



## Science Progression Framework

### Substantive Knowledge

| EYFS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| The Natural World                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ELG: Explore the natural world around them, making observations and drawing pictures of animals and plants.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ELG: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p><b>Exploring the Natural World</b></p> <p>Explore the outside area – secret garden, 3 tree wood.<br/>Describe what they can see (or have seen) on a walk outside.<br/>Join in with songs and poems about the natural world e.g. Incey Wincey Spider.<br/>Name and recognise some basic animals (cat, dog, sheep, cow, horse, pig)</p> <p><b>Weather</b></p> <p>Discuss what the weather is like today.<br/>Discuss the season and how we know it is that season.<br/>Describe what happens in Autumn – leaves changing colour, leaves falling off the trees, weather getting colder and wetter.<br/>Describe what happens in winter – cold weather, animals hibernate, trees bare, no flowers.</p> <p><b>Changes of State</b></p> <p>Explore floating and sinking.<br/>Predict whether something will float or sink.<br/>Test their prediction and say what happened.</p> | <p><b>Exploring the Natural World</b></p> <p>Draw pictures of things I have seen in the natural world e.g. a flower.<br/>Look closely at animals/plants and notice the different parts e.g. do they have wings?<br/>How many legs does it have?<br/>Describe what they hear, see and feel in the outside environment.<br/>Recognise some flowers including daisies and daffodils.</p> <p><b>Weather</b></p> <p>Know that weather changes through the seasons.<br/>Describe some of the changes that happen in Autumn, Winter, Spring.</p> <p><b>Changes of State</b></p> <p>Explore ice melting.<br/>Know that ice is cold.<br/>Describe what is happening.<br/>Know that when ice melts it becomes water.</p>                                                                                                                                                                    | <p><b>Exploring the natural world</b></p> <p>Recognise and name some minibeasts (snail, worm, ladybird, ant, spider), animals and birds (robin, blackbird).<br/>Look closely at the features of a minibeast and draw it e.g. a ladybird.<br/>Describe the changes taking place in the life cycle of a frog. Recognise and name a tadpole and frogspawn.<br/>Describe the life cycle of a caterpillar. Recognise and name a butterfly. Link this to how they have changed since being babies.<br/>Describe and comment on what happens to the cress seeds they plant. Learn that plants need sun and water to grow.<br/>Comment on and explore using touch, sight and smell the plants that they grow.</p> <p><b>Weather</b></p> <p>Describe some of the changes that happen in Summer.</p> <p><b>Changes of state</b></p> <p>Explore magnets and a range of magnetic and non-magnetic objects. Say what they notice.<br/>Know that magnetic objects are attracted to magnets.<br/>Explore shadows.<br/>Notice shadows when playing outside. Notice shadows in story – The Gruffalo’s child.<br/>Notice that shadow appear on sunny days.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Year 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p><b>Everyday Materials</b></p> <p>Know the following everyday materials: wood, plastic, glass, metal, water, rock, brick, paper, fabric and foil.<br/>Know the difference between an object and the material from which it is made.<br/>Know the simple physical properties (hard/soft, stretchy/stiff, shiny/dull, rough/smooth, bendy/not bendy, waterproof/ not waterproof, absorbent/ not absorbent, opaque/ transparent) of the above everyday materials.</p>                                                                                                                                                                                                                                                                                                                                                                                                         | <p><b>Animals Including Humans</b></p> <p>Know the following parts of the human body: hair, head, ears, eyes, nose, mouth, tongue, teeth, chin, neck, shoulders, arms, elbow, wrist, fingers, back, abdomen, legs, knees, ankles, feet, toes.<br/>Know the 5 senses: touch, smell, taste, sight, hearing.<br/>Know which part of the body is associated with each sense.<br/>Know a variety of common animals (vertebrates) including fish, amphibians, reptiles, birds, and mammals.<br/>Know the structure of common vertebrates. vertebrates: fish, amphibians, reptiles, birds, and mammals.<br/>Know how the structure of common vertebrates differs between the 5 classes.<br/>Know which animals are commonly kept as pets.<br/>Know the meaning of carnivore, herbivore, and omnivore.<br/>Know a variety of animals which are carnivores, herbivores, and omnivores.</p> | <p><b>Seasonal Changes</b></p> <p>Know the four seasons: autumn, spring, summer, winter<br/>Know the weather associated with each season.<br/>Know what happens in each of the seasons.<br/>Know the changes across the 4 seasons.<br/>Know that in winter days are shorter, and in summer days are longer.<br/>Know that it is not safe to look directly at the Sun.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p><b>Plants</b></p> <p>Know the meaning of deciduous and evergreen.<br/>Know a variety of deciduous and evergreen trees.<br/>Know the following parts of deciduous and evergreen trees: roots, trunk, branches, leaves.<br/>Know a variety of common flowering plants: wild plants – bluebells, dandelions, buttercups, poppies, cowslip, clover.<br/>Garden plants – sunflowers, tulips, rose, pansy.<br/>Know the basic structure of a variety of common flowering plants, including trees: roots, stem, leaves, flower</p> |
| Year 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p><b>Animals Including Humans</b></p> <p>Know that animals, including humans, have offspring which grow into adults.<br/>Know the stages of growth/life in humans.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p><b>Uses of Everyday Materials</b></p> <p>Know uses of a variety of everyday materials.<br/>Know the suitability of everyday materials for particular uses.<br/>Know that the properties of materials make them more or less suitable for particular uses.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p><b>Plants</b></p> <p>Know that seeds and bulbs grow into mature plants.<br/>Know how seeds and bulbs grow into mature plants during the life cycle of a plant.<br/>Know the meaning of germination.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p><b>Living Things and their Habitats</b></p> <p>Know that things are either living, dead or have never been alive.<br/>Know things that are living and have never been alive.<br/>Know differences between things that are living, dead or have never lived.</p>                                                                                                                                                                                                                                                             |



