</i>)</p> <p>Lesson 5: How can we change the size of a shadow? To find patterns in the way that the size of shadows change.</p>	<p>Forces: friction and magnets</p> <p>Lesson 1: What makes it move? Learn that a force is a push or pull that can make something move. Learn that when the object providing the force is touching the object, it is moving. This is called a contact force. Explore how pushing and pulling forces can move an object. (<i>diagram, contact force, force</i>)</p> <p>Lesson 2: How long does a top spin on different surfaces? Learn to use a stopwatch to measure time passing. Measure how long a spinning top spins on different surfaces. Record results in a table.</p> <p>Lesson 3: How well can an object slide on different surfaces? Use a ruler to measure a height. Make predictions based on results gathered and record their results in a table.</p> <p>Lesson 4: How do magnets affect each other? Learn that magnets have two poles – a south pole and a north pole. Record observations using labelled diagrams. Learn that like poles repel and unlike poles attract. (<i>attract, like poles, magnet, north/south pole, repel</i>)</p> <p>Lesson 5: Which materials are magnetic? Learn that some metals, but not all, are magnetic and that non-metals are not magnetic. Use a magnet to test objects to identify and classify magnetic and non-magnetic materials. (<i>classify/classification</i>)</p>	<p>Movement and nutrition of the human body</p> <p>Lesson 1: What nutrition do we get from our food? To identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food. (<i>calcium, carbohydrate, diet, digestive, energy, fibre, minerals, nutrient, protein, sugar, fat, vitamin</i>)</p> <p>Lesson 2: Which nutrients are in school midday meals? Learn that different types of food in the meals we eat contain very different amounts of nutrition. (<i>balanced diet</i>)</p> <p>Lesson 3: What is in a human skeleton? Learn the names of some of the bones in the human body. Learn that some bones protect our soft internal organs. (<i>brain, calcium, heart, joints, lungs, organ, ribs, skull, spinal cord, spine, X-ray</i>)</p> <p>Lesson 4: How do muscles help humans to move? Learn that muscles work in pairs to move the bones in our skeleton. Carry out activities designed to use different muscles. (<i>cartilage, muscle, tendon</i>)</p> <p>Lesson 5: How are vertebrate and invertebrate bodies supported? Learn that vertebrate bodies are supported by a bony skeleton including a spine and that invertebrates have no bony skeleton - some have an exoskeleton or a hydrostatic skeleton (<i>amphibians, birds, exoskeleton, fish, fluid,</i></p>	<p>Flowering plants and plant growth</p> <p>Lesson 1: What do leaves do? Revisit the needs of mature plants to grow healthily. Plan a comparative test enquiry to find the effect of removing a plant's leaves. Learn that leaves capture sunlight and that the more sunlight a plant receives, the faster and bigger it will grow. (<i>capture, flower, leaf, roots, stem</i>)</p> <p>Lesson 2: What do roots and stems do? Learn that roots anchor the plant in the ground and absorb water and nutrients. Learn that water is transported around the plant in tubes which run from the roots through the stem to the leaves and flowers. Set up an 'observing over time' enquiry. (<i>absorb, anchor, nutrient</i>)</p> <p>Lesson 3: What are the functions of the parts of a flowering plant? Set up a comparative test enquiry to compare the growth of a plant which has access to air and one that does not. Learn that a plant makes its own food from air and water, using the Sun's light. (<i>consumer, food chain, producer</i>)</p> <p>Lesson 4: What happens if plants do not have enough space? Learn that plants which are overcrowded do not have enough space and will compete for sunlight, water and nutrients. Set up a comparative test enquiry to show how space has an effect on how fast and big a plant grows.</p> <p>Lesson 5: How are plants different? Learn that different plants live in</p>	<p>Flowering plants life cycle</p> <p>Lesson 1: What is inside a flower? Learn that flowers produce seeds. Learn that a flower has male parts that produce pollen and a female part that contains the ovary which produces ovules. Dissect a flower. (<i>carpel, flower, germinate, ovary, ovule, petal, pollen, seed, sepal, stamen</i>)</p> <p>Lesson 2: What is animal pollination? Learn that pollination is the transfer of pollen from one flower to another. Learn that pollinators (mainly insects) can be attracted to a flower by its colour and its scent. Learn that pollinators pick up nectar and pollen when they have visited a flower; pollen is then transferred to the carpel of another flower. (<i>nectar, pollination, pollinator, scent</i>)</p> <p>Lesson 3: What is wind pollination? Learn that some flowers are pollinated by the wind. Identify the similarities and differences between wind- and insect-pollinated flowers.