



Christ the King Catholic Primary School Science Substantive Knowledge Progression

| EYFS | | | | | | | | | | | | | |
|---|--|---|--|---|--|--|--|--|--|--|--|---|--|
| Working scientifically | | Plants | | Animals including Humans | | Materials | | Seasonal Change | | | | | |
| Asking simple questions and recognising that they can be answered in different ways Observing closely, using simple equipment Performing simple tests Identifying and classifying Using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions | | Seeds to plants – growing beans Observational drawings | | Nocturnal animals- light and dark Life cycle of humans/ frogs/butterflies Sea animals Healthy eating | | Exploring and describing collections using observable properties Reversible changes – melting chocolate experiment Trip to Imagine That – making slime etc | | Autumn and Spring walks Signs of seasons and noticing change in their world Snow and ice experiments | | | | | |
| Year 1 & 2 | | Year 1 | | | | | | | | | | | |
| Working Scientifically | | Plants | | Animals, including humans | | Everyday materials | | Seasonal changes | | | | | |
| Asking simple questions and recognising that they can be answered in different ways | | Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees | | Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals | | Distinguish between an object and the material from which it is made | | Observe changes across the four seasons | | | | | |
| Observing closely, using simple equipment | | Identify and describe the basic structure of a variety of common flowering plants, including trees | | Identify and name a variety of common animals that are carnivores, herbivores and omnivores | | Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock | | Observe and describe weather associated with the seasons and how day length varies | | | | | |
| Performing simple tests | | | | Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) | | Describe the simple physical properties of a variety of everyday materials | | | | | | | |
| Identifying and classifying | | | | Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense | | Compare and group together a variety of everyday materials on the basis of their simple physical properties | | | | | | | |
| Using their observations and ideas to suggest answers to questions | | | | | | | | | | | | | |
| Gathering and recording data to help in answering questions. | | | | | | | | | | | | | |
| Year 2 | | | | | | | | | | | | | |
| Plants | | | | Animals including humans | | | | Uses of everyday materials | | | | Living things and their habitats | |
| Observe and describe how seeds and bulbs grow into mature plants | | | | Notice that animals, including humans, have offspring which grow into adults | | | | Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses | | | | Explore and compare the differences between things that are living, dead and things that have never been alive | |
| Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy | | | | Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) | | | | Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching | | | | 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 others | |
| | | | | Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene | | | | | | | | Identify and name a variety of plants and animals in their habitats, including microhabitats | |
| | | | | | | | | | | | | Describe how animals obtain their food, using the idea of a simple food chain and identify and name different sources of food | |



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KEY STAGE 2

| Animals including humans | Plants | Living things and their habitats | Rocks | Light | Forces and magnets | States of matter | Sound | Electricity |
|---|---|--|---|--|--|---|---|--|
| 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 and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers | Recognise that living things can be grouped in a variety of ways | Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties | Recognise that they need light in order to see things and dark is the absence of light | Compare how things move on different surfaces | Compare and group materials together, according to whether they are solids, liquids or gases | Identify how sounds are made, associating some of them with something vibrating | Identify common appliances that run on electricity |
| Identify that humans and some other animals have skeletons and muscles for support, protection and movement | 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 | Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment | Describe in simple terms how fossils are formed when things that have lived are trapped within rock | Notice that light is reflected from surfaces | Notice that some forces need contact between two objects but magnetic forces can act at a distance | 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 (°C) | Recognise that vibrations from sounds travel through a medium to the ear | Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers |
| Describe the simple functions of the basic parts of the digestive system in humans | Investigate the way in which water is transported within plants | Recognise that environments can change and that this can sometimes pose dangers to living things | Recognise that soils are made from rocks and organic matter | Recognise that light from the sun can be dangerous and that there are ways to protect their eyes | Observe how magnets attract or repel each other and attract some materials and not others | Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature | Find patterns between the volume of a sound and the strength of the vibrations that produced it | 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 |
| 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 | Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal | Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life processes of reproduction in some plants. | Earth and space | Recognise that shadows are formed when the light from a light source is blocked by a solid object | 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 | Properties and changes of materials | Recognise that sounds get fainter as the distance from the sound source increases | Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit |
| | | | | | | 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 | | |
| Describe the changes as humans develop to old age | Evolution and inheritance | Describe the life processes of reproduction in some plants and animals | Describe the movement of the Earth, and other planets, relative to the Sun in the solar system | Recognise that light appears to travel in straight lines | Describe magnets as having two poles | Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. | Identify how sounds are made, associating some of them with something vibrating | Recognise some common conductors and insulators and associate metals with being good conductors |
| Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood | Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago | Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals | Describe the movement of the Moon relative to the Earth | 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 | Predict whether two magnets will attract or repel each other, depending on which poles are facing | Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. | | Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit |
| Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function | Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents | Give reasons for classifying plants and animals based on specific characteristics | Describe the Sun, Earth and Moon as approximately spherical bodies | Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes | Forces | Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic | | 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 |
| Describe the ways in which nutrients and water are transported within animals, including humans | Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution | Key | Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky | Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them | Identify the effects of air resistance, water resistance and friction that act between moving surfaces | Demonstrate that dissolving, mixing and changes of state are reversible changes | | Use recognised symbols when representing a simple circuit in a diagram |
| | | Year 3 | | | | | | |
| | | Year 4 | | | | | | |
| | | Year 5 | | | | | | |
| | | Year 6 | | | | | | |
| | | | | | Recognise that some mechanisms, including levers, pulleys and gears allow a smaller force to have a greater effect | 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 | | |



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