



# Bishop's Castle Primary School

## Science Knowledge Progression

Red is NC that can be applicable in more than one strand

| Strand  | EYFS   | End of KS1 (Y2)  | Mid KS2 (Y4)  | End of KS2 (Y6)  |
|---|--|--|---|--|
| <b>Plants Vocabulary</b>                          | Tree, leaf, plant, animal, flower  | plant, bulb, deciduous, evergreen, germinate Leaf, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, leaf, Root<br>Names of trees, garden and wild flowering plants in the local area<br>light, shade, sun, warm, cool, water, grow, healthy  | Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal) seed head   | Life cycle, reproduce, flowering, non-flowering, plantlets, runners, bulbs, cuttings   |
| <b>Plants</b>                                     | Explore the natural world around them, making observations and drawing pictures of animals and plants; Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter | <ul style="list-style-type: none"> <li>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> <li>Observe and describe how seeds and bulbs need water, light and a suitable temperature to grow and stay healthy</li> <li>Observe different types of seed and investigate conditions for growth</li> <li>Identify and name a variety of plants and animals in their habitats including microhabitats (Y2 living things)</li> </ul> | <ul style="list-style-type: none"> <li>3 Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</li> <li>Explore the requirements of plants for life and growth (air, light, water, nutrients from the soil, and room to grow) and how they vary from plant to plant</li> <li>Investigate the way in which water is transported within plants.</li> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> <li>4 Recognise that living things can be grouped in a variety of ways. (Y4 LTh)<br/>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 LTh)<br/>Recognise that environments can change and that this and sometimes pose dangers to living things (Y4 LTH)</li> </ul> | <p>Describe the life process of reproduction in some plants and animals. (Y5 LTh)</p> <p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. (Y6LTh)</p> <p>Give reasons for classifying plants and animals based on specific characteristics. (Y6LTh).</p> |
| <b>Living things and their habitat Vocabulary</b> | Alive, dead, move feed, shelter, log, grass,   | Living, dead, never been alive, suited, basic needs, food, food chain, shelter, move, feed<br>Names of local habitats e.g. pond, woodland etc.<br>Names of micro-habitats e.g. under logs, in bushes etc.  | 3 Classification, classification keys, environment, habitat, human impact, migrate, hibernate   | 5 Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, runners, bulbs, cuttings<br>6 Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering  |
| <b>Living things and their habitats</b>           | Explore the natural world around them, making observations and drawing pictures of animals and plants; Understand some important processes and changes in the natural world around them,   | Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1P)   | <ul style="list-style-type: none"> <li>Recognise that living things can be grouped in a variety of ways.</li> <li>Explore and use classification keys to help group, identify and name a variety of living</li> </ul>   | <ul style="list-style-type: none"> <li>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</li> <li>Describe the life process of reproduction in some plants and animals.</li> </ul>  |

| Strand                                     | EYFS   | End of KS1 (Y2)   | Mid KS2 (Y4)   | End of KS2 (Y6)   |
|--|--|---|--|---|
|  |  | <ul style="list-style-type: none"> <li>Identify and describe the basic structure of a variety of common flowering plants, including trees.(Y1P)</li> <li>identify and name a variety of common animals including fish, amphibians, reptiles, birds, and mammals</li> <li>Identify and name animals that are carnivores, herbivores, and omnivores (Y1A&amp;H)</li> <li>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets. .(Y1A&amp;H)</li> </ul> <p>Observe changes across the four seasons and how day length varies. (Y1 season)</p> <ul style="list-style-type: none"> <li>Explore and compare the differences between things that are living, dead and things that have never been alive</li> <li>Identify that most living things live in habitats to which they are suited and describe how different habitat provide for the basic needs of different kinds of animals and plants and how they depend on each other.</li> <li>Identify and name a variety of plants and animals in their habitats including microhabitats.</li> <li>Compare 2 different habitats (e.g. log and field)</li> <li>Describe how animals obtain food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</li> </ul> <p>Notice that animals including humans have offspring which grow into adults. (Y2 A&amp;H)</p> | <p>things in their local habitat and wider environment</p> <ul style="list-style-type: none"> <li>Recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul> <p>Construct and interpret a variety of food chains, identifying producers, predators, and prey. (Y4 A&amp;H)</p>   | <ul style="list-style-type: none"> <li>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.</li> <li>Give reasons for classifying plants and animals based on specific characteristics.</li> </ul> <p>Recognise that living things produce offspring of the same kind, but normally offspring are not identical to their parents. (Y6 evolution)</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. (Y6 Evolution &amp; inheritance)</p> |
| <b>Animals including humans Vocabulary</b> | Head shoulders knees and toes<br>Eyes and ears and mouth and nose  | Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves<br>Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue<br>Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g.– meat, fish, vegetables, bread, rice)   | Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine<br><br>4 Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, intestines, nutrients, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain | 5 Puberty– the vocabulary to describe sexual characteristics<br>6 Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle  |
| <b>Animals including humans</b>            | Explore the natural world around them, making observations and drawing pictures of animals and plants; Understand some important | <ul style="list-style-type: none"> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds, and mammals</li> </ul>  | <ul style="list-style-type: none"> <li>Identify that animals, including humans need the right types and amount of nutrition, and</li> </ul>  | Describe the changes as humans develop to old age.  |

