

Red Hall's Science Vision

Leader: Mrs S. Luxon



The Intent of our
Science
Curriculum is

- To help your child become a **confident, capable and independent** scientist through **exciting** and engaging lessons, activities and experiments.
- We want children to be **curious** about the world around them and to develop the skills and knowledge they need, to **ask** questions and **explain** their own ideas and findings. Children are encouraged to follow their own fascinations, wonders and questions.
- To **be excited** about science and all of the weird and **wonderful** discoveries that come with this **inspiring** and **fascinating** subject.
- We want children to become passionate practitioners deepening their **curiosity** and **abilities**.
- **To learn and remember more** about science.

Why?

In the past when staff have assessed the children's science knowledge, we **found** that some children struggled to **understand** and **remember** simple facts and could not use the right **scientific** language, for example saying magnets are sticky - **yes**, of **course** they do **appear** 'sticky', however what is the **real** scientific explanation for this?

We know that some science ideas are **complicated** and we want to make sure these are **explained** in a way that children at different ages and abilities can **understand** and that gets them **interested in science**. It is **sometimes** hard for **parents** to give children scientific experiences at home (if the people **we** live with, found science lessons **tricky** when they went to school, how can they be sure they're teaching us the correct things?), so we want to do **all** we can to **expose our** children to different types of science and to really **explore** the world **we** live in. **If** a child lives nowhere near a wood or the sea how will they be able to explore these habitats and learn

about the **animals and plants** that are there. How can a child learn about all the different **rocks and soils** in one town or even, on one estate? How many chances does a child get to **explore** electricity at home when it can be **dangerous**?

This is **why we** make sure learning is **hands-on, real life**, using the teacher's experiences, videos, photos, experiments and if possible involves a trip, an **exciting hook** or a **memorable experience**.

Nothing makes us happier than when a child comes to school with a story about their **OWN** science exploring, such as a **family walk** where they collected leaves, a new puppy, a library book about dinosaurs and fossils or an experiment they tried **at home!**

The experiences your child will receive are

At Red Hall we want to ensure all children have chances to experience as much real life science as possible with activities, experiments and hands-on opportunities. All schools teach science, but only Red Hall teach it with this level of excitement, enthusiasm and opportunities.

During their time at Red Hall we hope to offer your child the following experiences

- **High quality** teaching from teachers and TAs
- Opportunities to **explore** and build an **exciting journey** into science understanding.
- Promote **investigation** and **exploration** skills.
- **Real life experiences**, e.g. trips to the seaside, a woodland
- **Hooks** into science e.g. letters from an 'alien' who wants to learn about earth animals
- **Whole school** science events such as the planet design competition
- Visits from **science, technology** and maths specialists
- Science, Technology and Maths (STEM) **week** activities annually
- **Opportunities** to have their work **celebrated** in assemblies or on social media
- Lots of **experiments and investigations**
- Access to **high quality** and varied science **equipment and resources**
- Links to local Science, Technology and Maths companies such as Cummins or Cleveland Bridge

By the end of their time at Red Hall, we hope our children have

- Made good **progress** from their starting point.
- Have a strong science **vocabulary** and **understand** what **key terms** mean.
- Had the chance to **try** a wide range of science **activities and experiences**
- Have developed the **knowledge** and **skills** they need to move into secondary school.
- Be **excited** by science and will want to continue to develop their learning both in school and **on their own**.
- Be **proud** of their work and their achievements.
- Feel confident with **taking risks** and following their own **open-ended questions** and **curiosities**.
- To be **interested** in their world, this can be plants, animals, planets, dinosaurs, **anything!**
- To become the thinkers and doers of the future.



