



St James' First School

Science Knowledge, Skills and Enquiry Curriculum Progression Map

(Adapted from the Plymouth Science Scheme of Learning)

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Notes

Any text in a different colour shows that this skill/knowledge is taught in a different module but builds on from learning in that module e.g.

The coloured writing in brackets underneath show where this objective was taken from. This is to allow teachers to make the links to prior learning.



| Plants | | | | | |
|-------------------|--|---|---|--|---|
| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 |
| Objectives | <ul style="list-style-type: none"> - Make simple observations about plants and can explain why some things occur. | <ul style="list-style-type: none"> - Name common plants and describe the basic structure of flowering plants, including deciduous and evergreen. - Identify and describe the basic structure of a variety of common flowering plants, including tress. | <ul style="list-style-type: none"> - Observe and describe how seeds and bulbs grow into mature plants. - Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. | <ul style="list-style-type: none"> - Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. - Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. - Investigate the way in which water is transported within plants. - Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. | <ul style="list-style-type: none"> - Recognise that living things can be grouped in a variety of ways (Living things and habitats) |
| Vocabulary | Plant, leaf, stem, flower, grow, rain, sun, water, soil, seed, | Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud. Names of trees in local area, garden and wild flowering plants. | As year 1+ light, shade, sun, warn, cool, water, grow, healthy. | Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal- wind dispersal, animal dispersal, water dispersal, pollen, roots, stem, trunk, leaves, absorb, nutrients, reproduce, germination, stamen, style. | Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate. |
| Indicators | <ul style="list-style-type: none"> - The world: Can develop an understanding of growth, decay and changes over time. - Shows concern and care for living things and the environment. | <ul style="list-style-type: none"> - Can name trees and other plants they see regularly. - Can describe key features of the trees and plants e.g. shapes of leaves/colour of the flower/blossom. - Can point out trees which lost their leaves and those who keep them all year. Can point to and name parts of a plant. - Can use simple charts to sort. Can use photos to talk about how plants change. | <ul style="list-style-type: none"> - Can describe how plants that have grown from seeds and bulbs have developed over time. - Can identify plants that grew well in different conditions. - Can spot similarities and differences between bulbs and seeds. - Can nurture seeds and bulbs into mature plants identifying the different requirements of different plants. | <ul style="list-style-type: none"> - Can explain the function of the parts of a flowering plant. - Can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal and germination. - Can give different methods of pollination and seed dispersal, including examples. - Can explain observations made during investigations. - Can look at features of seeds to decide on method of dispersal. - Can draw and label a diagram of their created flowering plant to show its parts and their role and method of pollination and seed dispersal. | (See living things and habitats) |



| Animals Including Humans | | | | | |
|--------------------------|---|--|---|--|--|
| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 |
| Objectives | <ul style="list-style-type: none"> - Health and self-care- children notice changes in their bodies after exercise such as heart beating faster. Children understand the importance of handwashing. | <ul style="list-style-type: none"> - Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. - Identify and name a variety of common animals that are carnivores, herbivores and omnivores. - Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense | <ul style="list-style-type: none"> - Notice that animals, including humans, have offspring which grow into adults. - Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) - Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. | <ul style="list-style-type: none"> - Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. - Identify that humans and some other animals have skeletons and muscles for support, protection and movement. | <ul style="list-style-type: none"> - Describe the simple functions of the basic parts of the digestive system in humans. - Identify the different types of teeth in humans and their simple functions. - Construct and interpret a variety of food chains, identifying producers, predators and prey. |
| Vocabulary | Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, heart, | Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, reptile, amphibian, mammal, omnivore, carnivore, herbivore, all senses. | Offspring, grow, adults, nutrition, reproduce, survival, water, food, air, exercise, hygiene, survival, exercise. | Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, skull, ribs, spine, muscles, joints. | Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, incisor, canine, herbivore, omnivore. |
| Indicators | <ul style="list-style-type: none"> - They can talk about simple similarities and differences between living things. They can make simple observations about animals and explain why some things occur. | <ul style="list-style-type: none"> - Can name a range of animals which includes animals from each of the vertebrate groups. - Can describe the key features of named animals. - Can label key features on a picture/diagram. - Can write descriptively about an animal. - Can write a 'What am I? riddle about an animal. - Can describe what a range of animals eat. - Can compare and classify animals. | <ul style="list-style-type: none"> - Can sequence the stages of a baby. Observe these changes. - Can describe how animals change as they get older. - Develops understanding of how insects change (more than a butterfly) through lifecycle diagrams. - Can explain what humans and other animals need to survive- this could be through planning a trip to the moon or desert Island. - Can describe how to keep clean and healthy. Has a good understanding of the food plate and understands 'a healthy balanced diet'. Can create a diet for an athlete. - Can adopt a menu to substitute food from the eat well plate. - Understands the effect of exercise on the body. | <ul style="list-style-type: none"> - Can name the nutrients found in food. Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients. - Name some bones that make up the skeleton giving examples that support, help them move or provide protection. - Can describe how muscles and joints help them to move. - Classify food groups (high/low nutrients), answer q's about nutrients in food, use data to look for patterns. Give similarities and differences between skeletons. | <ul style="list-style-type: none"> - Can sequence the main parts of the digestive system. - Can draw the main parts of the digestive system onto a human outline. - Can describe what happens in each part of the digestive system. - Can point to three different types of teeth in their mouth and talk about what each is used for. - Demonstrate journey of food through body. Make a dental record, - Can explain teeth in animals and if they are carnivores, herbivores or omnivores. |



