

**SUBJECT:** Science

	Skills	Knowledge
N	<ul style="list-style-type: none"> <li>• Can comment and ask questions about aspects of their familiar world e.g. the place where they live or the natural world</li> <li>• Can talk about some of the things they have observed e.g. plants, animals, natural and found objects</li> <li>• Can talk about why things happen and how things work</li> <li>• Shows care and concern for living things and the environment</li> </ul>	<ul style="list-style-type: none"> <li>• To be able to name some objects found in the natural world e.g. conker, acorns, pine cone, chestnut</li> <li>• Begin to develop an understanding of the four seasons</li> <li>• To know what a plant needs to grow</li> <li>• To be able to name and describe some common bugs</li> <li>• To be able to comment on the changes of the properties of objects e.g paint, ice and food</li> </ul>
R	<ul style="list-style-type: none"> <li>• Can comment and ask questions about aspects of their familiar world e.g. the place where they live or the natural world</li> <li>• Can talk about some of the things they have observed e.g. plants, animals, natural and found objects</li> <li>• Can talk about why things happen and how things work</li> <li>• Shows care and concern for living things and the environment</li> <li>• Looks closely at similarities, differences, patterns and change</li> </ul>	<ul style="list-style-type: none"> <li>• To be able to name some objects found in the natural world e.g. conker, acorns, pine cone, chestnut</li> <li>• To be able to name the four seasons and the connected weather</li> <li>• To know what a plant needs to grow and to be able to name some plants</li> <li>• To be able to name and describe some common bugs</li> <li>• To be able to catagorise farm and wild animals and pets</li> <li>• To be able to comment on the changes of the properties of objects e.g paint, ice and food</li> </ul>

Y1	<p><b>Working Scientifically:</b></p> <ul style="list-style-type: none"> <li>● Ask simple questions and recognise that they can be answered in different ways</li> <li>● Observe closely, using simple equipment</li> <li>● Perform simple tests</li> <li>● Identify and classify</li> <li>● Using their observations and ideas to suggest answers to questions</li> <li>● Gather and record data to help in answering questions</li> </ul> <p><b>Vocabulary:</b> question, observe, answer, observing, equipment, identify, sort, group, record (diagram - chart), compare, contrast, describe</p>	<p><b>Plants:</b></p> <ul style="list-style-type: none"> <li>● Identify and name a variety of common wild and garden plants</li> <li>● Understand the difference between deciduous and evergreen trees.</li> <li>● Identify and describe the basic structure of a variety of common flowering plants, including trees</li> </ul> <p><b>Vocabulary:</b> common, wild plants, garden plants, deciduous, evergreen, tree, trunk, branches, leaf, root, plant, leaves, bud, flowers, blossom, petals, stem, fruit, vegetables, bulb, seed</p> <p><b>Animals, including humans:</b></p> <ul style="list-style-type: none"> <li>● Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (goldfish, shark, frog, newt, snake, tortoise, chicken, budgie, dog, cat, whale)</li> <li>● Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (dog, cat, human, rabbit, guinea pig, rats)</li> <li>● Describe and compare the structure of a variety of common animals (fish - gills vs lungs, amphibians, reptiles, birds and mammals, including pets)</li> <li>● Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</li> </ul> <p><b>Vocabulary:</b> common animals, fish, amphibians, reptiles, birds, mammals, pets, carnivores, meat, cat, dog, lion, tiger, fox, shark, killer whale, eagle, hawk, snake, tyrannosaurus rex, herbivores, plants, cow, hamster, tortoise, triceratops, omnivores, meat and plants, badger, human, bear, chickens, head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth</p>
----	---	---

**Everyday materials:**

- Understand the difference 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
- Understand 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

**Vocabulary:** material, wood, plastic, glass, metal, water, rock, properties, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, rigid, waterproof, absorbent, brick, paper, fabrics, plastic, foil

