

# St. Bega's Catholic Primary School

'Love one another as I have loved you.'



Science Biology Strand

Engage, Model, Connect, Secure.



## Science Progression and Sequence Biology Strand Key Stage 1

	Nursery	Reception	Year 1 (Core Knowledge)	Year 2 (Core Knowledge)
<b>Animals including Humans</b>	Links to... <ul style="list-style-type: none"> <li>Examine animals to find out more about them using their senses to explore.</li> <li>Use simple language to describe animals.</li> <li>Understand the key features in the life cycle of a frog and chick</li> <li>Understands the need for care and respect for living things.</li> </ul>	Links to... <ul style="list-style-type: none"> <li>Understand how animals and humans grow and change over time.</li> <li>Use the correct basic scientific vocabulary to describe parts of their bodies and animals.</li> <li>Through books and observations understand that animals change and explain a range of lifecycles.</li> <li>Explore animals in the natural world, making observations and drawings.</li> <li>Make close observations of animals in the natural world. Make comparisons and identify similarities and differences.</li> </ul>	<b>Animals</b> <ul style="list-style-type: none"> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>Describe and compare the characteristics of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</li> </ul> <b>Humans</b> <ul style="list-style-type: none"> <li>draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul>	<b>Know that</b> <ul style="list-style-type: none"> <li>animals, including humans, have offspring which grow into adults.</li> <li>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</li> <li>describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li> </ul>
<b>Living Things</b>				<b>Know, describe and explain</b> <ul style="list-style-type: none"> <li>the differences between things that are living, dead, and things that have never been alive</li> <li>that most living things live in habitats to which they are suited</li> <li>how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other</li> <li>and name a variety of plants and animals in their habitats, including micro-habitats</li> <li>how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and make the different sources of food.</li> </ul>
<b>Plants</b>	Links to... <ul style="list-style-type: none"> <li>Explore growing seeds, begin to understand that plants need water and light to survive and grow.</li> <li>Explore plants using all of their senses to find out more about them.</li> </ul>	Links to... <ul style="list-style-type: none"> <li>Make close observations of plants in the natural world, make comparisons and identify similarities and differences.</li> <li>Understand what plants need to survive and grow healthily (water, light and warmth).</li> </ul>	<b>Know that trees</b> <ul style="list-style-type: none"> <li>are examples of plants</li> <li>can be deciduous which means the leaves are lost yearly-usually in the autumn</li> <li>can be evergreen which means there are always leaves on the tree (leaves are continually replenished throughout the year</li> </ul>	<b>Know that plants</b> <ul style="list-style-type: none"> <li>have a root, stem, leaves and a flower (flowering plants</li> <li>grasses and ferns consist entirely of leaves.</li> <li>need light, water, space, suitable temperature in order to grow</li> <li>can grow from seed or bulbs</li> </ul>

	<ul style="list-style-type: none"> <li>• Begin to use basic scientific vocabulary to describe parts of plants.</li> <li>• Explain a simple lifecycle, E.g., sunflower</li> </ul>	<ul style="list-style-type: none"> <li>• Use the correct basic scientific vocabulary to describe parts of plants.</li> <li>• Understand through books and observations that plants change, and I explain a range of lifecycles.</li> <li>• Understand how plants grow and change.</li> <li>• Explore plants in the natural world, making observations and drawings of plants.</li> </ul>	<ul style="list-style-type: none"> <li>• and plants have roots, stems and leaves but plants have a softer stem</li> <li>• are made of roots, trunk, branches and leaves.</li> <li>• that are deciduous undergo change in the autumn; the leaves change colour, fruits and nuts fall to the ground. Farmers can harvest the crops.</li> <li>• In Spring, birds sing, trees produce leaves and flowers blossom and the landscape changes</li> </ul>	<ul style="list-style-type: none"> <li>• grow from seeds and bulbs which germinate and grow into seedlings</li> <li>• grow from seedlings and into mature plants</li> </ul> <p><b>Know about conditions for growth</b></p> <ul style="list-style-type: none"> <li>• all plants need light, water, space, suitable temperature in order to grow</li> <li>• some plants grow best in full sun</li> <li>• some plants grow best in the shade</li> <li>• some plants need lots of water</li> <li>• some plants don't need much water</li> <li>• Some plants grow quicker than others.</li> </ul>
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## Science Progression and Sequence

