

## Science small steps progression.

|                                  | Reception  | Year 1   | Year 2  | Year 3  | Year 4   | Year 5  | Year 6  |
|----------------------------------|--|--|---|---|--|---|---|
| Plants                           | Observe and name wildflowers<br>(daisy, dandelion, snowdrop,<br>buttercup, daffodil and forget-me-<br>not)<br>Observe and describe trees and their<br>leaves, including through the<br>seasonal changes<br>-Draw wild flowers and trees and find<br>ways to sort and categorise them<br>-Identify the parts of a plant (stem,<br>roots, leaf, flower, petal)<br>-Know what plants need to help<br>them grow and carry out simple fair<br>tests to check hypothesis | Name/identify a variety of common<br>wild plants (dandelion, daisy,<br>buttercup).<br>Name/identify and name a variety of<br>garden plants (sunflower, tulip, rose).<br>Identify and describe some deciduous<br>trees (oak, birch, sycamore).<br>Identify and describe some evergreen<br>trees (pine, holly, fir).<br>Identify the petals, stem, leaf and root<br>of a plant.<br>Identify the root, trunk, branches and<br>leaves of a tree.   | Explain how seeds grow into mature<br>plants.<br>Explain how bulbs grow into mature<br>plants.<br>Describe what plants need to grow and<br>stay healthy (water, light, room to<br>grow).  | Identify and describe the functions of<br>different parts of flowering plants:<br>roots, stem/trunk, leaves and flowers.<br>Understand the requirements of plants<br>for life and growth (air, light, water,<br>nutrients from soil, and room to grow).<br>Understand that requirements for life<br>and growth in plants may differ from<br>plant to plant (cacti; less water,<br>houseplants (Aloe Vera); heat).<br>Explain how water is transported within<br>plants.<br>Explain the part that flowers play in the<br>life cycle of flowering plants, including<br>pollination, seed formation and seed<br>dispersal.     |  |   |   |
| Key vocabulary:                  | Plant, flower, leaf, stem, roots, petal,<br>seed, tree. daisy, dandelion,<br>snowdrop, buttercup, daffodil and<br>forget-me-not, grow, sunlight<br>warmth, water, soil   | Dandelion, daisy, buttercup, sunflower,<br>tulip, rose, oak, birch, sycamore, pine,<br>holly, fir, <b>petal</b> , stem, leaf, <mark>root, trunk</mark> ,<br>branch, leaves, seed<br>Deciduous, Evergreen trees,<br>Leaves  | <mark>Seeds</mark> , <mark>bulbs,</mark> water, room, <mark>growth</mark> , leaf,<br>stem, root, flower, tree, plant.<br>Water, light, <mark>temperature</mark> , growth  | Roots, stem/trunk, leaves, flowers, air,<br>light, water, <mark>nutrients</mark> , cacti, Aloe Vera,<br><mark>transportation,</mark> pollination, seed<br>formation, <mark>seed dispersal.</mark>   |  |   |   |
| Animals including humans         | Observe common animals, (including<br>farm, zoo, woodland and insects)<br>draw them and find ways to sort and<br>categorise them<br>Know the names of baby animals<br>(sheep-lamb, cow-calf, horse-foal,<br>hen-chick, pig-piglet, rabbit-kitten,<br>dog-puppy, cat-kitten, duck-duckling,<br>owl-owlet, deer-fawn,<br>frog-tadpole, butterfly-caterpillar)<br>Understand the key features of the<br>life cycle of an animal.                                      | Identify and name a variety of common<br>animals (gull, elephant, lizard, frog,<br>snake, human, penguin, shark, toad,<br>fish, eagle)<br>Sort animals (as above) into the<br>relevant categories: fish, amphibian,<br>reptile, bird, mammal.<br>Sort animals (as above) into the<br>relevant categories: carnivores,<br>herbivores and omnivores.<br>Describe and compare the structure of<br>a variety of common animals (as<br>above).<br>Identify, name, draw and label the basic<br>parts of the human body (head,<br>shoulder, hand, fingers, chest, arm,<br>knee, foot).<br>Identify which part of the body is<br>associated with each sense. | Identify the names of animals and their<br>offspring (cat-kitten, horse-foal, cow-<br>calf, goat-kid).<br>Identify how different animals<br>(mammals, birds, reptiles, fish,<br>amphibians) produce offspring.<br>Describe the basic needs of animals,<br>including humans, for survival (water,<br>food and air).<br>Describe the importance of exercise for<br>humans.<br>Describe the importance of hygiene for<br>humans.<br>Describe the importance of eating the<br>right amounts and types of food for<br>humans.  | Name different food groups (dairy,<br>protein, carbohydrates, fruit and veg,<br>fats and sugars), including food that<br>feature in these groups.<br>Explain the importance of a balanced<br>diet.<br>Explain the importance of skeletons to<br>humans (support and protection).<br>Explain the importance of muscles to<br>humans (movement).<br>Name key parts of the skeleton and<br>what they protect (skull-brain, ribcage-<br>heart/lungs, spine).<br>Explain the meaning of vertebrate (with<br>backbone) and invertebrate (without<br>backbone).<br>Name an animal that has no skeleton<br>(slug, worm, jellyfish). | Explain the purpose of the digestive<br>system.