| Strand                               | EYFS  | End of KS1 (Y2)  | Mid KS2 (Y4)  | End of KS2 (Y6)   |
|--------------------------------------|---|--|---|---|
|                                      | processes and changes in the natural world around them, | <ul style="list-style-type: none"> <li>Identify and name animals that are carnivores, herbivores, and omnivores</li> <li>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including humans and pets).</li> <li>Notice that animals including humans have offspring which grow into adults.</li> <li>Identify and name the parts of the basic parts of the human body and say which part is associated with each sense. (Link to Sex Ed-body parts)</li> <li>Find out and describe the basic needs of animals, including humans, for survival (water, food &amp; air).</li> <li>Describe the importance for humans of exercise, eating the amounts of different food, and hygiene.</li> </ul> <p>Describe how animals obtain food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food..(Y2 LTh)</p> | <p>that they cannot make their own foo; they get nutrition from what they eat.</p> <ul style="list-style-type: none"> <li>Identify that humans and some animals have skeletons and muscles for support, protection and movement.</li> <li>Describe the simple functions of the basic parts of the digestive system in humans.</li> <li>Identify the different types of teeth in humans and their simple functions.</li> </ul> <p>construct and interpret a variety of food chains, identifying producers, predators and prey.</p> | <p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird (Y5 LTh)</p> <p>Describe the life process of reproduction in some plants and animals. (Y5 LTh)</p> <ul style="list-style-type: none"> <li>Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood</li> <li>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</li> <li>Describe the ways in which nutrients and water are transported within animals, including humans.</li> </ul> <p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals (Y6 LTh)</p> <p>Give reasons for classifying plants and animals based on specific characteristics. (Y6 LTh)</p> |
| Evolution and inheritance vocabulary |   |  | Fossils (Y3 rocks)  | Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species,  |
| Evolution and inheritance            |   | <p>Identify that most living things live in habitats to which they are suited and describe how different habitat provide for the basic needs of different kinds of animals and plants and how they depend on each other (Y2 LTh)</p> <p>Notice that animals including humans have offspring which grow into adults(Y2A&amp;H)</p>  | <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock (Y3 Rocks)</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 P)</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 LTh)</p>   | <p>Describe the life process of reproduction in some plants and animals. (Y5 LTh)</p> <ul style="list-style-type: none"> <li>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>Recognise that living things produce offspring of the same kind, but normally offspring are not identical to their parents ( Y6 evolution)</li> <li>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul>   |
| Materials vocabulary Rocks           | Hard, soft, rough, smooth,                              | Y1 Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff,   | 3 stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil,   | 5 Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble,  |