Dream Believe Achieve



Early Years



<p>Links to previous knowledge</p>	<p>Early Years follow a child led curriculum for Understanding the World so topics can be covered in any term. By the end of your child's time in Early Years they will have explored these topics.</p>
<p>Early Years build on the knowledge your child has already had through their visits to parks, woodlands, the seaside, supermarkets and their experiences such as playing in the snow, their own pets and trying new foods.</p>	<p>Animals, including humans Pets, wild animals, sea animals, birds, UK animals, body parts, growing up</p> <p>Plants Growing, fruits, vegetables</p> <p>Seasons and weather Sun safety, melting, freezing, different seasons and weather</p> <p>Materials Building and Making</p> <hr/> <p>Working Scientifically Hands on experiences Explorations Outdoor Learning</p>

Early Years Key Vocabulary

Links to previous knowledge	Early Years follow a child led curriculum for Understanding the World so topics can be covered in any term. By the end of your child's time in Early Years they will have explored these topics.
Early Years build on the knowledge and vocabulary your child has already had through their visits to parks, woodlands, the seaside, supermarkets and their experiences such as playing in the snow, their own pets and trying new foods.	<p>Animals, including humans Names of common pets, farm animals, wild animals, birds, sea animals, UK animals, animal body parts, human body parts, senses, stages of human growth words, habitats</p> <p>Plants Tree, plant, flower, bush, leaf, petal, fruit, vegetable, names of common fruits and vegetables, names of UK plants and grown flowers,</p> <p>Seasons and weather Rain, sun, wind, snow, thunder, lightning, storm, clouds, spring, summer, autumn, winter, freeze, melt, umbrella, wellies, scarf, coat, hat, sun cream/block Sun safety, melting, freezing, different seasons and weather</p> <p>Materials Wood, paper, card, fabric (wool, cotton, felt), metal, plastic, glass</p>
	<p>Working Scientifically Explore, investigate, experiment</p>

Year 1

Links to previous knowledge	Autumn	Spring	Summer
Farm animals Pets Weather Growing Up Plants	<p>Seasonal Change Observe changes across four seasons Observe and describe weather associated with the seasons and how day length varies</p> <p>Animals, including humans Identify and name a variety of common animals (Fish, amphibians, reptiles, birds, 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 Identify, name, draw and label basic parts of human body and say which sense it is associated with</p> <p>Everyday materials Distinguish between an object and the material it is made from Identify and name a variety of everyday materials Describe simple physical properties of everyday materials Compare and group materials on their physical properties</p>	<p>Seasonal Change Observe changes across four seasons Observe and describe weather associated with the seasons and how day length varies</p> <p>Plants Identify and name a variety of common wild and garden plants including deciduous and evergreen trees Identify and describe structure of a variety of common flowering plants, including trees</p>	<p>Seasonal Change Observe changes across four seasons Observe and describe weather associated with the seasons and how day length varies</p> <p>Plants Identify and name a variety of common wild and garden plants including deciduous and evergreen trees Identify and describe structure of a variety of common flowering plants, including trees</p>
	<p>Working Scientifically Ask simple questions and recognise they can be answered different ways Observe closely, using simple equipment Perform simple tests Identify and classify Use observations and ideas to suggest answers Gather and record data to help answer questions</p>		

As science is often linked to the topic the children are covering in geography, history, art or other subjects the term they learn a certain scientific topic may change, by the end of their time in a Year group they will still cover all science topics.