</p> <p>Lesson 4: What are fruits? Learn that a fruit develops from a flower that has been pollinated and that after pollination the ovary gets bigger and becomes the fruit. Learn that all fruits contain at least one seed. (<i>ripe</i>)</p> <p>Lesson 5: How are seeds dispersed? Learn that seeds are dispersed to avoid competition with the plant that produced them. Learn that seeds are dispersed by wind, water, animals eating fruit, seeds</p>



<p>Lesson 6: Who was Mary Anning and how did she become a palaeontologist? Learn about Mary Anning, her family life and her role as a scientist. Learn more about how fossils formed and where and how they might be found. A Scientist Just Like Me: Palaeontologist - Dr Emma Nicholls.pdf</p>	<p><i>(conclusion, pattern)</i></p> <p>A Scientist Just Like Me: Microscopist-Prof.-Robert-Pal.pdf</p>	<p>Lesson 6: How strong are the magnets? Test magnets to find out how strong they are. Record results in a table and use these to prove that there is no pattern linking the size of a magnet and its strength. <i>(Evidence, non-contact force)</i> A Scientist Just Like Me: Civil engineer - Jyoti Sehdev (1).pdf</p>	<p><i>insects, invertebrate, mammal, reptile, vertebrate)</i> Lesson 6: How are human skeletons different to other vertebrates? Learn about the similarities and differences between human skeletons and those of other vertebrates. A Scientist Just Like Me: Animal-scientist-Hella-Peter.pdf</p>	<p>different habitats. Explain how the shapes and functions of a plant's leaves, stems and roots help it survive in a particular habitat (adaptation) <i>(research, adaptation, adapted, habitat)</i></p> <p>A Scientist Just Like Me: Animal-scientist-Hella-Peter.pdf</p>	<p>becoming attached to an animal, and through explosions of a seed pod (fruit). Explain how the structure of the seed and fruit relates to the way that it is dispersed. <i>(burr, dispersal, nutrient)</i> A Scientist Just Like Me: Ecological entomologist - Dr Ben Woodcock.pdf</p>
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Year 4

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Digestion and food chains Lesson 1: Where does all the food we eat go? To describe the simple functions of the basic parts of the digestive system in humans <i>(sequence, anus, constipation, diarrhoea, diet, digestion, energy, large / small intestine, nutrient, oesophagus, rectum, stomach, vomit)</i> Lesson 2: What teeth do humans have? To identify the different types of teeth in humans <i>(canine, incisor, jaw, milk teeth, molar)</i> Lesson 3: What do teeth do in the digestive system? Learn about the digestive functions of the different types of teeth: incisors for cutting, canines for tearing and molars for grinding. <i>(carnivore, herbivore, omnivore)</i> Lesson 4: What happens to food after we put it in our mouths? Learn that food is broken down mechanically and chemically and then absorbed into the body. Identify where nutrients and water are absorbed. <i>(chemicals, mechanical, saliva)</i> Lesson 5: What do animals eat? To construct and interpret a variety of food chains, identifying producers, predators and prey <i>(consumer, decompose, depend, energy, food chain, food web, predator, prey, producer)</i></p>	<p>Electricity: circuits Lesson 1: What makes an appliance work? Learn what a device or appliance is, identify common electrical appliances and sort electrical appliances depending on whether they require mains electricity, batteries, or batteries charged using mains electricity. <i>(battery, electrical appliance, electricity, mains)</i> Lesson 2: How can you light the bulb? Learn how to make a component work by putting it in a complete circuit and use 'class symbols' to record the circuits made. <i>(diagram bulb, buzzer, cell, circuit, connection points, electrical component, motor)</i> Lesson 3: What does a switch do? To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit <i>(circuit, closed circuit, open circuit, switch)</i> Lesson 4: Why doesn't the circuit work? To 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 Lesson 5: Which materials conduct electricity? To recognise some common conductors and insulators, and associate metals with being good conductors.