| Strand   | EYFS  | End of KS1 (Y2)   | Mid KS2 (Y4)   | End of KS2 (Y6)   |
|--|---|---|--|---|
| States of matter properties and Changes of materials vocabulary      |   | <p>bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through</p> <p>Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard</p> <p>Y2 Properties of materials –opaque, transparent and translucent, reflective, nonreflective, flexible, rigid, Shape, push, pull, twist, squash, bend, stretch</p>  | <p>marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil</p> <p>4 Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle</p>   | <p>insoluble, filter, sieve, reversible/non-reversible change, burning, rusting,</p>  |
| Materials Rocks States of matter properties and changes of materials | <ul style="list-style-type: none"> <li>Understand some important processes and changes in the natural world around them,</li> </ul> | <p><b>Everyday Materials</b></p> <ul style="list-style-type: none"> <li>Distinguish between an object and the material from which it is made.</li> <li>Identify and name a variety of everyday materials including, wood, plastic, glass, metal, water and rock.</li> <li>Describe the simple physical properties, of a variety of everyday materials</li> <li>Compare and group together a variety of materials on the basis of their simple physical properties.</li> <li>Identify and compare the suitability of a variety of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</li> <li>Investigate materials suitable for story characters. E.g. The 3 pigs building/ huff and puff, making the walls stronger.</li> <li>Find out how the shapes of solid objects made from some materials can be changed by bending, squashing, twisting, stretching.</li> <li>Explore how water is absorbed by different materials and how puddles or clothing dry.</li> </ul> | <p><b>Rocks</b></p> <p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Y3 Rocks)</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock (Y3 Rocks)</p> <p>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials. (Y3 Forces and magnets)</p> <p><b>Change of state</b></p> <p>4 Compare and group materials together according to whether they are solids, liquids or gases.</p> <ul style="list-style-type: none"> <li>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius.</li> <li>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul> <p>Recognise some common conductors and insulators, and associate metals with being good conductors..(Y4 Elec)</p> | <p><b>States of matter</b></p> <p>5 Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity, (electrical and thermal), and response to magnets.</p> <p>Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to describe how mixtures might be separated, including through filtering, sieving and evaporating.</p> <ul style="list-style-type: none"> <li>Give reasons, based on evidence from comparative and fair tests, for particular uses of everyday materials, including metals, wood, and plastic.</li> <li>Demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>Explain that some changes result in the formation of new materials and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</li> </ul> |
| Light vocabulary   |   | <p>Light, dark, beam, mirror, reflection, shiny, shadow, block, bright, dim, light source, darker/brighter, day night, opaque, transparent, translucent, See-through, not see-through</p>   | <p>3 Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous</p>   | <p>refraction, reflection, spectrum, rainbow, straight lines, light rays</p>  |
| Light  | <p>Understand some important processes and changes in the natural world around them,</p>  | <ul style="list-style-type: none"> <li>Identify light sources e.g. Sun, lamps, torch etc.</li> <li>Light travelling and seeing: Seeing in the dark</li> <li>Explore light being blocked e.g. playing with shadows, noticing position during the day.</li> </ul>   | <ul style="list-style-type: none"> <li>Recognise that they need light in order to see things and that dark is the absence of light.</li> <li>Notice that light is reflected from surfaces.</li> </ul>  | <p>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity, (electrical and</p>  |

| Strand  | EYFS   | End of KS1 (Y2)   | Mid KS2 (Y4)  | End of KS2 (Y6)   |
|---|--|---|---|---|
|   |  | <p>Describe the simple physical properties of a variety of everyday materials. (Y1 Materials)</p> <ul style="list-style-type: none"> <li>Sort materials into opaque, translucent, transparent, see-through, not see through</li> <li>Exploring the dark</li> <li>Light reflection &amp; mirrors: Looking at shiny surfaces, exploring with mirrors, sorting into good/bad mirrors, making a mirror</li> </ul> | <ul style="list-style-type: none"> <li>Recognise that light from the sun can be dangerous and there are ways to protect their eyes.</li> <li>Recognise that shadows are formed when light from a source is blocked by an opaque object.</li> <li>Find patterns in the way that the size of shadows change.</li> </ul>   | <p>thermal), and response to magnets. (Y5 Materials)</p> <ul style="list-style-type: none"> <li>Recognise that light appears to travel in straight lines</li> <li>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</li> <li>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then onto our eyes.</li> <li>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> </ul> |
| Sound vocabulary                                  |  |   | 4 Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation   |   |
| Sound   |  | <p>Identify and name the parts of the basic parts of the human body and say which part is associated with each sense. (Y1 A&amp;H)</p>  | <ul style="list-style-type: none"> <li>Identify how sounds are made associating some of them with something vibrating</li> <li>Recognise that vibrations from sounds travel through a medium to the ear.</li> <li>Find patterns between the pitch of a sound and feature of the object that produced it.</li> <li>Find patterns between the volume of the sound and the strength of the vibrations that produced it.</li> <li>Recognise that sounds get fainter as the distance from the sound source increases.</li> </ul> |   |
| Seasonal changes<br>Earth and Space<br>vocabulary | Explore the natural world around them, making observations and drawing pictures<br>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter | <p><b>Seasonal Change</b><br/>Weather (sunny, rainy, windy, snowy etc.)<br/>Seasons (winter, summer, spring, autumn)<br/>Sun, sunrise, sunset, day length</p>   | <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 Light)</p>   | <p><b>Earth and Space</b><br/>5 Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets</p>  |
| Seasonal changes<br>Earth and Space               |  | <p><b>Seasonal changes</b></p> <ul style="list-style-type: none"> <li>Observe changes across the four seasons.</li> <li>Observe and describe the weather associated with the seasons and how day length varies.</li> </ul>  |   | <p><b>5 Earth and space</b></p> <ul style="list-style-type: none"> <li>Describe the movement of the Earth, and other planets relative to the Sun in the solar system.</li> <li>Describe the movement of the Moon relative to the Earth.</li> <li>Describe the Sun, Earth, Moon as approximately spherical bodies.</li> </ul>  |