Year 1 Key Vocabulary

Links to previous knowledge	Autumn	Spring	Summer
<p>Farm animals Names of common farm animals</p> <p>Pets Names of common pets</p> <p>Weather Season- spring, summer, autumn, winter Weather- hot/warm, cool/cold, sun/sunny, cloud/cloudy, wind/windy, rain/rainy,</p> <p>Growing Up Baby, adult, mum, dad, grandma, grandad, sister, brother, pregnant Growing, grow, older/old, younger/young</p> <p>Plants names of locally found wild plants names of locally found garden plants names of locally found flowering plants names of locally found trees leaf/leaves, flower, stem, seed</p>	<p>Seasonal Change Season- spring, summer, autumn, winter Weather- hot/warm, cool/cold, sun/sunny, cloud/cloudy, wind/windy, rain/rainy, snow/snowing, hail/hailing, sleet, frost, fog/mist, ice/icy, rainbow, thunder, lightning, storm, light/dark, day/night</p> <p>Animals, including humans names of common mammals, reptiles, amphibians, fish, birds names of common animals (Carnivores), (Herbivores), (Omnivores) wild animals, pets tail, wing, claw, fin, scales, feathers, fur, beak body, ankle, calf, thigh, hips, waist, trunk, chest, shoulders, back, hands, wrist, head, neck, arms, elbows, legs, knees, face, ears, eyes, eyebrows, eyelashes, nose, hair, mouth, teeth, tongue, feet, toes, fingers, nails senses bright/dim, loud/quiet, hear/hearing, see/seeing, touch/touching, smell/smelling, taste/tasting, rough/smooth, high/low, repeating/continuous (sound)</p> <p>Everyday materials Object, material Wood, plastic, glass, metal, water, rock, brick, paper, fabrics, elastic, foil, card/cardboard, rubber, wool, clay not see through, hard, soft, stretchy, stiff, bendy/floppy, waterproof, absorbent, breaks/tears, rough, smooth, see through, shiny, dull</p>	<p>Seasonal Change Season- spring, summer, autumn, winter Weather- hot/warm, cool/cold, sun/sunny, cloud/cloudy, wind/windy, rain/rainy, snow/snowing, hail/hailing, sleet, frost, fog/mist, ice/icy, rainbow, thunder, lightning, storm, light/dark, day/night</p> <p>Plants names of locally found wild plants names of locally found garden plants names of locally found flowering plants names of locally found trees leaf/leaves, flower, blossom, petal root, bulb, seed, trunk, branch, stem, bark, stalk vegetable, fruit, berry names of flowers grown names of vegetables grown</p>	<p>Seasonal Change Season- spring, summer, autumn, winter Weather- hot/warm, cool/cold, sun/sunny, cloud/cloudy, wind/windy, rain/rainy, snow/snowing, hail/hailing, sleet, frost, fog/mist, ice/icy, rainbow, thunder, lightning, storm, light/dark, day/night</p> <p>Plants names of locally found wild plants names of locally found garden plants names of locally found flowering plants names of locally found trees leaf/leaves, flower, blossom, petal root, bulb, seed, trunk, branch, stem, bark, stalk vegetable, fruit, berry names of flowers grown names of vegetables grown</p>
	<p>Working Scientifically Equipment, gather, measure, record, data, sort, group, test, chart, table, observe, compare, describe, similar, similarities, differences, different, collect, results, ruler, tape measure, metre stick, beaker, pipette, syringe</p>		



Year 2

Links to previous knowledge	Autumn	Spring	Summer
Seasonal Change Animals, including humans Everyday materials Plants Working Scientifically	Use of Everyday Materials Identify and compare suitability of a variety of everyday materials (wood, metal, plastic, glass, brick, rock, paper and cardboard) Find out how the shapes of solid objects made from some materials can be changed (squashing, bending, twisting, stretching) Animals, including humans Notice animals, including humans have offspring which grow into adults Find out and describe the basic needs of animals and humans Describe the importance for humans of exercise, eating right amounts of different food and hygiene	Plants 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 Animals, including humans Notice animals, including humans have offspring which grow into adults Find out and describe the basic needs of animals and humans Describe the importance for humans of exercise, eating right amounts of different food and hygiene	Plants 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 Living things and their habitats Explore and compare differences between living, dead and never been alive Identify that living things live in habitats to which they are suited, describe how habitats provide the basic needs of animals and plants, how they depend on each other Identify and name a variety of plants and animals in their habitats, including micro habitats Describe how animals get food from plants and animals, use a food chain, identify and name sources of food
	Working Scientifically Ask simple questions and recognise they can be answered different ways Observe closely, using simple equipment Perform simple tests Identify and classify Use observations and ideas to suggest answers Gather and record data to help answer questions		