</p>	<p>Sound Lesson 1: How are sounds made? To identify how sounds are made, associating some of them with something vibrating <i>(pitch, sound, sound source, vibrate/vibration, volume)</i> Lesson 2: How do sounds reach our ears? To recognise that vibrations from sounds travel through a medium to the ear <i>(comparative test, conclude/conclusion, data logger, sensor, decibel)</i> Lesson 3: How can we change the volume of a sound? To find patterns between the volume of a sound and the strength of the vibrations that produced it <i>(variable, air, gas, liquid, solid)</i> Lesson 4: How does the volume of a sound change as we move away from the source? To recognise that sounds get fainter as the distance from the sound source increases. Lesson 5: How can we change the pitch of a sound? Learn how notes of different pitches are played by varying the length of the air column in wind instruments. Lesson 6: What affects the pitch of a plucked note? Learn that the length, thickness or tautness of a band or string affects the pitch of the note it plays.</p>	<p>Materials - Human impact on the environment Lesson 1: What is the impact of litter in our school? Learn which types of litter can be recycled and identify who or what might be affected by the presence of litter in their school grounds. Consider how to reduce the amount of litter. <i>(compost, environment, recycle)</i> Lesson 2: How do materials change over time? Learn that decomposition or decay is the rotting of once-lived things through the action of bacteria and fungi into very small pieces that can be used to help other life grow. Learn that some materials, including plastics and glass, cannot decompose. <i>(biodegradable, decay, decomposer, fungi, micro-organism, organic, organism, soil)</i> Lesson 3: How do microplastics get into the food chain? Learn that plastic pollution is the introduction into the environment of plastics which cause harm to living things and explore how this affects the whole food chain. <i>(filter, pollution)</i> Lesson 4: How can we prevent microplastics from getting into our seas and oceans? Learn that our seas and oceans are polluted with plastics which are entering the food chain. Carry out a comparative test enquiry to find out which material is best at filtering out microplastics. Lesson 5: How can we clean up birds affected by an oil spill? Learn that oil, from oil spills at sea, harms</p>	<p>States of matter - Changes in state Lesson 1: Is this material a liquid or a solid? Classify materials as solids or liquids by observing their properties <i>(volume, flexible, granule/granular, opaque, powder/powdery, transparent, viscous)</i> Lesson 2: How is temperature measured? Make careful observations of melting ice. Observe how water expands as it is heated <i>(data logger, degree Celsius (°C), scale, sensor, temperature, thermometer, expand, freeze/frozen, heat-sensitive, ice, melt)</i> Lesson 3: What difference does temperature make to how quickly the ice blocks melt? Plan and carry out a fair test; make and record accurate measurements of melting ice. <i>(bar chart, fair test)</i> Lesson 4: What are melting and freezing? Learn how different materials behave when they are heated or cooled; measure the melting points of different materials. Lesson 5: Are spaces really empty? Learn about the properties of a gas and that spaces that appear to be empty are filled with air/gases. <i>(carbon dioxide, compress / compression, helium, oxygen)</i> Lesson 6: What is evaporation and how does it help to get things dry? Plan and carry out a fair test enquiry involving evaporation <i>(evaporate / evaporation, water vapour)</i></p>	<p>Living things in their habitat - Classification of plants and animals Lesson 1: How are living things classified? Learn that animals are then grouped into the five vertebrate groups and six invertebrate groups and that plants can be grouped as flowering and non-flowering. <i>(amphibian, annelid, arachnid, bird, crustacean, deciduous, evergreen, fish, flower, flowering plant, insect, invertebrate, mammal, mollusc, myriapod, non-flowering plant, organism, reptile, vertebrate)</i> Lesson 2: How are vertebrates classified? Learn the characteristics of the five vertebrate groups, including the terms 'warm-blooded' and 'cold-blooded'. <i>(cold-blooded, warm-blooded)</i> Lesson 3: How are invertebrates classified? Learn about six of the invertebrate groups and the features that make them distinct from each other. <i>(annelid, arachnid, crustacean, exoskeleton, insect, invertebrate, mollusc, myriapod, skeleton)</i> Lesson 4: Can you use a branching key? To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. <i>(branching key)</i> Lesson 5: What is this living thing? Use several different branching keys to identify a range of living things</p>