| Living Things | | | | | |
|-------------------|---|---|--|--|---|
| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 |
| Objectives | <ul style="list-style-type: none"> - They know about similarities and differences between themselves and others, and among families, communities and traditions. They can talk about their own environment - The world: Show care and concern for living things and the environment | <ul style="list-style-type: none"> - Name common plants and describe the basic structure of flowering plants, including trees (Plants) - Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Animals Including Humans) - Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Animals Including Humans) - Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) (Animals Including Humans) - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense (Animals Including Humans) | <ul style="list-style-type: none"> - Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other - Identify and name a variety of plants and animals in their habitats, including microhabitats - Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. | <ul style="list-style-type: none"> - Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. | <ul style="list-style-type: none"> - Recognise that living things can be grouped in a variety of ways. - Explore and use classification keys to help group, identify and name a variety of living things in their local environment. - Recognise that environments can change and that this can sometimes pose dangers to living things. |
| Vocabulary | | (See Animals including Humans and Plants) | Living, dead, never been alive, suited, suitable, basic need, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland, names of micro habitats e.g. under logs, in bushes etc. | | Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate. |
| Indicators | | | <ul style="list-style-type: none"> - Find a range of items which are dead, living. - Can name plants/animals which live in different habitats and micro habitat. - Can talk about the features of the animal/plant and how they are suited to the habitat. - Can talk about what the animal eats. - Can construct a food chain. | | <ul style="list-style-type: none"> - Can name living things in a range of habitats, giving key features that helped identify them. - Can give examples of how an environment may change both naturally and due to human impact. - Can use classification keys to identify unknown plants and animals. |



| Materials | | | | | |
|-------------------|--|--|---|---|---|
| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 |
| Objectives | <p>Moving and handling - Introduce and encourage children to use the vocabulary of manipulation, e.g. squeeze and prod.</p> <p>The world - Can talk about why things happen and how things work.</p> <p>Exploring media and materials - notice changes in properties as they are transformed through becoming wet, dry, flaky or fixed. Think about cause and effect.</p> | <ul style="list-style-type: none"> - Distinguish between an object and the material from which it is made. - Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. - Describe the simple physical properties of a variety of everyday materials. - Compare and group together a variety of everyday materials on the basis of their simple physical properties. | <ul style="list-style-type: none"> - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. | <ul style="list-style-type: none"> - Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Forces and Magnetism) | <p>States of Matter</p> <ul style="list-style-type: none"> - Compare and group materials together, according to whether they are solids, liquids or gases (states of matter) - 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 (States of matter) - Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. |
| Vocabulary | Wet, dry, shiny, dull, bendy, stiff, squashy, hard/soft, lumpy, wrinkly. Smooth, rough. | Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through. | Names of materials: wood, plastic, glass, metal, water, rock, brick, paper, fabric, card, rubber, suitable / unsuitable, use / useful, hard / soft, stretchy / stiff. Rigid / flexible, waterproof/absorbent, strong/weak, rough/smooth, transparent/opaque, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching. | | Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle |
| Indicators | <ul style="list-style-type: none"> - Can talk about simple similarities and differences between two materials. | <ul style="list-style-type: none"> - Can label a picture/diagram of an object made from different materials. - Can describe the properties of materials. - Can sort materials using their properties. Can test evidence to answer a question. | <ul style="list-style-type: none"> - Can name an object, say what material it is made from, identify properties and make a link between property and use. Whilst changing a shape of an object can describe the actions used. - Can use suitable vocabulary. Simple tests relevant to properties. Describe similarities and differences. | | <ul style="list-style-type: none"> - Can create a concept map, including arrows linking the key vocabulary. - Can name properties of solids, liquids and gases. - Can give everyday examples of melting and freezing. - Can give everyday examples of evaporation and condensation. - Can describe the water cycle. - Can give reasons to justify why something is a solid liquid or gas. - Can give examples of things that melt/freeze and how their melting points vary - From their observations, can give the melting points of some materials. - Using their data, can explain what affects how quickly a solid melts. - Can measure temperatures using a thermometer. - Can explain why there is condensation on the inside the hot water cup but on the outside of the icy water cup - From their data, can explain how to speed up or slow down evaporation. - Can present their learning about the water cycle in a range of ways e.g. diagrams, explanation text, story of a water droplet. |