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Year 2 Key Vocabulary

Links to previous knowledge	Autumn	Spring	Summer
Seasonal Change Animals, including humans Everyday materials Plants Working Scientifically	Use of Everyday Materials Suitable/unsuitable, use/useful Object, material, property Wood, plastic, glass, metal, water, rock, brick, paper, fabrics, elastic, foil, card/cardboard, rubber, wool, clay Hard, soft, stretchy, rigid Animals, including humans Offspring, babies, young, grow, change, adults, older/younger, baby/toddler/child/teenager Basic needs, water, food, air, breathing, survival Exercise, food types, fruit and vegetable, bread, rice, potato, pasta, milk and dairy foods, foods high in fat or sugar, meat, fish, egg, beans Hygiene, clean, wash, healthy, medicine	Plants Seeds, bulbs, fully grown, water, light, damp/wet/dry, dark/light, hot/warm/cool/cold use comparatives e.g. hotter grow/growth, healthy, shoot, seedling, wither/limp, die, dry/crispy, soil, earth, seeds, bulbs Animals, including humans Offspring, babies, young, grow, change, adults, older/younger, baby/toddler/child/teenager Basic needs, water, food, air, breathing, survival Exercise, food types, fruit and vegetable, bread, rice, potato, pasta, milk and dairy foods, foods high in fat or sugar, meat, fish, egg, beans Hygiene, clean, wash, healthy, medicine	Plants Seeds, bulbs, fully grown, water, light, damp/wet/dry, dark/light, hot/warm/cool/cold use comparatives e.g. hotter grow/growth, healthy, shoot, seedling, wither/limp, die, dry/crispy, soil, earth, seeds, bulbs Living things and their habitats Living, dead, never been alive Move, grow, feed, have offspring/young/babies Name local habitats (e.g. a pond, woodland, meadow) Name micro-habitats (under log, stony path, under bushes) Damp/wet/dry, dark/light, hot/warm/cool/cold, use comparatives e.g. hotter Suited/suitable, basic needs, depend, shelter Food, food chain
	Working Scientifically Questions/answers, equipment, gather/measure/record, data/Pictogram, tally chart, block diagram, venn diagram, sort/order, group, test, chart, table, observe/explore, compare, describe, similar, similarities, differences, different, collect, results, ruler, tape measure, metre stick, beaker, pipette, syringe, observe changes over time, notice patterns, link, secondary sources, hand lenses, egg timer, stop watch		



Year 3

Links to previous knowledge	Autumn	Spring	Summer
<p>Use of Everyday Materials</p> <p>Animals, including humans</p> <p>Plants</p> <p>Living things and their habitats</p> <p>Working Scientifically</p>	<p>Animals, including humans Identify that animals, including humans, need the right types and amount of nutrition, that they cannot make their own food</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection, movement</p> <p>Forces and Magnets Compare how things move on different surfaces Notice that some forces need contact but magnetic forces can act at a distance Observe how magnets attract or repel each other and materials Compare and group materials based on attraction to magnets, Identify magnetic materials Describe magnets as having two poles Predict if magnets will attract or repel depending on which poles are facing.</p>	<p>Light Recognise that they need light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that light from the sun can be dangerous and that there are ways to protect their eyes Recognise that shadows are formed when the light from a light source is blocked by an opaque object Find patterns in the way that the size of shadows change.</p> <p>Rocks Compare and group different kinds of rocks by appearance and simple physical properties Describe how fossils are formed when things that have lived are trapped within rock</p>	<p>Plants Identify and describe functions of plants parts (roots, stem/trunk, leaves, flowers) Explore requirements of plant life and growth and how they vary Investigate how water is transported in plants Explore the role of flowers in the life cycle of flowering plants (pollination, seed formation and seed dispersal)</p> <p>Animals, including humans Identify that animals, including humans, need the right types and amount of nutrition, that they cannot make their own food Identify that humans and some other animals have skeletons and muscles for support, protection, movement</p>
	<p>Working Scientifically Ask questions and use different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests Observe taking measurements with standard units, using equipment, including thermometers and data loggers Gather record classify and present data in a variety of ways to answer questions Record findings using scientific language, drawings, diagrams, keys, bar charts, and tables Report on findings from enquiries, oral and written explanations, displays, presentations of results and conclusions</p>		