<p>Lesson 6: What do animal teeth tell us? Use knowledge of teeth to identify animals as herbivores, carnivores or omnivores. Use information about animals living on African grasslands to construct food chains. (<i>classify, evidence</i>) Senior-Lecturer-in-Materials-Modelling-Dr-Parvez-Alam.pdf</p>	<p>(<i>Carroll diagram, refute, support, Venn diagram, electrical conductor, electrical insulator</i>) Dr Javier Pereda Web Scientist and Designer</p>	<p>Laser Physicist - Professor Colin Webb.pdf</p>	<p>animals living in ocean habitats. Plan, carry out and evaluate a comparative test enquiry to find out which method is best for removing oil from a feather. Environmental chemist- Pauline de Bigault de Cazanove.pdf</p>	<p>Lesson 7: Where did the water come from? Observe and learn about the process of condensation (<i>boil, condense/condensation</i>) Lesson 8: Where does the rain come from? Learn about the water cycle; link this to changes of state (<i>change of state, cloud, rain, snow, water vapour</i>) Renewable Materials Engineer- Dr Raquel Prado.pdf</p>	<p>Zoologist-Tanesha-Allen-2024.pdf</p>
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Year 5

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Forces and mechanisms Lesson 1: What is the friction between different surfaces? Learn what friction is and use a force meter to measure it. (<i>comparative test, dependent variable, independent variable, precise, force, force meter, friction, Newton (N)</i>) Lesson 2: Why do some objects fall faster than others? Learn what gravity is and that air resistance is a force that slows down an object. (<i>refute, support, air resistance, contact force, gravity, impact, non-contact force</i>) Lesson 3: How does the size of the canopy affect the time it takes a parachute to fall? Use repeat readings to increase the accuracy of measurements; evaluate data and draw a conclusion. (<i>accuracy, conclude/conclusion, evaluate, line graph, precise</i>) Lesson 4: How does the shape of an object affect its movement in water? Learn what water resistance is and use this knowledge to make predictions. Find either the mean or median average. (<i>water resistance</i>) Lesson 5: How does the number of pulleys affect the force needed to lift a load? Learn what a pulley is and that the more pulleys in the mechanism, the less pulling force is required (<i>load, mechanism, pulley</i>) Lesson 6: How does the length of the lever affect the force needed to lift a load? Carry out a fair test to</p>	<p>Earth and Space Lesson 1: What's in space? Learn about the main bodies found within and beyond our solar system, including shape and relative sizes (<i>moon, planet, solar system, star, Sun</i>) Lesson 2: How do the planets move? Learn that the planets have different lengths of orbital paths and of year and identify a pattern in the data. (<i>orbit</i>) Lesson 3: How does the position of the Sun in the sky change? Demonstrate practically, and observe using images, how the changing position of the Sun causes changes to shadows. (<i>light source, opaque, shadow</i>) Lesson 4: What causes day and night? Observe and explain how the rotation of the Earth on its axis causes day and night, the apparent movement of the Sun across the sky and changes in shadow length and position (<i>axis, rotate</i>) Lesson 5: How does the Moon move? Model how the Moon orbits and rotates. Lesson 6: What patterns can we find in data about the planets? Learn how to interpret and identify patterns from scatter graphs.</p>	<p>Properties and uses of materials Lesson 1: How can we compare and group materials? Learn technical vocabulary to accurately describe the properties of a range of materials. Distinguish between an object and the material it is made from. (<i>absorb/absorbent, brittle, criterion, durable, ductile, elastic/elasticity, electrical conductor/ insulator, flexible, impermeable, magnetic, malleable, permeable, property, rigid, thermal conductor/insulator, translucent, transparent</i>) Lesson 2: Which materials did the builders use when constructing our school and why? Conduct a 'wear and tear' survey of materials used in the school building and write a report to communicate the findings. (<i>wear and tear, weathering</i>) Lesson 3: Which liquid is the thickest? Carry out a comparative test, exploring the viscosity of different liquids (<i>viscosity/viscous</i>) Lesson 4: Who invents things? Learn more about how inventors use materials in new ways. Invent a new object made of a material that is fit for purpose based upon its properties. Lesson 5: Can the same container keep cold things cold and hot things hot? Plan and carry out a comparative test to explore the properties of thermal insulators and their effect on cold and hot food, presenting data in a line graph.