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| Know an example of the stages of growth/life in an animal (eg: chicken, caterpillar).<br>Know the basic needs of animals, including humans, for survival (water, food, and oxygen).<br>Know the importance of exercise for human.<br>Know the importance of eating the right amount of different food types.<br>Know the important of hygiene.<br>Know ways to keep my body healthy (EG: regular exercise, good hygiene, a balanced diet).                                                                                                                                                                            | Know that the shape of some materials can be changed: twisting, bending, stretching, squashing.<br>Know that when changing the shape of an object some will return to its original shape whilst others will remain changed.                                                                                                                                                                                                                                                                                                                     | Know that plants need water, light, and a suitable temperature to grow and stay healthy.<br>Know that the time of year effects plant growth.<br>Suggested seeds: wildflower seed mix.                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Know that all living things have characteristics that are essential to keeping them alive and healthy.<br>Know the meaning of habitat and micro-habitat.<br>Know a variety of plants and animals in their habitats, including microhabitats.<br>Know that animals and plants are adapted to suit their environment.<br>Know, though examples, that habitats and animals depend on each other.<br>Know that different habitats provide the basic needs of plants and animals.<br>Know that animals obtain their food from plants and other animals.<br>Know, though examples, what a food chain is and how to construct one.                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Years 3 and 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Cycle A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <u>Plants (Y3)</u><br><br>Know the function of the following parts of flowering plants: roots, stem/trunk, leaves, flowers.<br>Know that water is absorbed through roots and transported throughout a plant.<br>Know that plants require water, nutrients, air, light and warmth for life and growth and how they vary from plant to plant.<br>Know that plants can make their own food.<br>Know the life cycle of a flowering plant, including the following processes: pollination, seed formation and seed dispersal.<br>Suggested seeds: petunia, snapdragons, ageratum, rapid-cycling brassica, radishes, cress. | <u>Forces and magnets (Y3)</u><br><br>Know that friction is a force between objects that touch.<br>Know similarities and differences between how objects move on different surfaces.<br>Know that some forces require contact between two objects.<br>Know that magnetic forces can act at a distance, and do not require contact.<br>Know some magnetic materials.<br>Know that magnets have two poles.<br>Know how magnets attract and repel.<br>Know whether two magnets will attract or repel.<br>Know magnetic and non-magnetic materials. | <u>Animals including humans (Y3)</u><br><br>Know that animals, including humans, cannot make their own food.<br>Know that the skeletal and muscular system of a human provide support, protection, and movement.<br>Know that a vertebrate is an animal with a backbone.<br>Know that an invertebrate is an animal without a backbone.<br>Know examples of vertebrates and invertebrates.<br>Know that a nutritious, balanced diet is made up from the 5 food groups.<br>Know the following food groups: fats, dairy, carbohydrates, protein, fruit and vegetables.<br>Know that a balanced meal includes portions of all 5 food groups. | <u>Animals including humans (Y4)</u><br><br>Know the functions of the following parts of the digestive system: <i>Mouth, tongue, teeth, oesophagus, stomach, small and large intestine</i> .<br>Know the types and functions of human teeth (incisors, canines, premolars, molars).<br>Know that carnivores have teeth for slicing and cutting meat.<br>Know that herbivores have teeth for griding and crushing plants.<br>Know how the teeth of carnivores and herbivores are suited to their purpose.<br>Know how to keep teeth healthy by...?? and explain possible damages to teeth.<br>Know the meaning of producer, prey, predator, and consumer.<br>Know the producers, preys, predators, consumers in a food chain. | <u>Electricity (Y4)</u><br><br>Know common appliances that require electricity to function.<br>Know the names of the basic parts of a series circuit; cell, wire<br>Know how to construct a series circuit.<br>Know how to draw series circuit using picture representation (symbols).<br>Know that a lamp needs power and an electrical current to work in a series circuit.<br>Know whether or not a lamp will light within a series circuit.<br>Know that a switch opens and closes a circuit.<br>Know how the position of the switch effects the circuit.<br>Know that electrical conductors conduct electricity.<br>Know that electrical insulators do not conduct electricity.<br>Know that metals are good conductors of electricity. |