| Strand                                     | EYFS   | End of KS1 (Y2)   | Mid KS2 (Y4)   | End of KS2 (Y6)  |
|--|--|---|--|--|
|  |  |   |  | <ul style="list-style-type: none"> <li>Use the idea that the Earth's rotation explain day and night and the apparent movement of the Sun across the sky.</li> </ul>  |
| <b>Forces/magnets / gravity vocabulary</b> | Push, pull stop go, long way, short way                                | Push, pull, force, motion, roll, glide, slide, backwards, forwards, sideways, distance, travelled, wheel, speeding up, slowing down, further, furthest.   | contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole   | Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears   |
| <b>Forces/magnets/ gravity</b>             | Explore the natural world around them, making observations and drawing | <p><b>Find out how the shapes of solid objects made from some materials can be changed by bending, squashing, twisting, stretching. .(Y2 Materials)</b></p> <ul style="list-style-type: none"> <li>Explore how different toys can move with a push or a pull.</li> <li>Explore big and small pushes and compare how they affect distance travelled.</li> <li>Exploring how pushes can make objects roll or slide.</li> <li>Investigate movement of cars on ramps</li> </ul> | <p><b>3 Magnets and friction</b></p> <ul style="list-style-type: none"> <li>Compare how things move on different surfaces.</li> <li>Notice that some forces need contact between to objects, but magnetic forces can act at a distance.</li> <li>Observe how magnets attract or repel each other and attract some materials and not others.</li> <li>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.</li> <li>Describe magnets having two poles.</li> <li>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul> <p><b>Compare and group together everyday materials on the basis of their properties, including their compressibility, tensile strength, rigidity, hardness. (Y3 Rocks)</b></p> <p><b>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials (Y3 forces and magnets)</b></p> <p><b>Find out how the shapes of solid objects made from some materials can be changed by bending, squashing, twisting, stretching. .(Y2 Materials)</b></p> | <p><b>Forces- gravity</b></p> <ul style="list-style-type: none"> <li>5 Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object (brief and simple interpretation of Newton's Laws)</li> <li>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces (identify the forces acting in various scenarios, e.g. block on a ramp, skateboarder jumping off a ramp, aeroplane flying)</li> <li>Recognise that some mechanisms, including levers and pulleys, allow a smaller force to have a greater effect. (link to DT)</li> </ul> |
| <b>Electricity Vocabulary</b>              |  |   | Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connections, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol<br>N.B. Yr 4 do not need to use standard symbols for electrical components, as this is taught in Yr 6   | circuit diagram, circuit symbol, motor, voltage<br>N.B. Children do not need to understand what voltage is, but will use volts and voltage to describe different batteries. The words "cells" and "batteries" are now used interchangeably.  |

| Strand      | EYFS | End of KS1<br>(Y2) | Mid KS2<br>(Y4)  | End of KS2<br>(Y6)   |
|-------------|------|--------------------|--|--|
| Electricity |      |                    | <ul style="list-style-type: none"> <li>• Identify common appliances that run on electricity</li> <li>• Construct a simple series electrical circuit, naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>• Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</li> <li>• Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>• Recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul> | <ul style="list-style-type: none"> <li>• Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>• compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</li> <li>• Use recognised symbols when representing a simple circuit in a diagram.</li> </ul> |