</p>	<p>Separating mixtures and changing materials Lesson 1: How can we separate mixtures? Learn that materials can be mixed in different ways and that mixtures can be separated. Make own sieves to separate a mixture of dry solids. (<i>separate/separating, sieve, solid</i>) Lesson 2: What happens when we mix liquids and solids? Learn that some solids dissolve in liquid water while others do not. Learn that solids which dissolve break down in water to form a solution. (<i>dissolve, evaporate /evaporation, filter, soluble/insoluble, saturated, separate/separating, solution</i>) Lesson 3: What makes a difference to how fast sugar or salt dissolves? Plan and carry out a comparative test to explore variables that might affect the rate at which solids dissolve. Learn how a dissolved solid can be retrieved from a solution using the process of evaporation. (<i>reversible</i>) Lesson 4: How can we clean up contaminated water? Use knowledge of separating mixtures to solve a real-world problem - test a variety of materials as filters to clean up contaminated water. (<i>condense, contamination, crystal/crystalline</i>) Lesson 5: What makes a change non-reversible? Learn that some changes of state are physical and reversible, while others are chemical</p>	<p>Plant and animal life cycles Lesson 1: How do flowering plants produce seeds? Learn about the life cycle of flowering plants, pollination and seed formation. Dissect a flower and identify the reproductive organs. (<i>anther, carpel, female, fertilisation, filament, flower, male, ovary, ovule, pollen, pollination, pollinator, reproduction, stamen, stigma, style</i>) Lesson 2: Do all plants have the same number of reproductive parts? Learn that different flowers have different numbers of petals, stamens or carpels, and that this helps botanists to identify them. Lesson 3: How can we grow more plants without using seeds? Learn that asexual reproduction creates plants that are identical to the parent. Grow more plants from cuttings. (<i>asexual, propagation</i>) Lesson 4: How do birds change over their lifetime? Learn that birds lay eggs with hard shells, and that these may or may not be fertilised. (<i>bird, embryo, hatch, life cycle, mate, organism, vertebrate</i>) Lesson 5: Do all mammals have the same gestation period? Look for a pattern between the gestation period of different mammals and their adult weight. Compare the life cycle of a mammal with the life cycle of a bird. Lesson 6: How do amphibians change throughout their life cycle? Sequence the life cycle of a common frog. Compare amphibian and bird</p>	<p>Human Growth Lesson 1: How do newborn babies change into teenagers? Learn about the different developmental stages in humans from newborn to teenager – physical changes and capabilities, social and learning. (<i>abdomen, childhood, gestation, infancy, large intestine, life cycle, mammal, newborn, oesophagus, organs, pregnancy, reproduction, small intestine, stomach, teenager, umbilical cord, uterus</i>) Lesson 2: How do girls become women? Learn that the female body changes as it goes through puberty – from about age 12. Learn that there is a fast period of growth and that changes occur that prepare women to have babies. (<i>breasts, genitals, hygiene, life cycle, menstruation / having a period, puberty, pubic hair, sweat, vagina</i>) Lesson 3: How do boys become men? Learn that the male body changes as it goes through puberty – from about age 12. (<i>Adam's apple, muscles</i>) Lesson 4: What is the human life cycle? To describe changes as humans develop through adulthood to old age.</p>



<p>investigate the relationship between the length of level and the force needed to lift a load. (<i>fulcrum, lever, load, mechanism, pivot, pulley</i>) Lesson 7: How do gears work? Investigate plastic gear wheels to find out how they work together in a system. Mechanical Engineer - Rafsan Chowdhury.pdf</p>	<p>Space Scientist - Dr Karen Aplin.pdf</p>	<p>Lesson 6: Which materials are absorbent, permeable or waterproof? Carry out an enquiry to evaluate different types of nappy. Explore the environmental impact of different types. (<i>compost, contamination, decompose, environment</i>) Analytical chemist - Candy Jiang.pdf</p>	<p>and non-reversible (<i>carbon dioxide, non-reversible</i>) Lesson 6: How much gas can be produced by a non-reversible change? Learn that non-reversible changes result in the formation of new materials, in this case carbon dioxide gas – test different combinations of materials. Materials scientist - Pearl Agyakwa.pdf</p>	<p>life cycles. (<i>amphibian, metamorphosis</i>) Lesson 7: Do all insects go through the same life cycle? Research insect life cycles, learning the difference between complete and incomplete metamorphosis (<i>exoskeleton, insect, larva, metamorphosis, pupa, thorax</i>) Veterinary surgeon - Dr Kelly Blacklock.pdf</p>	<p>Embryologist-Ruth-Sutton-V3.pdf</p>