| Cycle B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <u>Rocks (Y3)</u><br><br>Know the different types of rocks.<br>Know the difference between sedimentary, metamorphic and igneous rock.<br>Know the appearance and physical properties of different types of rocks.<br>Know that some fossils the remains of living things that were buried in sediment.<br>Know that soils are made from rocks and organic matter.                                                                                                                                                                                                                                                     | <u>States of Matter (Y4)</u><br><br>Know the meanings of solids, liquids, gases.<br>Know examples of solids, liquids and gases.<br>Know that all materials change state when they are heated or cooled.<br>Know the temperature at which some materials change state.<br>Know that water can change state to form a solid, liquid and gas.<br>Know the stages in the water cycle.<br>Know the part of evaporation and condensation in the water cycle.<br>Know how temperature effects the rate of evaporation.                                 | <u>Living things and their habitats (Y4)</u><br><br>Know that living things can be grouped in a variety of ways.<br>Know how to use classification keys to identify, name and group a variety of micro-organisms, plants and animals.<br>Know, through exploring examples, how to classify living things by their features.<br>Know how changes to an environment may pose dangers to living things.                                                                                                                                                                                                                                     | <u>Light (Y3)</u><br><br>Know that dark is the absence of light.<br>Know that light is needed in order to see.<br>Know examples of natural and artificial sources of light.<br>Know that light is reflected from a surface into our eyes.<br>Know that the light from the sun can be dangerous.<br>Know ways to protect their eyes.<br>Know that a shadow is formed by an object blocking the light, including the need for an opaque object.<br>Know patterns in how the size of shadows changes.                                                                                                                                                                                                                           | <u>Sound (Y4)</u><br><br>Know that sound is made by something vibrating.<br>Know that vibrations from sound travels from through a medium to their ear.<br>Know that sound gets fainter as the distance from the sound source increases.<br>Know that the number of vibrations per second effect the pitch of the sound produced.<br>Know the relationship between the size of the vibrations and the volume it produces.                                                                                                                                                                                                                                                                                                                    |



| Years 5 and 6                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Cycle A                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <u>Living things and their habitats (Y5)</u>                                                                                                                                                                                                                                                                                                                                                                                              | <u>Living things and their habitats (Y6)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <u>Electricity (Y6)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                       | <u>Light (Y6)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <u>Properties and changes in materials (Y5)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Know the life cycles of a mammal, an amphibian, an insect, and a bird.<br>Know differences between the life cycles of a mammal, an amphibian, an insect, and a bird.<br>Know the process of sexual reproduction in animals.<br>Know that plants can reproduce sexually.<br>Know that the flower is the sexual organ of the plant.<br>Know the process of asexual reproduction in plants.                                                  | Know how to construct a classification key.<br>Know how living things are classified into groups based on observable characteristics, similarities, and differences, including micro-organisms, plants and animals.<br>Know how to classify plants into sub-groups based on specific characteristics.<br>Know how to classify animals into sub-groups based on specific characteristics.<br>Know how to justify classification choices based on specific characteristics.                     | Know the correct symbols for components a circuit diagram.<br>Know how to construct a circuit diagram using correct symbols.<br>Know how the number and voltage of cells effects the brightness of a lamp or volume of a buzzer.<br>Know reasons for variations in how components function, including the brightness of bulbs, loudness of buzzers, and on/off position of switches.<br>Know the dangers and precautions for working safely with electricity. | Know that light travels in straight lines.<br>Know that we see objects that omit light as light travels from the object and enters our eye.<br>Know that we see objects which do not omit light, as light reflects from those objects and enters the eye.<br>Know that shadows have the same shape as the object that casts them.<br>Know that the size of a shadow changes due to the distance of the object from the light source.                                                                                                                                                                                                          | Know the properties of everyday materials.<br>Know how to classify everyday materials based on their properties: hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets.<br>Know, based on evidence, particular uses of everyday materials.<br>Know that some materials dissolve in liquid to form a solution.<br>Know that evaporation can be used to separate a dissolved substance from a solution.<br>Know that mixtures can be separated through filtering, sieving and evaporating.<br>Know that dissolving, mixing and changes of state are reversible changes.<br>Know that some changes in state result in the formation of new materials.<br>Know that burning and the action of acid on bicarbonate of soda is not reversible. |