**Seasonal changes:**

- Observe and understand the changes across the four seasons (At least one lesson per term )
- Observe and describe weather associated with the seasons and how day length varies. (At least one lesson per term)

**Vocabulary:** season, summer, winter, autumn, spring, day, daytime, weather, wind, rain, snow, hail, sleet, fog, sun, hot, warm, cold

Y2	<p><b>Working Scientifically:</b></p> <ul style="list-style-type: none"> <li>• Ask simple questions and recognise that they can be answered in different ways</li> <li>• Observe closely, using simple equipment</li> <li>• Perform simple comparative tests</li> <li>• Identify and classify</li> <li>• Use observations and ideas to suggest answers to questions</li> <li>• Gather and record data to help in answering questions</li> </ul> <p><b>Vocabulary:</b> question, observe, answer, observing, equipment, identify, classify, sort, pattern, group, record (diagram - chart), map, data, compare, contrast, describe, biology, chemistry, physics</p>	<p><b>Living things and their habitats:</b></p> <ul style="list-style-type: none"> <li>• Understand the differences between things that are living, dead, and things that have never been alive</li> <li>• Understand the term habitat</li> <li>• Understand that most living things live in habitats to which they are suited and</li> <li>• Understand how different habitats provide for the basic needs of different animals and plants, and how they depend on each other</li> <li>• Identify and name a variety of plants and animals in their habitats, including micro-habitats</li> <li>• Understand how animals obtain their food from plants and other animals, using the idea of a simple food chain</li> <li>• Identify and name different sources of food</li> </ul> <p><b>Vocabulary:</b> living, dead, never alive, habitats, micro-organisms, food, food chain, sun, grass, cow, human, alive, healthy, logs, leaf, litter, shelter, seashore, woodland, ocean, rainforest, conditions, hot, warm, cold, dry, damp, wet, bright, shade, dark</p> <p><b>Plants:</b></p> <ul style="list-style-type: none"> <li>• Observe and describe how seeds and bulbs grow into mature plants</li> <li>• Understand how plants need water, light and a suitable temperature to grow and stay healthy</li> </ul> <p><b>Vocabulary:</b> water, light, suitable temperature, grow, healthy, germination, reproduction</p> <p><b>Animals, including humans:</b></p> <ul style="list-style-type: none"> <li>• Understand that animals, including humans, have offspring which grow into adults</li> <li>• Understand the basic needs of animals, including humans, for survival (water, food and air)</li> <li>• Understand the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li> </ul> <p><b>Vocabulary:</b> offspring, grow, adults, nutrition, reproduce, survival, water, food, air, exercise, hygiene, egg, chick, chicken, egg, caterpillar, pupa,</p>

butterfly, spawn, tadpole, frog, lamb, sheep, baby, toddler, child, teenager, adult

**Use of everyday materials:**

- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- Understand how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

**Vocabulary:** wood, metal, plastic, glass, brick, rock, paper, cardboard, squashing, bending, twisting, stretching, metal, coins, cans, cars, table legs, wood, matches, floors, telegraph poles, spoons, plastic, wood, metal