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Year 6

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>What light does Lesson 1: How does light travel? Revisit learning from Year 3 about light sources, that we need light to see, and opaque and transparent materials. Learn that we can see a light source because some of the light from the source enters our eyes. Identify how observations provide evidence that light travels in straight lines. (<i>dark/darkness, light, light ray, light source, opaque, reflect, shadow, transparent</i>) Lesson 2: What can we change about a shadow? Build on knowledge of how shadows are formed. Create a model to show how the idea that light travels in straight lines explains the shape and size of shadows. Lesson 3: What might affect the size of a shadow? Plan a fair test to identify the effect of changing variables on the size of a shadow. Carry out a fair test and collect data to test prediction from Lesson 2. (<i>controlled variable, dependent variable, independent variable</i>) Lesson 4: What affects the size of a shadow? Present data from their shadow enquiry on a line graph and use it to identify a pattern that answers their enquiry question. Lesson 5: How is light reflected? Explore reflected images and light rays. Predict how light is reflected from the surface of a mirror or other reflective object. Test predictions and</p>	<p>Evolution and inheritance Lesson 1: How are living things different? Learn that there are similarities and differences between organisms from different species and between organisms of the same species. (<i>anomaly, classify, offspring, organism, reproduction /reproduce, species, variation</i>) Lesson 2: How is an organism adapted to live in its habitat? Learn that any feature of an organism which helps it to survive is called an adaptation and that these help it to survive in a specific habitat. (<i>adaptation, adapted, camouflage, habitat, migrate</i>) Lesson 3: How do an animal's adaptations help it to survive? Learn about different adaptations which help animals to survive in different habitats. Learn that if all the animals of the same species die out, this is called extinction. (<i>extinction/extinct, predator</i>) Lesson 4: What can fossils tell us? Learn that fossils provide evidence of organisms that lived millions of years ago. Some of these organisms became extinct while others evolved into new species. (<i>fossil</i>) Lesson 5: How does evolution happen? Learn that offspring are similar but not identical to their parents – similarities likely inherited from parents. Learn about the process of natural selection.</p>	<p>Classification of living things Lesson 1: How can we sort the mess? Revisit accepted grouping of living things and start to learn the additional groups not covered in Year 4 (fungi, protista and monera) and about the taxonomy of organisms. (<i>amphibian, annelid, arachnid, arthropod, bird, conifer, crustacean, echinodermata, fern, fish, flatworm, flowering plant, fungi, insect, invertebrate, mammal, mollusc, monera, moss, myriapod, organism, protista, reptile, taxonomy, vertebrate</i>) Lesson 2: What plants are there other than flowering plants? Revisit plant division classification and learn about the common observable features of different plants. (<i>carpel, cone, needle, spore, stamen</i>) Lesson 3: How can we classify animals? Revisit the phylum, class and order classification of animals. Learn how the taxonomy system leads to naming of individual species. (<i>warm-blooded</i>) Lesson 4: What else is living besides plants and animals? Learn about three kingdoms: fungi, protista and monera. Set up an observing over time enquiry to grow mould and record data of increasing complexity. (<i>fungi, monera, mould, protista</i>) Lesson 5: How can we identify living things? Create a branching key and learn what makes an effective one. (<i>branching key</i>)</p>	<p>Human Circulation Lesson 1: What is blood made of? Revisit knowledge that nutrients and water enter the bloodstream from the digestive system Learn that blood carries oxygen, nutrients and water and is made of plasma, red blood cells, white blood cells and platelets. (<i>blood, blood vessels, carbon