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Year 3 Key Vocabulary

Links to previous knowledge	Autumn	Spring	Summer
<p>Use of Everyday Materials</p> <p>Animals, including humans</p> <p>Plants</p> <p>Living things and their habitats</p> <p>Working Scientifically</p>	<p>Animals, including humans</p> <p>Nutrition, nutrients, food types, fruit and vegetable, bread, rice, potato, pasta, milk and dairy foods, foods high in fat or sugar, meat, fish, egg, beans, carbohydrates</p> <p>Protein, vitamins and mineral, fat, dietary fibre, water, balanced diet</p> <p>Skeleton, muscles, support, protection, movement, skull, ribs, spine/vertebra, joints, sockets, bones, tendons</p> <p>Forces and Magnets</p> <p>Force, push/pushing, pull/pulling</p> <p>Contact force, non-contact force, magnetic force</p> <p>Magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet</p> <p>Attract, repel</p> <p>Magnetic material, metal, iron, steel</p> <p>Non-magnetic material</p> <p>Poles, north pole, south pole</p>	<p>Light</p> <p>Light, light source, names of light sources e.g. torch, dark/darkness</p> <p>Reflect, reflective, mirror</p> <p>Shadow, block, direct/ direction</p> <p>Transparent, opaque, translucent</p> <p>Rocks</p> <p>Rock, stone, pebble, boulder, soil</p> <p>Fossils, grains, crystals, hard/soft, texture, absorb water, let water through</p> <p>Marble, chalk, granite, sandstone, slate</p> <p>Sandy soil, clay soil, chalky soil, peat</p>	<p>Plants</p> <p>Part, role</p> <p>Leaf/leaves, flower, blossom, petal, root, bulb, seed, trunk/branch/stem, bark, stalk</p> <p>Fruit, berry</p> <p>Seed formation, seed dispersal, pollination</p> <p>Water, light, air</p> <p>life cycle</p> <p>Nutrients, soil, fertiliser</p> <p>Damp/wet/dry, dark/light, hot/warm/cool/cold</p> <p>use comparatives e.g. hotter</p> <p>Grow/growth, healthy transported</p> <p>Animals, including humans</p> <p>Nutrition, nutrients, food types, fruit and vegetable, bread, rice, potato, pasta, milk and dairy foods, foods high in fat or sugar, meat, fish, egg, beans, carbohydrates</p> <p>Protein, vitamins and mineral, fat, dietary fibre, water, balanced diet</p> <p>Skeleton, muscles, support, protection, movement, skull, ribs, spine/vertebra, joints, sockets, bones, tendons</p>
	<p>Working Scientifically</p> <p>Questions/answers, types of scientific enquiry, changes, similarities/differences, identify, classify/sort/group, order, observe changes over time, notice patterns</p> <p>Present, link, secondary sources, comparative tests, fair tests, careful/accurate, observations, questions/answers</p> <p>Equipment, thermometers, data loggers, microscope, magnifying glass</p> <p>Gather/measure/record, data/evidence/results, keys, bar charts, table, results, conclusions, prediction, support/not support</p>		



Links to previous knowledge	Autumn	Spring	Summer
<p>Animals, including humans Forces and Magnets Light Rocks Plants Working Scientifically</p>	<p>Animals, including humans Describe the functions of the 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> <p>Electricity 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, associate this with whether or not a lamp lights in a simple series circuit Recognise common conductors and insulators, associate metals with being good conductors.</p>	<p>Sound 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.</p> <p>States of matter Compare and group materials together, according to whether they are solids, liquids or gases Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Sound 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.</p> <p>Living things and their habitats 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.</p>
	<p>Working Scientifically Ask questions and use different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests Observe taking measurements with standard units, using equipment, including thermometers and data loggers Gather record classify and present data in a variety of ways to answer questions Record findings using scientific language, drawings, diagrams, keys, bar charts, and tables Report on findings from enquiries, oral and written explanations, displays, presentations of results and conclusions</p>		