<br>Name the basic parts of the digestive<br>system (mouth, oesophagus, stomach,<br>small intestine, large intestine).<br>Describe the functions of the basic parts<br>(as above) of the digestive system.<br>Identify the different types of teeth in<br>humans (incisors, canines, premolars,<br>molars, wisdom) and their simple<br>functions.<br>Explain how to keep teeth healthy.<br>Explain the meaning of: predator, prey,<br>producer.<br>Construct and interpret a variety of food<br>chains, identifying producers, predators<br>and prey. | Identify the six stages of the human life<br>cycle (baby, toddler, child, teenager,<br>adult, elderly/senior).<br>Explain the meaning of: foetus, puberty,<br>fertilisation, umbilical cord.<br>Describe some changes that may occur<br>during puberty (growing body hair,<br>sweat, acne, menstruation, body<br>growth). | Explain the meaning of pulse and how to<br>measure a pulse.<br>Understand that physical activity makes<br>the heart beat faster, and in turn blood<br>flow faster.<br>Explain what the heart is made from<br>(muscle).<br>Describe the difference between a vein<br>and an artery.<br>Explain the role of the blood in the<br>circulatory system.<br>Explain how to lead a healthy lifestyle<br>(discussing balanced diet, exercise,<br>personal hygiene, abstaining from<br>smoking and drinking alcohol).<br>Describe how water and nutrients are<br>transported around the body. |
| Key vocabulary:                  | Animal, people, farm, zoo, woodland,<br>insect, mother, baby, sheep-lamb,<br>cow-calf, horse-foal, hen-chick, pig-<br>piglet, rabbit-kitten, dog-puppy, cat-<br>kitten, duck-duckling, owl-owlet,<br>deer-fawn,<br>frog-tadpole, butterfly-caterpillar   | Fish, Reptiles, Mammals,<br>Birds, Amphibians<br>Herbivore, Omnivore,<br>Carnivore,<br>Body (and all its parts-Leg, Arm, Elbow,<br>Head, Ear, Nose, Back, head, shoulder,<br>hand, fingers, chest, arm, knee, foot)<br>Wings, Beak, gull, elephant, lizard, frog,<br>snake, human, penguin, shark, toad,<br>fish, eagle,   | Survival, Water, Air, Food,<br>Adult, Baby, <mark>Offspring,</mark><br>Exercise,<br>Hygiene, balanced diet  | Dairy, protein, carbohydrates, fruit and<br>vegetable, fats and sugars<br>Movement, Muscles, Bones,<br>Skull, Nutrition, Skeletons, skull-brain,<br>ribcage-heart/lungs, spine<br>Vertebrate, invertebrate  | Digestive system, (including Oesophagus,<br>Stomach, Small Intestine, Large<br>Intestine)<br>Mouth, Tongue, Teeth, incisors, canines,<br>premolars, molars, wisdom<br>Herbivore,<br>Carnivore, Predator, prey, producer,<br>food chain   | Foetus, Embryo, Womb,<br>Gestation, Baby, Toddler,<br>Teenager, Elderly, Growth,<br>Development, Puberty, fertilisation,<br>umbilical cord, menstruation, acne  | Circulatory, (Including Heart, Blood<br>Vessels, Veins, Arteries, pulse, valve)<br>Oxygenated,<br>Deoxygenated,<br>Exercise, Respiration<br>Hygiene, nutrients  |
| Living things and their habitats | Recognise some environments are<br>different to the one in which they<br>live.<br>Describe what they can see, hear and<br>feel whilst outside.<br>Explore the habitats of different<br>animals and make comparisons  |  | Name common items that are living,<br>dead or have never been alive (laptop,<br>giraffe, sausages, cat, roast chicken,<br>paintbrush).<br>Name the 7 life processes (movement,<br>respiration, sensitivity growth,<br>reproduction, excretion, nutrition).<br>Describe how some animals (polar<br>bears, camels) are suited to their<br>habitats<br>Explain the term microhabitat.<br>Identify and name a variety of plants<br>and animals in their habitats (giraffe-<br>savannah, polar bear-polar regions,<br>camel-desert, shark-sea).<br>Use simple food chains to explain how<br>living things obtain food. |   | Recognise that living things can be<br>grouped in a variety of ways (animal<br>type/number of legs/diet/vertebrate or<br>invertebrate).<br>Use classification keys to help group,<br>identify and name a variety of living<br>things in their local environment.<br>Use classification keys to help group,<br>identify and name a variety of living<br>things in the wider environment.<br>Recognise that environments can change<br>and that this can sometimes pose<br>dangers to living things (littering,<br>pollution, deforestation).  | Define 'life cycle'.<br>Describe the differences in the life<br>cycles of a mammal, an amphibian, an<br>insect and a bird.<br>Describe the life process of<br>reproduction in some plants and<br>animals (bird, reptile, fish, amphibians,<br>mammal, seed dispersal).  | Explain the meaning of classify.<br>Describe how living things are classified<br>into groups according to common<br>observable characteristics and based on<br>similarities and differences.<br>Name types of micro-organism (algae,<br>bacteria, virus, protozoa, fungi).<br>Classify minibeasts based on specific<br>characteristics (legs/wings/antennae).<br>Give reasons for classifying plants and<br>animals based on specific characteristics.  |