### Biology Strand Lower Key Stage 2

	Year 3 (Core Knowledge)	Year 4 (Core Knowledge)
<b>Animals including Humans</b>	<ul style="list-style-type: none"> <li>• Know that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.</li> <li>• Know that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the simple functions of the basic parts of the digestive system in humans.</li> <li>• Know and identify the different types of teeth in humans and their simple functions.</li> <li>• Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul>
<b>Living Things</b>		<ul style="list-style-type: none"> <li>• Know the 7 life processes of living organisms.</li> <li>• Use the 7 life processes to determine if an organism is living.</li> <li>• Describe similarities and differences between examples of plants and animals.</li> <li>• Know the features of mammals, amphibians, fish, birds, reptiles (vertebrates) and invertebrates.</li> <li>• Group living things in a variety of ways using key characteristics.</li> <li>• Know and explore the work of Carl Linnaeus.</li> <li>• Use classification keys to help group and identify a variety of living things in their local and wider environment.</li> <li>• Use classification keys to name a variety of living things.</li> <li>• Recognise that environments can change, and this can sometimes pose dangers to living things.</li> <li>• Understand that human actions can impact on the environment and suggest some solutions to the issues.</li> </ul>
<b>Plants</b>	<p><b>Functions of parts of a plant</b> <i>know that:</i></p> <ul style="list-style-type: none"> <li>• roots absorb water and nutrients from the soil</li> <li>• roots also anchor the plant to provide support</li> <li>• stem/ trunk is responsible for transporting water and nutrients around the plant.</li> </ul>	

	<ul style="list-style-type: none"> <li>• water evaporates from the leaves which causes more water to be absorbed from the soil</li> <li>• flowers contain the stamen, carpel, petal, ovule, sepal and stem</li> </ul> <p><b>Know about conditions for growth</b></p> <ul style="list-style-type: none"> <li>• All plants need light, water, space, suitable temperature in order to grow The level of nutrients required depends on the type of plant</li> <li>• Insects like bees and wasps transfer the pollen from the male part of a flower to the female part of other flowers</li> <li>• Seeds can also be dispersed by wind, animal fur, animals eating them (and excreting them), in water and if the seed pod explodes</li> </ul>	
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## Science Progression and Sequence

### Biology Strand Lower Key Stage 2

	Year 5(Core Knowledge)	Year 6 (Core Knowledge)
<b>Animals including Humans</b>	<ul style="list-style-type: none"> <li>• Describe the changes as humans develop to old age.</li> <li>• Describe the key stages in the growth and development of humans.</li> <li>• Know and describe some of the changes experienced in puberty.</li> <li>• Know and investigate the gestation periods of other animals in comparison to humans including the length and mass</li> </ul>	<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 and describe 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>
<b>Living Things</b>	<ul style="list-style-type: none"> <li>• Know that reproduction is when an animal or plant produces on or more individuals similar to itself.</li> <li>• Explain that sexual reproduction requires both male and female DNA(sex cells)and will produce offspring that are similar, but not identical to the parents.</li> <li>• Explain that asexual reproduction will produce offspring that is identical to the parent and only requires on parent e.g. bulbs, tubers and runners.</li> <li>• Explain the life cycle of a mammal, amphibian, insect and a bird.</li> <li>• Explain the process of metamorphosis using frogs and butterflies as examples.</li> <li>• Describe the differences in the life cycles of a mammal, amphibian, insect and a bird.</li> <li>• Use prior knowledge of parts of a flower to explain the stages involved in the reproduction process (pollination, fertilisation and germination).</li> </ul>	<ul style="list-style-type: none"> <li>• Know that living things can be grouped according to different criteria.</li> <li>• Know that a cell is made up of nucleus, cytoplasm and membrane.</li> <li>• Know that living things can be multicellular or unicellular(bacteria).</li> <li>• Explain in simple terms how the Linnaeus system is used to classify living things.</li> <li>• Explain why we need to group living things.</li> <li>• Explain possible difficulties with classification (penguins and whales).</li> <li>• Know that classification keys are used to group living things based on recognisable characteristics.</li> <li>• Construct a classification key.</li> <li>• Explain what microorganisms are and can name some.</li> <li>• Give examples of some situations where microorganisms can be helpful.</li> <li>• Give examples of some situations where microorganisms can be harmful.</li> </ul>