Y3	<p><b>Working Scientifically:</b></p> <ul style="list-style-type: none"> <li>● asking relevant questions and using different types of scientific enquiries to answer them</li> <li>● setting up simple practical enquiries, and fair tests</li> <li>● making systematic and careful observations</li> <li>● take accurate measurements using standard units</li> <li>● gathering, recording, classifying and presenting data in a variety of ways</li> <li>● recording findings using simple scientific language (see vocabulary), drawings, labelled diagrams, keys, bar charts, and tables</li> <li>● reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>● using results to draw simple conclusions, make predictions and suggest improvements</li> <li>● identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>● using straightforward scientific evidence to answer questions or to support their findings</li> </ul> <p><b>Vocabulary:</b> comparative / fair test, systematic, careful, accuracy, observation, accurate measurement, equipment (thermometers, data logger), data (gather, record) classify, present, record (drawings, labelled diagrams, keys, bar charts, tables, predicatio, method, results, conclusion, interpret</p>	<p><b>Plants:</b></p> <ul style="list-style-type: none"> <li>● Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>● Understand 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</li> <li>● Investigate the way in which water is transported within plants</li> <li>● Understand the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul> <p><b>Vocabulary:</b> structure, flowering plants, roots, stem, trunk, leaves, flowers, function, nutrition, support, reproduction, air, light, water, nutrients, fertiliser, life cycle, flowers, pollination, seed formation, seed dispersal</p> <p><b>Animals, including humans:</b></p> <ul style="list-style-type: none"> <li>● Understand 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</li> <li>● Understand that humans and some other animals have skeletons and muscles for support, protection and movement</li> </ul> <p><b>Vocabulary:</b> nutrition, vitamins, minerals, fat, protein, carbohydrates, fibre, water, skeletons, support, protection, skull, brain, ribs, heart, lungs, movement, joint, muscles, movement, pull, contract, relax, diet</p> <p><b>Rocks:</b></p> <ul style="list-style-type: none"> <li>● Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>● Understand how fossils are formed when things that have lived are trapped within rock</li> <li>● Understand that soils are made from rocks and organic matter.</li> </ul> <p><b>Vocabulary:</b> appearance, physical properties, hard, soft, shiny, dull, rough, smooth, absorbent, fossil, sedimentary rock, soil, rock, organic matter, buildings, grains, crystals</p>

**Light:**

- Understand that light is needed in order to see things and that dark is the absence of light
- Understand that light is reflected from surfaces
- Understand that light from the sun can be dangerous and that there are ways to protect their eyes
- Understand that shadows are formed when the light is blocked by a solid object
- Find patterns in the way that the size of shadows change

**Vocabulary:** light, see, dark, reflect, surface, natural, star, Sun, Moon, shadow, blocked, solid, artificial, torch, candle, lamp, sunlight, dangerous, protect eyes

**Forces & Magnets:**

- Understand how things move on different surfaces
- Understand 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 describe magnets as having two poles
- Understand why two magnets will attract or repel each other, depending on which poles are facing
- Compare and group everyday materials on the basis of whether they are attracted to a magnet
- Identify some magnetic materials (ensure some non magnetic metals are identified)

**Vocabulary:** force, push, pull, open, surface, magnet, magnetic, attract, repel, magnetic poles, North, South

Y4	<p><b>Working Scientifically:</b></p> <ul style="list-style-type: none"> <li>● setting up simple practical enquiries, and fair tests</li> <li>● asking relevant questions and using different types of scientific enquiries to answer them</li> <li>● making systematic and careful observations</li> <li>● taking accurate measurements using standard units using thermometers</li> <li>● gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>● recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>● reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>● using results to draw simple conclusions, make predictions, suggest improvements and raise further questions</li> <li>● identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>● using straightforward scientific evidence to answer questions or to support their findings.</li> </ul> <p><b>Vocabulary:</b> comparative / fair test, systematic, careful, accuracy, observation, accurate measurement, variables, equipment (thermometers, data logger), data (gather, record) classify, present, record (drawings, labelled diagrams, keys, bar charts, tables, prediction, method, results, conclusion, interpret</p>	<p><b>Living things and their habitats:</b></p> <ul style="list-style-type: none"> <li>● Understand that living things can be grouped in a variety of ways</li> <li>● Use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>● Understand that environments can change and that this can sometimes pose dangers to living things</li> </ul> <p><b>Vocabulary:</b> environment, flowering, non-flowering, plants, animals, vertebrate, environment, fish, amphibians, reptiles, birds, mammals, invertebrates, snails, slugs, worms, spiders, insects,</p> <p><b>Animals, including humans:</b></p> <ul style="list-style-type: none"> <li>● Understand the simple functions of the basic parts of the digestive system in humans</li> <li>● Identify the different types of teeth in humans and understand their simple functions</li> <li>● Construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul> <p><b>Vocabulary:</b> human digestive system, mouth, tongue, mixes, moistens, saliva, teeth, incisors, cutting, slicing, canines, ripping, tearing, molars, chewing, grinding, oesophagus, transports, stomach, acids, enzymes, small intestine, absorbs water, vitamins, large intestine, compacts, carnivore, herbivore, brush, floss, food chain, sun, producers, prey, predators</p> <p><b>States of matter:</b></p> <ul style="list-style-type: none"> <li>● Understand the terms solid, liquid and gas</li> <li>● Compare and group materials together, according to whether they are solids, liquids or gases</li> <li>● Understand 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)</li> </ul>