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Year 4 Key Vocabulary



Links to previous knowledge	Autumn	Spring	Summer
<p>Animals, including humans Forces and Magnets Light Rocks Plants Working Scientifically</p>	<p>Animals, including humans Digestive system, nutrition, nutrients Mouth, teeth, canines, incisor, molar, pre-molar, saliva, tongue, rip, tear, chew, grind, cut, oesophagus (gullet), stomach, small intestine, large intestine, rectum, anus Carnivore, herbivore, omnivore, producer, consumer, predator, prey, food chain</p> <p>Electricity Electricity, appliances/device, mains, plug Electrical circuit, complete circuit, circuit diagram, circuit symbol, components, cell, battery, wire, crocodile clip, bulb, switch, plug, buzzer, motor Bright/dim, fast(er)/slow(er) Positive/negative, connect/connection, loose connection, short circuit Conductor, insulator, metal/non metal</p>	<p>Sound Sound, sound source, noise, vibrate/vibration, travel Solid/liquid/gas Pitch, tune, high/low, volume, loud/quiet, fainter, muffle, strength of vibrations, insulation Instrument, percussion, strings, brass, woodwind, tuned instrument</p> <p>States of matter States of matter, solid, liquid, gas Air, oxygen Powder, grain/granular, crystals Change state Ice/water/steam, water vapour, heated/heating, cooled/cooling, melt, freeze, solidify, melting point, molten, boil Temperature, degrees Celsius</p>	<p>Sound Sound, sound source, noise, vibrate/vibration, travel Solid/liquid/gas Pitch, tune, high/low, volume, loud/quiet, fainter, muffle, strength of vibrations, insulation Instrument, percussion, strings, brass, woodwind, tuned instrument</p> <p>Living things and their habitats Classification keys Environment Fish, amphibians, reptiles, birds, mammals Vertebrates, invertebrates Name some vertebrates/invertebrates Human impact Name positive/ negative human impact</p>
	<p>Working Scientifically Questions/answers, types of scientific enquiry, changes, similarities/differences, identify, classify/sort/group, order, observe changes over time, changes Present, increase/decrease Secondary sources, comparative tests, fair tests, careful/accurate, observations, appearance, gather/measure/record, data/evidence/results, keys, bar charts, table, results, conclusions, prediction Equipment, thermometers, data loggers, magnifying glasses, microscope</p>		

Year 5



Links to previous knowledge	Autumn	Spring	Summer
<p>Children will already have a strong knowledge of</p> <p>Animals, including humans</p> <p>Electricity</p> <p>Sound</p> <p>States of matter</p> <p>Living things and their habitats</p> <p>Working Scientifically</p>	<p>Earth and Space</p> <p>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system</p> <p>Describe the movement of the Moon relative to the Earth</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p> <p>Forces</p> <p>Explain that unsupported objects fall towards the Earth because of gravity</p> <p>Identify the effects of air resistance, water resistance and friction</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</p>	<p>Properties and changes of materials</p> <p>Compare and group everyday materials by properties</p> <p>Know that some materials dissolve in liquid forming a solution.</p> <p>Describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids, gases to separate mixtures (filters, sieves, evaporate)</p> <p>Give reasons, based on evidence from tests, for the uses of materials, (metals, wood and plastic)</p> <p>Show that dissolving, mixing and changes of state are reversible changes</p> <p>Explain that some changes result in new materials, and that this change is not usually reversible, including burning and acid on bicarbonate of soda.</p>	<p>Living things and their habitats</p> <p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Describe the life process of reproduction in some plants and animals.</p> <p>Animals, including humans</p> <p>Describe the changes as humans develop to old age.</p>
	<p>Working Scientifically</p> <p>Plan scientific enquiries to answer questions, including recognising and controlling variables</p> <p>Take measurements, using a range of scientific equipment, with accuracy and precision, taking repeat readings when appropriate</p> <p>Record data and results using diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Use test results to make predictions to set up further tests</p> <p>Report and present findings from enquiries in oral/written forms such as displays and presentations</p> <p>Identify scientific evidence that can support or disprove ideas or arguments.</p>		

