

Bilingual Science Curriculum Progression Overview 24 25

Bilingual coverage rationale and explanation

- We explicitly share our Science provision with ecole de Wix. This is planned and sequenced. This approach is approved by the Bilingual Committee which oversees the Bilingual Stream provision on behalf of Q1E and AEFÉ/LFCG.
- Our shared coverage meets all English and French National Curriculum requirements. Please note:
 - In order to ensure coverage of both National Curricula, without repeating knowledge and skills, occasionally some English NC objectives in KS1 and KS2 are taught in French and vice versa.
 - Coverage in Green denotes that this is exclusively taught in French, but covers English NC expectations
 - KUW in Reception Bilingual and Science and Humanities in Year 1 Bilingual are deliberately taught via shared topics to support pupils' early language acquisition and prepare them to be able to access their bilingual learning as they progress through the Bilingual Stream.
 - Coverage in Purple denotes Science learning in French within the French NC but beyond the English NC
 - We ensure that all English NC KS1 & KS2 objectives are covered by the end the given key stage, but not exclusively in the given school year. This is ensure complete coverage whilst respecting ARE and coverage differences between the national curricula.
- The Bilingual Science Curriculum is organized to be as in-line with our mainstream provision as far as possible, to ensure that pupils of both streams have the opportunity to learn together and simultaneously.

Rationale	<ul style="list-style-type: none"> Our Science curriculum is driven by our LEARN statement for our learners to achieve and succeed in science by providing engagement, ambition, relevance and nurture in our approach to this subject to provide the foundations for understanding the world through the specific disciplines of biology, chemistry and physics to build up a body of key foundational knowledge, concepts and vocabulary alongside strong enquiry skills to value the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena
Approach	<ul style="list-style-type: none"> to build understanding progressively through unit themes and science projects; use relevant contexts, diverse scientists and role models to value the impact of scientific thinking to the world promote understanding and accurate and precise use of vocabulary highlight achievements of scientists and industry links to maximize pupils' engagement with and motivation to study science embed 'working scientifically' and enquiry approaches and skills throughout the curriculum make connections across learning and with the wider community e.g. apply their mathematical knowledge, geographical understanding, historical context
Working Scientifically	<p>'Working scientifically' is the ability to work and think like scientists in every science lesson. The enquiry approaches and skills of science for each year group are set out below. These are taught in context of the unit or project content. Children learn to use a variety of enquiry approaches and skills to answer relevant scientific questions.</p>

Knowledge and Understanding by Theme

	EYFS	Year 1	Year 2	Year 3
Plants	<p>Know about similarities and differences in relation to places, objects, materials and living things.</p> <p>Make observations of animals and plants and explain why some things occur and talk about changes.</p> <p>Explores the natural world around him/her, making observations and drawing pictures of animals and plants. (Understanding of the World: The Natural World)</p> <p>Understands some important processes and changes in the natural world around him/her, including the seasons and changing states of matter. (Understanding of the World: The Natural World)</p> <p>(Spring 2 – Traditional Tales topic - plant growth & observations and recording, plant growth experiment, naming simple parts of the plants)</p>	<p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p>Identify and name a variety of plants and animals in their habitats, including micro-habitats.</p> <p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>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.</p> <p>Investigate the way in which water is transported within plants.</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>

Animals	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Make observations of animals and plants and explain why some things occur and talk about changes</p> <p>Explores the natural world around him/her, making observations and drawing pictures of animals and plants. (Understanding of the World: The Natural World)</p> <p>(Looking After our World – Summer 2 Learning about our habitat, damage to our world and how to look after the Earth/animals/plants).</p> <p>(Light and Dark– Autumn 2 – nocturnal/diurnal animals)</p> <p>Exploring life cycle of animals</p>	<p>Name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>Name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals.). [This is taught by way of links within shared Dinosaur topic]</p>	<p>Identify and name a variety of plants and animals in their habitats, including micro-habitats.</p> <p>Notice that animals, including humans, have offspring which grow into adults.</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Classifying living and non-living things</p>	Food chains	<p>Taught in 4B in French: Identify the elements permitting bodily movements; Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Eng NC coverage: 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.</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p> <p>Taught in 5B in French: Life Cycle of animals; classification of living things;</p> <p>Identifying matters exchanged between living organisms, food requirements and the fate of organic matter</p>	<p>Taught in 6B in French: Describe the ways in which nutrients and water are transported within animals, including humans.</p>

Humans	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Make observations of animals and plants and explain why some things occur and talk about changes.</p> <p>Explores the natural world around him/her, making observations and drawing pictures of animals and plants. (Understanding of the World: The Natural World)</p> <p>Body & body parts</p>	<p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p>	<p>Notice that animals, including humans, have offspring which grow into adults.</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p>Personal hygiene – hands and body</p>	<p>Taught in 3B in French: Identify the different types of teeth in humans and their simple functions.</p> <p>Eng NC requirement covered: Describe the simple functions of the basic parts of the digestive system in humans.</p>	<p>Taught in 4B in French: Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>Eng NC requirement covered: 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.</p>	<p>Describe the changes as humans develop to old age.</p>	<p>Identify and name the main parts of human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>Human reproduction</p> <p>The functions of nutrition</p> <p>The digestive system</p>