| Key vocabulary:   |  |  |  |  |   |   |
|---|--|--|--|--|---|---|
|   |  |  |  |  |   |   |
|   | Habitat  |  | Living, Dead, Habitat, <mark>Energy</mark> ,<br>Food chain, (including Predator, Prey)   | <mark>Vertebrates</mark> , Fish,<br>Amphibians, Reptiles, Birds,<br>Mammals, <mark>Invertebrates</mark> ,  | Mammal, <mark>Reproduction</mark> , <mark>life cycle</mark><br>Insect, Amphibian, Bird, mammal<br>Offspring   | Classification,<br>Vertebrates,<br>Invertebrates, Micro -   |
|   | Distinguish between object and   | Distinguish between an object and the  | Woodland, Pond, Desert, savannah,<br>polar,<br>Life processes (including movement,<br>respirations, sensitivity, growth,<br>reproduction, excretion)<br>nutrition, microhabitat,   | Snails, Slugs, Worms,<br>Spiders, Insects,<br>Environment, Habitats<br>Classification, littering, pollution,<br>deforestation  | Compare and group together everyday   | organisms, Amphibians,<br>Reptiles, Mammals,<br>Insect<br><mark>Micro-organism, algae, bacteria, virus,</mark><br>protozoa, <mark>fung</mark> |
| Everyday materials (Y1)<br>Materials (Y2)<br>States of matter (Y4)<br>Properties and changes of materials<br>(Y5) | Distinguish between object and<br>material<br>Name common materials and<br>describe their properties (metal,<br>wood, plastic, glass, fabric, clay,<br>paper) (soft, hard, stiff, bendy, rough,<br>smooth, shiny, dull, see-through,<br>runny)<br>Observe how some materials change<br>then they have heated/cooled<br>Carry out simple fair experiments to<br>test properties | Distinguish between an object and the<br>material from which it is made (metal,<br>wood, plastic, rubber, glass).<br>Identify and name a variety of everyday<br>materials (including wood, plastic, glass,<br>metal, water, and rock).<br>Describe the simple physical properties<br>of a variety of everyday materials<br>(strong, fragile, see through, hard, soft,<br>bendy, stiff, smooth, rough).<br>Compare and group together a variety<br>of everyday materials on the basis of<br>their simple physical properties (as<br>above). | Identify and compare the suitability of a<br>variety of everyday materials (wood,<br>metal, plastic, glass, brick, rock, paper<br>and cardboard) for particular uses.<br>Understand how shapes of solid objects<br>made from some materials can be<br>changed by squashing, bending,<br>twisting and stretching. | Describe properties of solids, liquids and<br>gases.<br>Give examples of different solids, liquids<br>and gases.<br>Explain how materials may change state<br>when heated or cooled.<br>Understand that temperature is<br>measured in degrees Celsius (°C).<br>Know the freezing and boiling point of<br>water<br>Explain the meaning of condensation,<br>evaporation, collection and precipitation. | Compare and group together everyday<br>materials on the basis of their<br>properties, (hardness, solubility,<br>transparency, conductivity (electrical<br>and thermal), and response to<br>magnets).<br>Understand that some materials will<br>dissolve in liquid to form a solution.<br>Describe how to recover a substance<br>from a solution.<br>Use knowledge of solids, liquids and<br>gases to decide how mixtures might be<br>separated, including through filtering,<br>sieving and evaporating.<br>Give reasons for the particular uses of<br>everyday materials (glass jug, wooden<br>spoon).<br>Demonstrate that dissolving, mixing and<br>changes of state are reversible changes.<br>Explain that some changes result in the<br>formation of new materials.<br>Explain that some changes may be<br>irreversible (e.g. burning and the action<br>of acid on bicarbonate of soda). |   |
| Key vocabulary:   | Material, <mark>metal, wood, plastic, glass,</mark><br>fabric, clay, paper,<br>Properties, <mark>soft, hard</mark> , stiff, bendy,<br><mark>rough, smooth, shiny, dull,</mark> see-<br>through, runny, heat, cooled  | Material (including metal, wood, plastic, rubber, glass, water, rock)         Properties, (including strong, fragile, see-though, hard, soft, stiff, bendy, stuff, smooth, rough)         Object, identify   | Hard, Soft, Stretchy, Stiff,<br>Shiny, Dull, Rough, Smooth,<br>Bendy, Waterproof,<br>Absorbent, Opaque,<br>Transparent, reflective, rigid<br>Fabrics, Squashing, Bending,<br>Twisting, Stretching Elastic,<br>Foil, suitable   | Solid, Liquid, Gas,<br>Evaporation, Condensation,<br>Particles, Temperature,<br>Freezing, Heating  | Hardness, <mark>Solubility,</mark><br>Transparency,<br>Conductivity, electrical and thermal,<br>Magnetic,<br>Filter, Evaporation,<br>Dissolving, Mixing, irreversible, change<br>of state,  |   |
| Seasonal changes  | Name the four seasons and observe<br>and discuss seasonal changes in the<br>local area (including weather sun,<br>rain, wind, snow, cloudy, hail<br>,thunder and lightening)   | Name the 4 seasons.<br>Understand that weather changes<br>between the seasons.<br>Describe the general weather of each<br>season.<br>Understand that the length of days<br>change in different seasons (days<br>become shorter in autumn).   |  |  |   |   |
| Key vocabulary  | Season, Spring, Summer, Autumn,<br>Winter, <mark>weather,</mark> (including sun, rain,<br>wind, snow, cloudy, hail, thunder<br>lightening,)<br>dark, light, day, night   | Season, <mark>Summer, Spring, Autumn,</mark><br><mark>Winter,</mark> Sun, Day, Moon,<br>Night, Light, Dark   |  |  |   |   |