- Understand that evaporation and condensation are part of the water cycle
- Understand the rate of evaporation is related to temperature

**Vocabulary:** solid, iron, water, ice, melt, freeze, liquid, evaporate, condense, gas, container, changing state, chocolate, butter, cream, heated, heat, cooled, cool, degrees Celcius, thermometer, water cycle, evaporate, evaporation, condense, condensation, temperature, melting, melt, water vapour

**Sound:**

- Understand how sounds are made, associating some of them with something vibrating
- Understand that vibrations from sounds travel through a medium to the ear
- Investigate patterns between the pitch of a sound and features of the object that produced it
- Investigate patterns between the volume of a sound and the strength of the vibrations that produced it
- Understand that sounds get fainter as the distance from the sound source increases

**Vocabulary:** vibrate, vibration, vibrating, air, medium, ear, hear, sound, volume, pitch, faint, fainter, loud, louder, string, percussion, woodwind, brass, insulate

**Electricity:**

- Identify and name 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
- Understand if 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
- Understand that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- Identify some common conductors and insulators,
- Understand that some metals are good conductors

**Vocabulary:** appliances, electricity, electrical circuit, cell, wire, bulb, buzzer, danger, electrical safety, sign, insulators, wood, rubber, plastic, glass, conductors, metal, water, switch, open, closed

Y5	<p><b>Working Scientifically:</b></p> <ul style="list-style-type: none"> <li>planning different types of scientific enquiries (comparative / fair/ to answer questions, including recognising and controlling variables</li> <li>taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>using test results to make predictions to set up further comparative and fair tests</li> <li>reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> <li>identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ul> <p><b>Vocabulary:</b> comparative / fair test, systematic, careful, accuracy, observation, accurate measurement, variables, equipment (thermometers, data logger), data (gather, record) classify, present, record (drawings, labelled diagrams, keys, bar charts, tables, prediction, method, results, conclusion, interpret</p>	<p><b>Living things and their habitats:</b></p> <ul style="list-style-type: none"> <li>Understand differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>Understand the life process of reproduction in some plants and animals</li> </ul> <p><b>Vocabulary:</b> life cycles, mammal, amphibian, insect, bird, plants, sexual, asexual, animals, sexual, rainforest, ocean, desert, similarities, differences</p> <p><b>Animals, including humans:</b></p> <ul style="list-style-type: none"> <li>Understand the changes as humans develop to old age</li> </ul> <p><b>Vocabulary:</b> human development, baby, toddler, child, teenager, adult, puberty, gestation, length, mass, grows, grow, growing</p> <p><b>Properties of change and materials:</b></p> <ul style="list-style-type: none"> <li>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</li> <li>Understand that some materials will dissolve in liquid to form a solution</li> <li>Understand how to recover a substance from a solution</li> <li>To understand how mixtures (solids, liquids, gases) might be separated, including through filtering, sieving and evaporating</li> <li>Explain based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>Understand that dissolving, mixing and changes of state are reversible changes</li> <li>Understand that some changes result in the formation of new materials, and that this kind of change is not usually reversible,</li> </ul>