| Cycle B                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <u>Forces (Y5)</u>                                                                                                                                                                                                                                                                                                                                                                                                                        | <u>Earth and Space (Y5)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <u>Animals including humans (Y5)</u>                                                                                                                                                                                                                                                                                                                                                                                                                          | <u>Animals including humans (Y6)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <u>Evolution and inheritance (Y6)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Know that gravity is a force that attracts objects towards the centre of the Earth.<br>Know that unsupported objects fall towards the Earth because of gravity.<br>Know that friction is a contact force.<br>Know that air resistance causes friction and slows objects down.<br>Know that water resistance causes friction and slows things down.<br>Know that levers, pulleys and gears allow a smaller force to have a greater effect. | Know the eight planets of the solar system in order.<br>Know that the Sun, Earth and Moon are approximately spherical bodies.<br>Know that heliocentric means that all planets revolve around the sun.<br>Know that the sun is a star that is static at the centre of the solar system.<br>Know the movement of the Earth and other planets relative to the sun.<br>Know the movement of the Moon relative to the Earth.<br>Know that day and night are created by the rotation of the Earth. | Know how humans develop and change during the different stages of life.<br>Know that puberty is when a child’s body develops into an adult’s body.<br>Know that puberty is needed for reproduction.<br>Know the changes that males and females experience during puberty.                                                                                                                                                                                     | Know the impact of diet, exercise, drugs, and lifestyle on the way the human body functions.<br>Know how to lead a healthy lifestyle (EG: balanced diet, good hygiene, regular exercise, free from drugs).<br>Know that the body can be damaged through use of drugs and other harmful substances.<br>Know that digested food (nutrients) is absorbed through the small intestine into the blood.<br>know that water is transported by the blood.<br>Know that the main parts of the human circulatory system are the heart and blood vessels.<br>Know that the heart pumps blood, blood vessels carry blood, and blood transports nutrients. | Know that living things change over time and are still changing.<br>Know that fossils provide information about living things that inhabited the Earth millions of years ago.<br>Know that living things produce offspring of the same kind, but normally not identical.<br>Know how plants and animals are adapted to suit to their environment.<br>Know how adaptation may lead to evolution.                                                                                                                                                                                                                                                                                                                                                                                      |



## Disciplinary Knowledge

| Strand                 | EYFS                                                                                                  | Year 1                                                                                                             | Year 2                                                                                                                        | Year 3                                                                                                                                  | Year 4                                                                                                                                                           | Year 5                                                                                                                                                              | Year 6                                                                                                                                                                                  |
|------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Observing</b>       | Know how to ask ‘what if’ questions, make statements or show curiosity in the natural world.          | Know how to ask ‘why’ questions or observe changes in the natural environment during investigations.               | Know how to ask ‘why’ or ‘what if’ questions about observed changes over time.                                                | Know how to ask questions based on the cause and effect of observations.                                                                | Know how to ask questions using prior knowledge, observations or trends.                                                                                         | Know how to use understanding to question or explain my observations and findings.                                                                                  | Know how to use my understanding to question scientific concepts or recorded observations.                                                                                              |
| <b>Explaining</b>      | Know how to comment on what is happening in the world around me using simple learnt scientific facts. | Know how to orally recall some scientific facts to explain observations<br>Know how to match a label to a picture. | Know how to select scientific facts to explain my findings or match given labels to the correct part of a diagram.            | Know how to use facts, scientific research, or vocabulary from a word bank to explain a given diagram.                                  | Know how to use facts, scientific research, or independently label a drawn diagram to explain scientific processes or theories.                                  | Know how to use facts or scientific research from different viewpoints to explain similarities and differences in drawn diagrams, scientific processes or theories. | Know how to use facts, scientific research, or scientific knowledge and understanding to compare and evaluate scientific diagrams processes, or theories to present a logical argument. |