| Rocks           |  |  | Understand that the Earth's crust is<br>made of rocks and soils.<br>Compare and group together different<br>kinds of rocks on the basis of their<br>appearance and simple physical<br>properties (limestone, granite, slate,<br>marble, chalk, sandstone, clay).<br>Describe in simple terms how fossils are<br>formed when things that have lived are<br>trapped within rock.<br>Recognise that soils are made from<br>rocks and organic matter.  |  |
|-----------------|--|--|--|--|
| Key vocabulary: |  |  | Earth's crust. Fossils, Soils, Sandstone,<br>Granite, Marble, Pumice, limestone,<br>clay, chalk, slate<br>Crystals, Absorbent  |  |
| Light           | Understand that there are different<br>sources of light. The moon and shiny<br>paper are not light sources.<br>When the light source is blocked by<br>an object, it creates a shadow |  | Understand that light is needed in order<br>to see.<br>Understand that darkness is the<br>absence of light.<br>Show how light is reflected from<br>surfaces<br>Describe the dangers of sunlight<br>(damage eyes/skin).<br>Explain how to protect ourselves from<br>the sun (sun cream, sun glasses, sun<br>hat, staying in shade during hottest<br>times).<br>Recognise that shadows are formed<br>when the light from a light source is<br>blocked by an opaque object.<br>Find patterns in the way that the size of<br>shadows change (distance and shadow<br>size). |  |
| Key vocabulary: | <mark>Light, dark, day, night,</mark> shadow   |  | Light, <mark>Shadows</mark> , Darkness, Mirror,<br><mark>Reflective</mark> , Dark, <mark>Reflection, eclipse</mark>  |  |
| Forces          |  |  | Compare how things move on different<br>surfaces (pushes and pulls).<br>Understand that some forces need<br>contact between 2 objects, but<br>magnetic forces can act at a distance.<br>Group materials (paper, glass, steel,<br>copper, iron, plastic, aluminium)<br>depending on whether they are<br>magnetic.<br>Identify some magnetic objects.<br>Describe magnets as having 2 poles<br>(north and south).<br>Explain whether 2 magnets will attract<br>or repel each other, depending on<br>which poles are facing.  | Explain w<br>Explain th<br>towards t<br>of gravity<br>the falling<br>Identify tl<br>Identify tl<br>Understa<br>(levers, pi<br>smaller fo |
| Key vocabulary: |  |  | Magnetic, Force, Contact,<br>Attract, Repel, Friction, Poles,<br>Push, Pull, North, South  | Air resista<br>resistance<br><mark>Gravity</mark> , N<br>Pulleys, Le   |

