

Essendon C of E Primary School (VC)

Encouraging Everyone's Light To Shine (Matthew 5:16)

Science Curriculum Map – Year A

Year A 20/2021

Value	Essendon Way	Love Yourself	Love Others	Love God	Love Learning	Love the World You Live In
Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS Understanding the World	<p>Talk about past and present events in own lives.</p> <p>Talk about features of their own immediate environment.</p> <p>Children recognise that a range of technology is used in places such as homes and schools.</p> <p>Talk about the world in which we live. Discuss their hopes and wishes.</p>	<p>Talk about past and present events in lives of family members.</p> <p>Similarities & differences in relation to both man-made and natural materials.</p> <p>Complete simple program. Use ICT to support learning.</p> <p>Look at changes in the environment.</p>	<p>Talk about similarities & differences between self & others.</p> <p>Make observations of animals. Know how to operate simple equipment. (ICT).</p> <p>Complete simple program.</p> <p>Talk about how my body changes.</p>	<p>Talk about similarities & differences between own family & others.</p> <p>Similarities & differences in relation to living things.</p> <p>Complete simple program.</p> <p>Talk about how I can stay healthy.</p>	<p>Talk about similarities & differences between communities.</p> <p>Select & use technology for a range of purposes.</p> <p>Look at living animals and plants.</p>	<p>Talk about similarities & differences between different traditions.</p> <p>Similarities & differences in relation to places.</p> <p>Select & use technology for a range of purposes.</p> <p>Complete simple program.</p> <p>Consider materials around us</p>
Year 1 and 2	<p>Animals including humans</p> <p>Identify and name a variety of common animals, including humans, what they eat, and name their parts. Link body parts to the five senses.</p>	<p>Seasonal Changes (Autumn & Winter)</p> <p>Observe changes across Autumn and Winter, describe typical weather in these seasons, and</p>	<p>Materials</p> <p>Identify and name a variety of everyday materials, say what material an object is made of, describe a material's physical properties, and group</p>	<p>Working Scientifically</p>	<p>Plants</p> <p>Identify and name a variety of common plants and trees. Label the parts of plants, flowers, and trees.</p>	<p>Working Scientifically</p>

	Look at Linda Buck	discuss how day length varies.	materials based on these properties. Look at Alexander Graham Bell		Look at Carl Linnaeus	
Year 3 and 4	Plants Identify the functions of different parts of flowering plants, how water is transported within plants, and the role flowers play in the life cycle of plants.	Animals including Humans Identify that animals need specific nutrition, and get this through what they eat. Discuss how a skeleton and muscles help some animals with support, protection, and movement.	Rocks Compare and group rocks based on their physical properties, understanding also that soils are made from rocks and organic matter. Describe how fossils are formed.	Forces & Magnets Observe how magnets attract and repel different materials, make comparisons between distances and surfaces, and make predictions about what is/is not attracted by a magnet.	Working Scientifically	Light & shadow Discuss why light is necessary, and understand that dark is the absence of light. Understand reflection, how shadows are formed, and what light sources are dangerous.
Year 5 and 6	Animals including humans (Y6) Identify and name the main parts of the human circulatory system, describing the functions of the heart, blood vessels, and blood. Recognise the impact of nutrition, exercise, drugs and lifestyle.	Electricity Create simple circuit diagrams using recognised symbols. Understand the link between voltage and output.	Working Scientifically	Properties and changes of materials Understand and explore reversible and irreversible changes. Explore how to separate mixtures based on knowledge of solids, liquids and gases. Group and discuss uses of materials based on evidence from fair tests. Look at R J Mitchell	Earth and space Describe the movement of the planets in relation to the sun, and the movement of the moon in relation to the Earth. Understand the role the rotation of the Earth plays in day and night and the sun's 'movement across the sky.' Look at Katherine Johnson	Living things and their habitats (Y5) Look at different life cycles of mammals, amphibians, insects and birds. Describe the process of reproduction in some plants and animals. Look at David Attenborough

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Science Curriculum Map – Year B