| <b>Classifying</b>     | Know how to name simple things relating to science and group them based on visual differences.        | Know how to classify by identifying similarities, differences, properties or characteristics.                      | Know how to create my own criteria for classifying by identifying changes over time, or describing appearance and properties. | Know how to compare appearance and properties using given scientific information and use this to construct a simple classification key. | Know how to design, construct and use a simple classification key to identify.                                                                                   | Know how to use a sub-group when creating my own criteria for classifying.                                                                                          | Know how to use multiple sub-groups when creating my own criteria for classifying.                                                                                                      |
| <b>Predicting</b>      | Know how to comment on what might happen next.                                                        | Know how to make a suitable prediction.                                                                            | Know how to use my experiences to explain what might happen.                                                                  | Know how to predict cause and effect (casual prediction).                                                                               | Know how to predict a trend (relationship prediction).                                                                                                           | Know how to use knowledge and understanding to generate and explain a testable hypothesis.                                                                          | Know how to generate a testable hypothesis and consider variables when making predictions.                                                                                              |
| <b>Investigating</b>   | Know what we are investigating.                                                                       | Know there are different ways to start an investigation.                                                           | Know what and how we might investigate.                                                                                       | Know how to explain what the independent variable is and how we might investigate it in a given experiment.                             | Know how to explain what the independent and control variables are and how we might investigate in a given experiment.                                           | Know how to explain what the independent, dependent and control variables are and how we might investigate in a given experiment.                                   | Know how to design and conduct fair and comparative tests, which consider independent, dependent, and control variables.                                                                |
| <b>Working safely</b>  | Know how to follow simple safety instructions when using scientific equipment.                        | Know how to explain how to stay safe during an investigation.                                                      | Know how to identify hazards and consequences when selecting suitable equipment for an investigation.                         | Know how to use hazards, consequences and mitigations to explain and justify the selection of equipment for an investigation.           | Know how to use hazards, consequences and mitigations to explain and justify the selection of equipment for an investigation and identify possible alternatives. | Know how to explain reasons for selected specific equipment, identify possible alternatives and demonstrate safe working practices when investigating.              | Know how to select specific equipment to alter an investigation by implementing mitigations and reducing risk.                                                                          |
| <b>Collecting data</b> | Know how to use non-standard units of measure to compare 2 things.                                    | Know how to use non-standard units of measure to compare multiple things.                                          | Know how to collect quantifiable data.                                                                                        | Know how to take measurements using standard units.                                                                                     | Know how to collect repeated measurements using standard units.                                                                                                  | Know how to convert between units of measure.                                                                                                                       | Know how to collect repeated measurements and calculate an average.                                                                                                                     |
| <b>Recording data</b>  | Know how to use blocks or pictures to represent data or be part of a human pictogram.                 | Know how to populate a given table or pictogram.                                                                   | Know how to populate a given bar chart or create headings for columns and rows when populating a simple table.                | Know how to construct and populate a simple pre-planned table or graph using a given frame and scales.                                  | Know how to design, construct and populate a given table or scale axis on a given frame to populate a graph or chart.                                            | Know how to design, construct and populate a table, graph or chart.                                                                                                 | Know how to design, construct and populate a table, graph or chart to show repeated data or mean averages.                                                                              |
| <b>Concluding</b>      | Know how to use what we observed to answer a simple comparative statement.                            | Know how to use what we observed to make a simple comparative statement.                                           | Know how to use what we observed and data to identify patterns and explain.                                                   | Know how to make simple relationships statements from sets of data.                                                                     | Know how to make and explain scientific statements using repeated data.                                                                                          | Know how to make and explain scientific statements using repeated data and identifying anomalies.                                                                   | Know how to make and explain scientific statements, with consideration for margin or error, differences in sets of repeated data, and identify anomalies.                               |