Habitats	EYFS	Year 1	Year 2	Year 4	Year 5
	<p>Talk about the features of their own immediate environment and how environments might vary from one another.</p> <p>Know that the environment and living things are influenced by human activity.</p> <p>Knows some similarities and differences between the natural world around him/her and contrasting environments, drawing on his/her experiences and what has been read in class. (Understanding of the World: The Natural World)</p> <p>Describes his/her environment using knowledge from observation, discussion, stories, non-fiction texts and maps. (Understanding of the World: People, Cultures and Communities)</p> <p>(Looking After our World – Summer 2 Learning about our habitat, damage to our world and how to look after the Earth/animals/ plants).</p>	<p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>	<p>Taught in 2B in French: Explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>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.</p> <p>Identify and name a variety of plants and animals in their habitats, including micro-habitats.</p> <p>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.</p>	<p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living thing.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>Taught in 5B in French: 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.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p> <p>Life Cycle of animals</p>

Evolution	EYFS	Year 1	Year 2	Year 3	Year 6
	<p>Talk about the features of their own immediate environment and how environments might vary from one another.</p> <p>Make observations of animals and plants and explain why some things occur and talk about changes.</p> <p>Knows some similarities and differences between things in the past and now, drawing on his/her experience and what has been read in class. (Understanding of the World: Past & Present)</p>	<p>Understand when dinosaurs lived, what we can learn through understanding fossils, similarities and differences in dinosaur and common animal classifications</p>	<p>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.</p>	<p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p>	<p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p> <p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p>

Materials and their properties	EYFS	Year 1	Year 3	Year 5
	<p>Know the properties of some materials and can suggest some of the purposes they are used for</p> <p>know that the environment and living things are influenced by human activity e.g. impact of waste</p> <p>Understands some important processes and changes in the natural world around him/her, including the seasons and changing states of matter. (Understanding of the World: The Natural World)</p> <p>(Understanding of the World – recycling – sorting materials)</p> <p>Safely uses and explores a variety of materials, tools and techniques, experimenting with colour, design, texture and function.</p> <p>(Materials in collage, junk modelling etc.)</p>	<p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p><i>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</i></p> <p>Recognise that soils are made from rocks and organic matter.</p>	<p>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>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>Understand about the sustainability of materials, raw and synthetic materials and the issues around use of natural resources</p>

Changing Materials	EYFS	Year 2	Year 5
	<p>Know the properties of some materials and can suggest some of the purposes they are used for.</p> <p>Understands some important processes and changes in the natural world around him/her, including the seasons and changing states of matter. (Understanding of the World: The Natural World)</p> <p>(Expressive Art and Design: changes in cooking, clay modelling, junk modelling, manipulating materials e.g. collage)</p>	<p><i>Taught in 2B in French: Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</i></p> <p><i>Investigating solids and liquids</i></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 decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>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.</p>

Forces	EYFS	Year 2	Year 3	Year 5
	<ul style="list-style-type: none"> Make observations of explain why some things occur, and talk about changes <p>Explores and talks about different forces he/she can feel (not ELG – nursery objective)</p>	<p><i>Taught in 2B in French: Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</i></p> <p><i>Air: its existence, that air can move objects.</i></p>	<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. <p><i>Air: materiality and compressibility</i></p>	<ul style="list-style-type: none"> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Light	EYFS	Year 3	Year 6
	<ul style="list-style-type: none"> Looks closely at similarities, differences, patterns and change E.g. exploring light from different sources, exploring shadows e.g. using shadow puppets <p>Understands some important processes and changes in the natural world around him/her, including the seasons and changing states of matter. (Understanding of the World: The Natural World)</p> <p>(Light and Dark topic – Autumn 2 – making shadows, day/night)</p>	<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 their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change. 	<ul style="list-style-type: none"> Recognise that light appears to travel in straight lines. 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. 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. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Earth and Space	EYFS	Year 1	Year 5
	<ul style="list-style-type: none"> Talk about the features of their own immediate environment and how environments might vary from one another. Being to understand significance and difference between seasons and months <p>Knows some similarities and differences between the natural world around him/her and contrasting environments, drawing on his/her experiences and what has been read in class. (Understanding of the World: The Natural World)</p> <p>(Light and Dark – Autumn 2 – planets in our solar system, seasons)</p>	<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"> Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. Describe the movement of the Moon relative to the Earth. Describe the Sun, Earth and Moon as approximately spherical bodies. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Electricity	Year 2	Year 3	Year 6
	<p><u>Learned in French in 2B:</u> Identifying objects which require electricity</p>	<ul style="list-style-type: none"> <u>Learned in French in 3B:</u> Recognising the dangers of electricity 	<ul style="list-style-type: none"> <i>[Italics from Y4 coverage mainstream]</i> 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. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. 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. Use recognised symbols when representing a simple circuit in a diagram.
Sound	EYFS		Year 1
	<p>Looks closely at similarities, differences, patterns and change e.g. exploring sounds made by different instruments</p> <p>Performs songs, rhymes, poems and stories with others, and – when appropriate – tries to move in time to music. (Expressive Art and Design: Being Imaginative & Expressive)</p> <p>(Expressive Art and Design – exploring the sounds of different instruments, changes in pitch, rhythm, volume and speed)</p>		<ul style="list-style-type: none"> Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.
			Year 4
			<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 the 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 sounds get fainter as the distance from the sound source increases.