- Understand changes associated with burning and the action of acid on bicarbonate of soda

**Vocabulary:** properties, hardness, solubility, transparency, conductive, electrical, thermal, dissolve, liquid, solution, separate, solids, liquids, gases, reversible changes, dissolving, mixing, evaporation, filtering, sieving, melting, irreversible, burning, rusting, magnetism, electricity, conductivity, insulation

**Earth and space:**

- Understand the movement of the Earth, and other planets, relative to the Sun in the solar system
- Understand the movement of the Moon relative to the Earth
- Know that the Sun, Earth and Moon are approximately spherical bodies
- Understand the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

**Vocabulary:** Earth, Sun, Moon, moon, planets, star, solar system, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, dwarf planet, movement, rotate, orbit, axis, celestial body, spherical, sphere, day, night, light, heat, eclipse, satellite, universe, solar, astronomer, Ptolemy

**Forces:**

- Understand that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- Understand the effects of air resistance, water resistance and friction, that act between moving surfaces
- Understand that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect

**Vocabulary:** gravity, air resistance, water resistance, friction, surface, force, effect move, accelerate, decelerate, stop, change direction, brake, mechanism, pulley, gear, spring, theory of gravitation, Galileo Galilei, Isaac Newton

Y6	<p><b>Working Scientifically:</b></p> <ul style="list-style-type: none"> <li>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</li> <li>taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>using test results to make predictions to set up further comparative and fair tests</li> <li>reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> <li>identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ul> <p><b>Vocabulary:</b> comparative / fair test, systematic, careful, accuracy, observation, accurate measurement, variables, equipment (thermometers, data logger), data (gather, record) classify, present, record (drawings, labelled diagrams, keys, bar charts, line graphs, tables, prediction, method, results, conclusion, interpret</p>	<p><b>Living things and their habitats:</b></p> <ul style="list-style-type: none"> <li>Understand how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</li> <li>Understand reasons for classifying plants and animals based on specific characteristics</li> </ul> <p><b>Vocabulary:</b> micro-organisms, plants, animal, classification, classify, invertebrates, insects, spiders, snails, worms, vertebrates, fish, amphibians, reptiles, birds, mammals, Carl Linnaeus</p> <p><b>Animals, including humans:</b></p> <ul style="list-style-type: none"> <li>Identify and name the main parts of the human circulatory system</li> <li>Understand the functions of the heart, blood vessels and blood</li> <li>Understand the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>Understand the ways in which nutrients and water are transported within animals, including humans</li> </ul> <p><b>Vocabulary:</b> human internal organs, heart, lungs, liver, kidney, brain, skeletal, skeleton, muscle, muscular, digest, digestion, digestive, human circulatory system, heart, blood vessels, blood, impact, diet, exercise, drugs, lifestyle, nutrients, water, damage, drugs, alcohol, substances</p> <p><b>Evolution and inheritance:</b></p>

- Understand that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
- Understand that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- Understand how animals and plants are adapted to suit their environment
- Understand different ways and that adaptation may lead to evolution

**Vocabulary:** reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations

identifying scientific evidence that has been used to support or refute ideas or arguments. living things, change, fossils, offspring, vary, not identical, characteristics, variation, evolution, adaptation, inheritance, Charles Darwin, adapt, environment, extreme, conditions, advantageous, disadvantageous, Mary Anning

**Light:**

- Understand that light travels in straight lines
- Understand that objects are seen because they give out or reflect light into the eye  
Understand 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

**Vocabulary:** light, travels, straight, reflect, reflection, light source, object, shadows, rainbow, filters, reflect, reflection, mirrors, periscope

**Electricity:**

- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- Understand the reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
- Identify and use symbols when representing a simple circuit in a diagram

		<b>Vocabulary:</b> voltage, brightness, volume, switch, danger, series circuit, circuit diagram, bulb, buzzer, motor, symbol
--	--	--