| Rocks and Soils | | | | | |
|-----------------|------|--------|--------|--|--------|
| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 |
| Objectives | | | | <ul style="list-style-type: none">- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.- Describe in simple terms how fossils are formed when things that have lived are trapped within a rock.- Recognise that soils are made from rocks and organic matter | |
| Vocabulary | | | | Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb, water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil. | |
| Indicators | | | | <ul style="list-style-type: none">- Can name some types of rock and give physical features of each.- Can explain how a fossil is formed.- Can explain that soils are made from rocks and also contain living/dead matter.- Classify rocks in a range of ways using scientific vocabulary.- Test properties of rocks.- Show understanding of how fossils were formed, can identify plant/animal matter in soil, test water retention of soils. | |



| Seasonal Change | | | | | |
|-------------------|---|--|--------|--|--------|
| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 |
| Objectives | <ul style="list-style-type: none"> - Show concern and care for the environment and can notice changes and differences. - Develops an understanding of decay and changing over time. | <ul style="list-style-type: none"> - Observe changes across the four seasons. - Observe and describe weather associated with the seasons and how day length varies. | | <ul style="list-style-type: none"> - Recognise that they need light in order to see things and that dark is the absence of light. (Light) - Recognise that light from the sun can be dangerous and that there are ways to protect our eyes. (Light) - Recognise that shadows are formed when the light source is blocked by a solid object. (Light) - Find patterns in the way the size of the shadows change. (Light) | |
| Vocabulary | Snow, wind, rain, sun, day, night, stormy, cloudy, hot, cold, foggy. | Weather (sunny, rainy, windy, snowy etc) Seasons (winter, summer, spring, autumn) sun, sunrise, sunset, Day length | | Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous. (Light) | |
| Indicators | <ul style="list-style-type: none"> - Can describe the weather outside and suggest what they might wear and what they might see. - Can comment on the environment e.g. the leaves have fallen off the tree, there is a puddle. | <ul style="list-style-type: none"> - Can name four seasons and identify when in the year they occur. - Can observe and describe weather in different seasons. - Can describe days being longer in summer and shorter in winter. - Present data in tables charts and compare seasons. | | (See Light) | |



| Light and Sound | | | | | |
|-------------------|--|---|---|--|--|
| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 |
| Objectives | <ul style="list-style-type: none"> - The world: Children respond to their senses: sights, sounds and smells in the environment. | <ul style="list-style-type: none"> - Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Materials) - Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. (Seasonal Changes) - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense (Animals including Humans) | <ul style="list-style-type: none"> - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Materials) - Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Plants) | <ul style="list-style-type: none"> - Recognise that they need light in order to see things and that dark is the absence of light. - Notice that light is reflected from surfaces. - Recognise that light from the sun can be dangerous and that there are ways to protect our eyes. - Recognise that shadows are formed when the light source is blocked by a solid object. - Find patterns in the way the size of the shadows change | <p>Sound</p> <ul style="list-style-type: none"> - Identify how sounds are made, associating some of them with something vibrating. - Recognise that vibrations from sounds travel through a medium to the ear. - Find patterns between pitch of a sound and features of the object that produced it. - Find patterns between the volume of a sound and the strength of the vibrations that produced it. - Recognise that sound gets fainter as the distance from the sound source increases. |
| Vocabulary | Smell, sound, sight, see, look, | See Seasonal Changes See Animals Including Humans | | Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous. | Sound, source, vibrate, vibration, travel, pitch, volume, faint, loud, insulation. |
| Indicators | | See Seasonal Changes See Animals Including Humans | | <ul style="list-style-type: none"> - Can describe how we see objects in lights and can describe dark as the absence of light. Know it is dangerous to look at the sun. - Define transparent, translucent and opaque. - Can describe how shadows are formed. - Predict what materials will be more/less visible. . | <ul style="list-style-type: none"> - Can describe different types of objects producing different sounds and that the sound is produced by vibration in the object. - Can describe sounds travelling through different mediums such as air, water, metal. - Can find patterns between pitch and volume and the features of the object producing it. - Can recognise that sounds get fainter as the distance from the sound source increases. - Can explain what happens when you strike a drum or pluck a string- use diagrams to show. - Demonstrates how to increase/decrease pitch and volume. |