Year B 2020/2021

Value	Essendon Way	Love Yourself	Love Others	Love God	Love Learning	Love the World You Live In
Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS Understanding the World	<p>Talk about past and present events in own lives.</p> <p>Talk about features of their own immediate environment.</p> <p>Children recognise that a range of technology is used in places such as homes and schools.</p> <p>Talk about the world in which we live. Discuss their hopes and wishes.</p>	<p>Talk about past and present events in lives of family members.</p> <p>Similarities & differences in relation to both man-made and natural materials.</p> <p>Complete simple program. Use ICT to support learning.</p> <p>Look at changes in the environment.</p>	<p>Talk about similarities & differences between self & others.</p> <p>Make observations of animals. Know how to operate simple equipment. (ICT).</p> <p>Complete simple program.</p> <p>Talk about how my body changes.</p>	<p>Talk about similarities & differences between own family & others.</p> <p>Similarities & differences in relation to living things.</p> <p>Complete simple program.</p> <p>Talk about how I can stay healthy.</p>	<p>Talk about similarities & differences between communities.</p> <p>Select & use technology for a range of purposes.</p> <p>Look at living animals and plants.</p>	<p>Talk about similarities & differences between different traditions.</p> <p>Similarities & differences in relation to places.</p> <p>Select & use technology for a range of purposes.</p> <p>Complete simple program.</p> <p>Consider materials around us</p>
Year 1 and 2	Working Scientifically	Animals including humans	Materials	Living things and their habitats	Seasonal Changes (Spring & Summer)	Plants
		<p>Explore what animals need for survival, discuss the importance of</p>	<p>Explore how objects made from some materials can be changed by bending, squashing, twisting</p>	<p>Identify and explore differences between things that are living,</p>	<p>Observe changes across Spring and Summer, describe typical weather in</p>	<p>Explore and describe what a plant needs to grow and stay healthy. Observe and describe how seeds</p>

		<p>exercise, nutrition and hygiene, and understand that animals have live offspring, which grow into adults.</p> <p>Look at Louis Pasteur</p>	<p>and stretching. Compare the suitability of different materials for different jobs.</p> <p>Look at Stephanie Kwolek John McAdam</p>	<p>dead, and have never been living.</p> <p>Look at Alfred Wallace – Human effects on the natural world</p>	<p>these seasons, and discuss how day length varies.</p> <p>Look at Isaac Newton – light & rainbows</p>	<p>and bulbs grow in to mature plants.</p> <p>Look at Tom Hart Dyke</p>
Year 3 and 4	<p>Living things and their habitats</p> <p>Explore and use classification keys to group, identify, and name living things. Recognise the threat environmental changes can pose to plants and animals.</p>	<p>States of matter</p> <p>Compare and group materials together depending on whether they are solids, liquids, or gases. Explore evaporation, condensation, and the changes that heating and cooling can cause.</p>	<p>Working Scientifically</p>	<p>Electricity</p> <p>Construct and label simple circuits, recognise some common conductors and insulators, and explore effective and ineffective circuits.</p>	<p>Sound</p> <p>Understand how sounds are made, and that vibrations travel to the ear. Recognise the effect of distance on sound, and explore different pitch and volumes.</p>	<p>Animals including humans</p> <p>Identify the different types and functions of human teeth, the function and parts of the digestive system. Identify producers, predators, and prey in food chains.</p>
Year 5 and 6	<p>Animals including humans (Y5)</p> <p>Describe the changes as humans develop in to old age.</p>	<p>Forces</p> <p>Understand that gravity is what causes objects to fall towards the Earth. Identify the effects of air resistance, water resistance, and friction.</p>	<p>Evolution and Inheritance</p> <p>Recognise that living things have changed over time, and have adapted to suit their environment. Understand the role fossils play in providing us with this information.</p>	<p>Light</p> <p>Recognise that light travels in a straight line, and the role this plays in how we see things. Explain why shadows have the same shape as the object that cast them.</p>	<p>Living things and their habitats (Y6)</p> <p>Describe how living things are classified in to groups based on similarities and differences, including microorganisms, plants, and animals.</p>	<p>Working Scientifically</p>

End of Key Stage Expectations

EYFS

By the end of Early Years Foundation Stage, pupils should:

- Explore the natural world around them, making observations and drawing pictures of animals and plants
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their own experiences and what has been read in class
- Understand some important processes and changes in the natural world around them, including the seasons, and changing states of matter
- Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary
- Offer explanations for why things might happen

Key Stage 1

Working scientifically:

By the end of Key Stage 1 (Year 2) pupils should, using appropriate scientific language from the national curriculum:

- ask their own questions about what they notice
- use different types of scientific enquiry to gather and record data, using simple equipment

where appropriate, to answer questions:

- ~ observing changes over time
- ~ noticing patterns
- ~ grouping and classifying things
- ~ carrying out simple comparative tests
- ~ finding things out using secondary sources of information

- communicate their ideas, what they do and what they find out in a variety of ways.