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Year 5 Key Vocabulary



Links to previous knowledge	Autumn	Spring	Summer
<p>Children will already have a strong knowledge of</p> <p>Animals, including humans</p> <p>Electricity</p> <p>Sound</p> <p>States of matter</p> <p>Living things and their habitats</p> <p>Working Scientifically</p>	<p>Earth and Space Earth, planets, sun, solar system, moon, celestial body, sphere/spherical, rotate/rotation, spin, night and day Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, 'dwarf' planet Orbit, revolve Geocentric model, heliocentric model Shadow clocks, sundials, astronomical clocks</p> <p>Forces Fall, gravity, force, friction, Earth Air resistance, water resistance, Transfer Moving surfaces Mechanisms, levers, pulleys, gears Forces and magnets, magnetic force, magnet, attract, repel</p>	<p>Properties and changes of materials Hard, soft, stretchy, rigid, flexible, waterproof, absorbent, strong/weak, rough, smooth, hard, soft, stretchy, rigid, flexible waterproof reflective, non-reflective Transparent, opaque, translucent Dissolve, solution, soluble, insoluble, solute, solvent, particle, mix/mixture, filtering, sieving, evaporating, residue, condensing, reversible changes, new material, not usually reversible, burning, gas given off, rusting</p>	<p>Living things and their habitats Life cycle, reproduction, sexual, asexual, germination, pollination, seed formation, seed dispersal, pollen, stamen, stigma, plantlets e.g. spider plant, runners e.g. strawberry plant</p> <p>Animals, including humans Timeline, stages, growth, development, puberty, gestation, baby, offspring, child, teenagers, toddler, adult, grandparent, parent, birth, reproduction</p>
<p>Working Scientifically Questions/answers, types of scientific enquiry, changes/ present, similarities/differences, observations/appearance, classify/sort/group/identify, opinion/fact, observe changes over time, careful/accurate/accuracy, precision, increase/decrease Secondary sources, comparative tests/fair tests, independent variable, dependent variable, controlled variable, degree of trust, causal relationships, conclusions, prediction, support/refute Equipment, microscope, thermometers, data loggers, magnifying glasses Gather/measure/record, data/evidence/results, keys/classification keys, bar charts/scatter graphs, table/results/line graph</p>			



Year 6

Links to previous knowledge	Autumn	Spring	Summer
Children will already have a strong knowledge of Animals, including humans Electricity Sound States of matter Living things and their habitats Working Scientifically	Evolution and Inheritance Know 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 are not identical to their parents Identify how animals and plants are adapted to suit their environment and that adaptation may lead to evolution. Animals, including humans 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 Describe the ways in which nutrients and water are transported within animals, including humans. Identify scientific evidence that can support or disprove ideas or arguments.	Light 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 Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	Living things and their habitats 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. Electricity 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.
	Working Scientifically Plan scientific enquiries to answer questions, including recognising and controlling variables Take measurements, using a range of scientific equipment, with accuracy and precision, taking repeat readings when appropriate Record data and results using diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs Use test results to make predictions to set up further tests Report and present findings from enquiries in oral/written forms such as displays and presentations		

As science is often linked to the topic the children are covering in geography, history, art or other subjects the term they learn a certain scientific topic may change, by the end of their time in a Year group they will still cover all science topics.

Year 6 Key Vocabulary



Links to previous knowledge	Autumn	Spring	Summer
<p>Children will already have a strong knowledge of</p> <p>Animals, including humans</p> <p>Electricity</p> <p>Sound</p> <p>States of matter</p> <p>Living things and their habitats</p> <p>Working Scientifically</p>	<p>Evolution and Inheritance Evolution, suited/suitable, environment, adapted/adaptation Offspring, characteristics, vary/variation, inherit/inheritance, fossils</p> <p>Animals, including humans Circulatory system, heart, blood, blood vessels, pumps, oxygen, carbon dioxide, lungs Nutrients, water, diet, exercise, drugs, lifestyle</p>	<p>Light Light, light source, names of light sources e.g. torch, dark/darkness Reflect, reflective, mirror Shadow, block, absorb, direct/ direction Transparent, opaque, translucent Travels, straight lines Periscope, rainbow, filters, spectrum, colours Eyes, vision</p>	<p>Living things and their habitats Organism, micro-organisms Fungus, mushrooms classification keys Environment Fish, amphibians, reptiles, birds, mammals Vertebrates, invertebrates</p> <p>Electricity Appliances/device, electrical circuit, complete circuit, circuit diagram, circuit symbol, positive/negative, terminal, connect/connection, loose connection, short circuit Wire, crocodile clip, bulb, switch, buzzer, motor, components, cell, battery, Bright/dim, volume, fast(er)/slow(er) Conductor, insulator, metal/non metal Voltage, current, resistance</p>
	<p>Working Scientifically Questions/answers, types of scientific enquiry, changes/ present, similarities/differences, observations/appearance, classify/sort/group/identify, opinion/fact, observe changes over time, careful/accurate/accuracy, precision, increase/decrease Secondary sources, comparative tests/fair tests, independent variable, dependent variable, controlled variable, degree of trust, causal relationships, conclusions, prediction, support/refute Equipment, microscope, thermometers, data loggers, magnifying glasses Gather/measure/record, data/evidence/results, keys/classification keys, bar charts/scatter graphs, table/results/line graph</p>		