|   | Recognise that light appears to travel in<br>straight lines.<br>Explain that objects are seen because<br>they give out or reflect light into the eye.<br>Explain that we see things because light<br>travels from light sources to our eyes or<br>from light sources to objects and then to<br>our eyes.<br>Explain why shadows have the same<br>shape as the objects that cast them.<br>Explain the difference between reflection<br>and refraction.<br>Explain how mirrors reflect light. |
|---|---|
|   | Refraction, Reflection,<br>Light, <mark>Spectrum</mark> , iris, retina<br>Angle of reflection & incidence<br>Rainbow, Colour,   |
| plain what gravity does.<br>plain that unsupported objects fall<br>wards the Earth because of the force<br>gravity acting between the Earth and<br>e falling object.<br>entify the effects of air resistance.<br>entify the effects of water resistance.<br>entify the effects of friction.<br>nderstand that some mechanisms<br>vers, pulleys and gears) allow a<br>naller force to have a greater effect. |   |
| <mark>rresistance, Water</mark><br>sistance, <mark>Friction</mark> ,<br><mark>avity</mark> , Newton, Gears,<br>Illeys, Levers   |   |

| Sound                     |  |  | Identify how sounds are made,<br>associating some of them with<br>something vibrating.   |   |   |
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|                           |  |  | Understand that vibrations from sounds<br>travel through a medium to the ear.<br>Find patterns between the pitch of a<br>sound and features of the object that |   |   |
|                           |  |  | produced it.<br>Find patterns between the volume of a<br>sound and the strength of the vibrations  |   |   |
|                           |  |  | that produced it.<br>Understand that sounds get fainter as<br>the distance from the sound source<br>increases.   |   |   |
| Key vocabulary:           |  |  | Volume, Vibration, Wave,   |   |   |
|                           |  |  | Identify common appliances that run on electricity.  |   | Understand that brightness of a lamp or the volume of a buzzer is affected by                     |
| Electricity               |  |  | Construct a simple series electrical<br>circuit, identifying and naming its basic  |   | voltage of cells used in the circuit.<br>Compare how components function,                         |
|                           |  |  | parts (cells, wires, bulbs, switches and buzzers).   |   | including the brightness of bulbs, the<br>loudness of buzzers and the on/off                      |
|                           |  |  | identify whether or not a lamp will light<br>in a simple series circuit, based on<br>whether or not the lamp is part of a                                      |   | position of switches.<br>Give reasons for variations in how<br>components function, including the |
|                           |  |  | complete loop with a battery.<br>Recognise that a switch opens and closes  |   | brightness of bulbs, the loudness of<br>buzzers and the on/off position of                        |
|                           |  |  | a circuit and associate this with whether<br>or not a lamp lights in a simple series   |   | switches.<br>Use recognised symbols when  |
|                           |  |  | circuit.<br>Recognise common conductors (copper,<br>aluminium iron, steel) and insulators  |   | representing a simple circuit in a diagram.   |
|                           |  |  | (glass, plastic, wood, rubber).<br>Understand that metals are good   |   |   |
|                           |  |  | conductors of electricity.<br>Cells, Wires, Bulbs,   |   | Wires, Bulbs,<br>Switches, Buzzers,   |
| Key vocabulary            |  |  | Switches, Buzzers, Battery,<br><mark>Circuit, Series, Conductors,</mark><br>Insulators   |   | Battery, Circuit, Series,<br>Conductors, Insulators,<br><mark>Amps, Voltage, Cell, current</mark> |
| Earth and space           |  |  |  | Describe the movement of the Earth<br>relative to the sun in the solar system.<br>Describe the movement of other plants |   |
|                           |  |  |  | relative to the sun in the solar system.<br>Describe the movement of the moon   |   |
|                           |  |  |  | relative to the Earth.<br>Describe the sun, Earth and moon as   |   |
|                           |  |  |  | approximately spherical bodies.<br>Use the idea of the Earth's rotation to<br>evalue day and pickt and the apparent     |   |
|                           |  |  |  | movement of the sun across the sky.   |   |
| Key vocabulary:           |  |  |  | <mark>Solar system, planet, orbit</mark> , Earth, Sun,<br>Moon, <mark>Axis</mark> ,                                     |   |
|                           |  |  |  | Phases of the Moon, star,<br>constellation  |   |
| Evolution and inheritance |  |  |  |   | Explain the meaning of evolution, inheritance and adaptation.                                     |
|                           |  |  |  |   | Recognise that living things have changed<br>over time.<br>Understand that fossils provide        |
|                           |  |  |  |   | information about living things that<br>inhabited the Earth millions of years ago.                |
|                           |  |  |  |   | Recognise that living things produce offspring of the same kind, but normally                     |
|                           |  |  |  |   | offspring vary and are not identical to<br>their parents.   |
|                           |  |  |  |   | adapted to suit their environment in<br>different ways and that adaptation may                    |
| Key vocabulary:           |  |  |  |   | lead to evolution.<br>Evolution Inheritance Species Adaptation                                    |
|                           |  |  |  |   | Variation   |