dioxide, cell, chemicals, digestion, hormone, mechanical, nutrient, oxygen, plasma, platelets, red blood cells, small intestine, white blood cells</i>) Lesson 2: What is the circulatory system and what does it do? Identify the parts of the circulatory system. Learn that the blood must visit the lungs to pick up oxygen then revisit the heart to be pumped around the body. (<i>deoxygenated blood, heart, lungs, oxygenated blood</i>) Lesson 3: What is a heart and what does it do? Learn that the heart is a muscle. Learn that the left side pumps blood full of oxygen from the lungs, and the right side receives blood from the body that has had the oxygen used up. (<i>aorta, atrium, pulmonary artery, valve, ventricle</i>) Lesson 4: What are blood vessels and valves and what do they do? Learn that arteries are blood vessels that carry blood away from the heart and that veins are blood vessels that carry the blood from the rest of the body back to the heart. Learn that the heart and veins have valves to</p>	<p>Electricity: changing circuits Lesson 1: How do we light the lamp? Make circuits and record them using scientific diagrams using the recognised symbols (<i>standard symbols, battery, cell, circuit, connection points, electrical component, electrical conductor, electrical insulator, electricity, switch</i>) Lesson 2: How can we change a circuit? Learn that circuits can be changed in different ways. Identify independent variables, write scientific questions and gather data to answer a question. (<i>lux</i>) Lesson 3: How can we change the brightness of a lamp? Build and record circuits to gather evidence to answer a question. Compare and give reasons for variations in how components function. (<i>refute, support, voltage, volts</i>) Lesson 4: How can we change how other components work? Make predictions using knowledge from previous enquiries. Build and record circuits to gather evidence to support or refute the predictions. Lesson 5: How can we predict which circuit will have the brighter lamp? Make predictions using their knowledge from previous enquiries.</p>	<p>Body Health Lesson 1: How do we make healthy food choices? Learn that a balanced diet helps maintain or improve general health. Learn that a healthy diet is low in sugar, salt and fat. Revisit food groups and investigate the nutritional values of different snacks. Learn that fibre is important for maintaining a healthy digestive system. (<i>carbohydrate, fats, fibre, mineral, nutrient, nutrition, protein, salt, vitamin</i>) Lesson 2: What can happen if you don't eat a balanced diet? Learn that an unhealthy diet can lead to malnutrition and that malnutrition can result in unplanned weight loss, muscle loss or vitamin and mineral deficiencies. (<i>malnutrition</i>) Lesson 3: How does physical activity affect heart rate? Learn to take a pulse and investigate what happens to their heart rate during and after physical activity. Plot a line graph of own measurements and look for a pattern. Work out own recovery rate. Lesson 4: How does smoking or vaping affect your health? Learn about the long- and short-term effects on health of vaping and smoking cigarettes.</p>



<p>identify a pattern in observations (<i>reflect, reflection, reflective</i>)</p> <p>Lesson 6: How do we see objects?</p> <p>Review knowledge of how we see light sources and reflection of light rays in mirrors. Use a physical model and labelled diagrams to explain how we see objects.</p> <p><u>Microscopist-Prof.-Robert-Pal (2).pdf</u></p>	<p><i>evolution/evolve, inherited/inherit, natural selection</i></p> <p>Lesson 6: How did Wallace and Darwin come up with the idea of natural selection? Learn that both scientists used the observations from their travels to formulate their theories about natural selection and evolution.</p> <p><u>Evolutionary biologist - Telma G. Laurentino.pdf</u></p>	<p>Lesson 6: What lives here? Collect and identify a range of organisms. Use published branching keys to help with identification.</p> <p>Lesson 7: Where do these organisms fit in my key? learn how to create their own branching key based on real organisms</p> <p><u>Evolutionary biologist - Dr Kelsey Byers.pdf</u></p>	<p>stop blood going backwards. (<i>arteries, blood vessels, capillaries, pulse, veins</i>)</p> <p>Lesson 5: What did William Harvey find out about the circulatory system? Learn about the scientist who discovered that blood circulates within the body.</p> <p><u>Radiologist and Researcher - Michelle Williams.pdf</u></p>	<p><u>Software Engineer - Rebecca Harding.pdf</u></p>	<p><u>Cancer-Researcher-Dr-Chris-Staples (1).pdf</u></p>
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