Science content:

By the end of Key Stage 1 (Year 2) pupils should be able to:

- name and locate parts of the human body, including those related to the senses [year 1], and describe the importance of exercise, a balanced diet and hygiene for humans [year 2]

- describe the basic needs of animals for survival and the main changes as young animals, including humans, grow into adults [year 2]
- describe the basic needs of plants for survival and the impact of changing these and the main changes as seeds and bulbs grow into mature plants [year 2]
- identify whether things are alive, dead or have never lived [year 2]
- describe and compare the observable features of animals from a range of groups [year 1]
- group animals according to what they eat [year 1], describe how animals get their food from other animals and/or from plants, and use simple food chains to describe these relationships [year 2]
- describe seasonal changes [year 1]
- name different plants and animals and describe how they are suited to different habitats [year 2]
- distinguish objects from materials, describe their properties, identify and group everyday materials [year 1] and compare their suitability for different uses [year 2].

Key Stage 2

Working scientifically:

By the end of Key Stage 2 (Year 6) pupils should, using appropriate scientific language from the national curriculum:

- describe and evaluate their own and others' scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources
- ask their own questions about the scientific phenomena that they are studying, and select the most appropriate ways to answer these questions, recognising and controlling variables where necessary (i.e. observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests, and finding things out using a wide range of secondary sources)
- use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate
- record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- draw conclusions, explain and evaluate their methods and findings, communicating these in a variety of ways
- raise further questions that could be investigated, based on their data and observations.

Science content:

By the end of Key Stage 2 (Year 6), pupils should be able to:

- name and describe the functions of the main parts of the digestive [year 4], musculoskeletal [year 3] and circulatory systems [year 6]; and describe and compare different reproductive processes and life cycles in animals [year 5]
- describe the effects of diet, exercise, drugs and lifestyle on how the body functions [year 6]
- name, locate and describe the functions of the main parts of plants, including those involved in reproduction [year 5] and transporting water and nutrients [year 3]
- use the observable features of plants, animals and micro-organisms to group, classify and identify them into broad groups, using keys or other methods [year 6]
- construct and interpret food chains [year 4]
- describe the requirements of plants for life and growth [year 3]; and explain how environmental changes may have an impact on living things [year 4]
- use the basic ideas of inheritance, variation and adaptation to describe how living things have changed over time and evolved [year 6]; and describe how fossils are formed [year 3] and provide evidence for evolution [year 6]

- group and identify materials [year 5], including rocks [year 3], in different ways according to their properties, based on first-hand observation; and justify the use of different everyday materials for different uses, based on their properties [year 5]
- describe the characteristics of different states of matter and group materials on this basis; and describe how materials change state at different temperatures, using this to explain everyday phenomena, including the water cycle [year 4]
- identify and describe what happens when dissolving occurs in everyday situations; and describe how to separate mixtures and solutions into their components [year 5]
- identify, with reasons, whether changes in materials are reversible or not [year 5]
- use the idea that light from light sources, or reflected light, travels in straight lines and enters our eyes to explain how we see objects [year 6], and the formation [year 3], shape [year 6] and size of shadows [year 3]
- use the idea that sounds are associated with vibrations, and that they require a medium to travel through, to explain how sounds are made and heard [year 4]
- describe the relationship between the pitch of a sound and the features of its source; and between the volume of a sound, the strength of the vibrations and the distance from its source [year 4]
- describe the effects of simple forces that involve contact (air and water resistance, friction) [year 5], that act at a distance (magnetic forces, including those between like and unlike magnetic poles) [year 3], and gravity [year 5]
- identify simple mechanisms, including levers, gears and pulleys, that increase the effect of a force [year 5]
- use simple apparatus to construct and control a series circuit, and describe how the circuit may be affected when changes are made to it; and use recognised symbols to represent simple series circuit diagrams [year 6]
- describe the shapes and relative movements of the Sun, Moon, Earth and other planets in the solar system; and explain the apparent movement of the sun across the sky in terms of the Earth's rotation and that this results in day and night [year 5].