| EYFS:   |  | KS1  | LKS2   |   |
|---|--|--|--|---|
| <ul> <li>Show curiosity and<br/>answer questions.</li> <li>Make observations<br/>using their senses<br/>and simple<br/>equipment.</li> <li>Make direct<br/>comparisons.</li> <li>Use equipment to<br/>measure.</li> <li>Record their<br/>observations by<br/>drawing, taking<br/>photographs, using<br/>sorting rings or<br/>boxes and, in<br/>Reception, on<br/>simple tick sheets.</li> <li>Use their<br/>observations to<br/>help them answer<br/>questions.</li> <li>Talk about what<br/>they are doing and<br/>have found out.</li> <li>Identify, sort and<br/>group.</li> </ul> | Asking questions and recognising that<br>they can be answered in different ways. | <ul> <li>While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions.</li> <li>The children answer questions developed with the teacher often through a scenario.</li> <li>The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.</li> </ul> | <ul> <li>While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions.</li> <li>The children answer questions developed with the teacher often through a scenario.</li> <li>The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.</li> </ul> | Children in<br>experience<br>following a<br>Given a wic<br>evidence to<br>justify thei<br>questions t                                       |
|   | Making observations and taking measurements.                                     | Children explore the world around them. They make careful observations to support<br>identification, comparison and noticing change. They use appropriate senses, aided by<br>equipment such as magnifying glasses or digital microscopes, to make their<br>observations.<br>They begin to take measurements, initially by comparisons, then using non-standard<br>units.  | The children make systematic and careful observations.<br>They use a range of equipment for measuring length, time, temperature and capacity.<br>They use standard units for their measurements.   | The childre<br>tape mease<br>During an e<br>(fair testing<br>and freque<br>in order to  |
|   | Engaging in practical enquiry to answer<br>questions.                            | The children use practical resources provided to gather evidence to answer questions<br>generated by themselves or the teacher. They carry out: tests to classify; comparative<br>tests; pattern seeking enquiries; and make observations over time.<br>Children use their observations and testing to compare objects, materials and living<br>things. They sort and group these things, identifying their own criteria for sorting.<br>They use simple secondary sources (such as identification sheets) to name living things.<br>They describe the characteristics they used to identify a living thing                                    | The children select from a range of practical resources to gather evidence to answer<br>questions generated by themselves or the teacher.<br>They follow their plan to carry out: observations and tests to classify; comparative and<br>simple fair tests; observations over time; and pattern seeking  | The childre<br>their quest<br>decide wha<br>look for pa   |
|   | Recording and presenting evidence.   | The children record their observations e.g. using photographs, videos, drawings,<br>labelled diagrams or in writing.<br>They record their measurements e.g. using prepared tables, pictograms, tally charts<br>and block graphs.<br>They classify using simple prepared tables and sorting rings.  | The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams.  | The childre<br>using anno<br>labelled sci<br>charts, bar<br>tables, Ven<br>Children pu  |