| Forces | | | | | |
|-------------------|--|--|---|--|--------|
| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 |
| Objectives | <p>Moving and Handling- Introduce and encourage children to use the vocabulary of manipulation, e.g squeeze and prod.</p> <p>Technology- shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones.</p> | <ul style="list-style-type: none"> - Describe the simple physical properties of a variety of everyday materials. (Materials) - Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Materials) | <ul style="list-style-type: none"> - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Materials) - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Materials) | <ul style="list-style-type: none"> - Compare how things move on different surfaces - Notice that some forces need contact between two objects, but magnetic forces can act at a distance. - Observe how magnets attract or repel each other and attract some materials and not others. - 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. - Describe magnets as having two poles. - Predict whether two magnets will attract or repel each other, depending on which poles are facing. | |
| Vocabulary | <p>Push, pull, twist, stretch, turn, open, lift, squeeze, pinch, flick, tap.</p> | <p>Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through. (Materials)</p> | <p>Names of materials: wood, plastic, glass, metal, water, rock, brick, paper, fabric, card, rubber, suitable / unsuitable, use / useful, hard / soft, stretchy / stiff. Rigid / flexible, waterproof/absorbent, strong/weak, rough/smooth, transparent/opaque, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching. (Materials)</p> | <p>Force, push, pull, twist, 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.</p> | |
| Indicators | <ul style="list-style-type: none"> - Children will be able to play with a range of toys of varying sizes made of different materials and fit them together in different ways such as twisting, pushing, slotting or magnetism. - Can manipulate playdough in different ways. | <p>(See Materials)</p> | | <ul style="list-style-type: none"> - Give examples of forces in everyday life. - Give examples of objects moving differently on different surfaces. - Name a range of magnets and show how the poles attract and repel. - Can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets. - Can use results to describe how objects move on different surfaces. - Can use results to make predictions. - Can use some classification to know some metals are not magnetic. <p>Use test data to rank magnets.</p> | |



| Electricity | | | | | |
|-------------------|---|--|--|--------|---|
| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 |
| Objectives | <p>Technology- shows skills in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movement or new images.</p> | <ul style="list-style-type: none"> - Describe the simple physical properties of a variety of everyday materials. (Materials) - Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Materials) | <ul style="list-style-type: none"> - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Materials) | | <ul style="list-style-type: none"> - Identify common appliances that run on electricity. - Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. - Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery - Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. - Recognise some common conductors and insulators, and associate metals with being good conductors. |
| Vocabulary | | <p>Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through. (Materials)</p> | <p>Names of materials: wood, plastic, glass, metal, water, rock, brick, paper, fabric, card, rubber, suitable / unsuitable, use / useful, hard / soft, stretchy / stiff. Rigid / flexible, waterproof/absorbent, strong/weak, rough/smooth, transparent/opaque, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching. (Materials)</p> | | <p>Electrical, appliance, mains, plug, circuit, component, cell, battery, positive, negative, connect/connectors, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol.</p> |
| Indicators | | | | | <ul style="list-style-type: none"> - Can name the components in a circuit. Can make an electric circuit. Can control a circuit using a switch. Can name some metals that are conductors. Can name materials that are insulators. - Can communicate structures of circuits using drawings. Can incorporate a switch. Can add a circuit with a switch to a DT project and demonstrate how it works. Can describe how a switch works. |