|   | Answering questions and concluding.  | Children use their experiences of the world around them to suggest appropriate<br>answers to questions. They are supported to relate these to their evidence e.g.<br>observations they have made, measurements they have taken or information they have<br>gained from secondary sources.<br>The children recognise 'biggest and smallest', 'best and worst' etc. from their data.   | Children answer their own and others' questions based on observations they have<br>made, measurements they have taken or information they have gained from secondary<br>sources. The answers are consistent with the evidence.<br>Children interpret their data to generate simple comparative statements based on their<br>evidence. They begin to identify naturally occurring patterns and causal relationships.<br>They draw conclusions based on their evidence and current subject knowledge.  | Children ar<br>made, mea<br>sources. W<br>secondary<br>They talk a<br>gathered.<br>They talk a<br>In their con<br>world from<br>explain the |
|   | Evaluating and raising further questions and predictions.                        |  | They identify ways in which they adapted their method as they progressed or how they<br>would do it differently if they repeated the enquiry.<br>Children use their evidence to suggest values for different items tested using the same<br>method e.g. the distance travelled by a car on an additional surface.<br>Following a scientific experience, the children ask further questions which can be<br>answered by extending the same enquiry.   | They evalue<br>precision a<br>They ident<br>Children us<br>they can in  |
|   | Communicating their findings.  |  | They communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary.  | They comr<br>illustration   |

## UKS2

ndependently ask scientific questions. This may be stimulated by a scientific e or involve asking further questions based on their developed understanding an enquiry.

de range of resources the children decide for themselves how to gather to answer a scientific question. They choose a type of enquiry to carry out and ir choice. They recognise how secondary sources can be used to answer that cannot be answered through practical work.

en select measuring equipment to give the most precise results e.g. ruler, sure or trundle wheel, force meter with a suitable scale.

enquiry, they make decisions e.g. whether they need to: take repeat readings g); increase the sample size (pattern seeking); adjust the observation period ency (observing over time); or check further secondary sources (researching); o get accurate data (closer to the true value).

en select from a range of practical resources to gather evidence to answer tions. They carry out fair tests, recognising and controlling variables. They at observations or measurements to make over time and for how long. They atterns and relationships using a suitable sample

en decide how to record and present evidence. They record observations e.g. otated photographs, videos, labelled diagrams, observational drawings, cientific diagrams or writing. They record measurements e.g. using tables, taly r charts, line graphs and scatter graphs. They record classifications e.g. using nn diagrams, Carroll diagrams and classification keys.

resent the same data in different ways in order to help with answering the

nswer their own and others' questions based on observations they have asurements they have taken or information they have gained from secondary Vhen doing this, they discuss whether other evidence e.g. from other groups, y sources and their scientific understanding, supports or refutes their answer.

about how their scientific ideas change due to new evidence that they have

about how new discoveries change scientific understanding.

nclusions, children: identify causal relationships and patterns in the natural n their evidence; identify results that do not fit the overall pattern; and eir findings using their subject knowledge.

late, for example, the choice of method used, the control of variables, the and accuracy of measurements and the credibility of secondary sources used.

tify any limitations that reduce the trust they have in their data.

se the scientific knowledge gained from enquiry work to make predictions nvestigate using comparative and fair tests.

municate their findings to an audience using relevant scientific language and ns.