Sutton in Craven C.E (V.C) Primary School

Science

Progression Document

EYFS – Year 6

Flourish together, in the love of God, to live life in all its fullness.

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically **End of KS expectations**	Explore the natural world around them Describe what they see, hear and feel whilst outside.	During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: 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.		During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: Asking relevant questions and using different types of scientific enquiries to answer them Setting up simple practical enquiries, comparative and fair tests Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings.		During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Using test results to make predictions to set up further comparative and fair tests Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations Identifying scientific evidence that has been used to support or refute ideas or arguments	

Vocabulary		question answer observe observing equipment identify classify sort group record diagram chart map data compare contrast describe	research relevant questions scientific enquiry comparative and fair test systematic careful observation accurate measurements equipment thermometer data logger data – gather record classify drawings labelled diagrams keys bar charts tables oral and written explanations conclusion predictions differences similarities changes evidence interpret	plan variables measurements accuracy precision repeat readings report data scientific diagrams labels classification keys tables scatter graphs bar graph line graphs predictions further comparative and fair test conclusions explanations degree of trust oral and written evidence refute ideas or arguments identify classify quantitative measurements

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

Plants	Explore the natural world around them Describe what they see, hear and feel whilst outside. Recognise some environments that are different from the one in which they live. Understand the effect of the changing seasons the natural world around them.	Name common plants and trees Know basic parts of plant and tree: leaf, flower, petal, fruit, ,seed, trunk, branches and stem Know that plants change over time	Describe how plants and seeds grow into mature plants (measuring changes in size) Plants need light, water and the right temperature to be healthy Plants are alive and then they die	Know parts of a plant and their function Requirements of plants for life- air, light, water, nutrients from soil How water is transferred around a plant Role of flowers in plants – attracting bees, transferring pollen from plant to plant leading to seed formation and Seed dispersal	*Through work on habitats -* Grouping and sorting plants according to characteristics Using classification keys to identify plants in local and wider environment Making identification keys for plants and trees	*Through work on life cycles –* Process of reproduction in plants Sexual and asexual reproduction in plants Different ways plants can be grown from parent plant plant life cycle	*Through work on classification -* Grouping and classification according to characteristics Linnaean classification of plants reasons for classification *Through work on evolution -* How plants are suited and may adapt to environment
End of KS expectations		Children should be taught to - Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. To identify and describe the basic structure of a variety of common flowering plants, including trees. To observe and describe how seeds and bulbs grow into mature plants Children will find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.		Children should be taught to – 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. 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 and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things. Describe the life process of reproduction in some plants and animals. 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 Give reasons for classifying plants and animals based on specific characteristics.			

Vocabulary		branches flower fruit leaves petal plant roots stem habitat oxygen roots trunk woodland tree trunk vegetable buds bulbs deciduous environment evergreen blossom crown deciduous evergreen	<u>KS1 Vocabulary and:</u> anther fertiliser nutrients pollination seed dispersal seed formation stigma algae	<u>Habitats work -</u> Amphibians seed dispersal seed formation stigma algae birds fish fungi invertebrate mammals microorganism reptiles species vertebrate	<u>Life Cycles work -</u> classification embryo gestation obese precision puberty reproduction teenager toddler	<u>Classification work -</u> algae bacteria fungi invertebrates micro - organism monera protista species vertebrates

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including humans	Explore the natural world around them Describe what they see, hear and feel whilst outside. Recognise some environments that are different from the one in which they live. Understand the effect of the changing seasons the natural world around them.	Name a range of common animals including examples of fish , amphibians, reptiles, birds and mammals Give examples of carnivores, omnivores, and herbivores Recognise differences between animals and use this to sort Recognise animals need to be treated with care Identify draw and label people with basic body parts Compare and describe differences in their own features . Recognise that humans have many similarities. senses	Animals have offspring which grow into adults Simple life cycles eg What animals need to survive (e.g food water and air) How animals get their food from plants and other animals – construct simple food chains People have babies which turn in to adults when they get older Basic needs for people(air, water , food) The importance of exercise, the right amount of certain foods – not too much sugar or fast food Hygiene- washing hands, keeping clean	Identify animals (vertebrates) which have a skeleton The role of a skeleton Animals without internal skeletons (invertebrates) what gives them protection and structure Similarities and differences between animal skeletons humans have skeletons and muscles for movement, support and protection The names of bones How muscles work Nutrition – need for the right types of food - healthy plate.	Food chains including produces , predator and prey Comparing teeth of carnivores and herbivores *Through work on habitats -* Grouping and sorting animals according to characteristics Using classification keys to identify animals in local and wider environment Making identification keys for animals Simple functions of basic parts of the digestive system Types of teeth and their function Looking after teeth and gums	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Animals are alive; they move, feed, grow, use their senses, reproduce, breathe/respire and excrete. Simple functions of basic parts of the digestive system Types of teeth and their function Looking after teeth and gums Changes that humans undergo as they develop to old age Timeline of human life Puberty	*Through work on classification* - Grouping and classification according to characteristics Linnaean classification of animals reasons for classification *Through work on evolution* – Animals on Earth have changed over time Fossils give clues about on Earth millions of years ago creatures that lived Inheritance How animals are suited to and may adapt to environment Parts and function of circulatory system Including heart, blood vessels and blood Ways in which nutrient are transported around body Impact of diet, exercise, drugs and lifestyle on health

<table>
<tr><td>End of KS expectations</td><td></td><td>Children should be taught to -
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.

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.</td><td colspan="4">Children should be taught to -
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.

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.

Describe the changes as humans develop to old age.
Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.
Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans.</td></tr>
<tr><td>Vocabulary</td><td></td><td>animals
amphibians
birds
carnivore
fish
herbivore
insects
mammals
nocturnal
omnivore
reptiles
tame
carbohydrates
diet
exercise
fats
healthy
hygiene
nutrition
off-spring
proteins
survival</td><td>KS1 Vocabulary and:
balanced diet

carbohydrates
exercise
fats
healthy
nutrients
nutrition
oxygen
protein
survival
water
canine
dentil
enamel
food chain
incisors
intestine
molars
survival
bone cartilage
joint</td><td>water
canine
dentil
enamel
food chain
incisors
intestine
molars
Circulatory System
atriums
blood vessels
capillaries
cardiologists
cardiovascular
drugs
muscle
pulse
ultrasound
ventricles
muscle
pelvis
rib cage skeleton
skull
spine
tendon</td><td>Habitats work -
Algae
amphibians
birds
fish
fungi
invertebrate
mammals
micro-organism
reptiles
species
vertebrate</td><td>Evolution work -

Adaptation
chromosomes
evolution
excavating
genes
inheritance
off-spring
palaeontologist
predators

Classification work -
algae
bacteria
fungi
invertebrates
micro - organism
monera
protista
species
vertebrates</td></tr>
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	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Materials	Explore the natural world around them Describe what they see, hear and feel whilst outside. Recognise some environments that are different from the one in which they live.	Know a material is what something is made out of Know some common materials eg wood, metal, water, glass plastic rock Name the material things in classroom are made from Describe the simple properties of materials Sort and group objects according to what they are made of Sort materials according to properties	Revise names of common materials Relate properties of materials and the things the materials are made into – why things are used to make certain things How materials can be changed through squashing stretching bending and stretching Some materials are natural other have to be made	**Rocks** Compare, group and sort rocks Describe in simple terms how fossils are formed Recognise that soils are made from rocks and organic matter. Rocks and soils can be found in different p laces /environments. Name 5 common rocks	Grouping materials according to whether they are solid liquid or gas. Listing observable properties of solid, liquid and gas **State of matter** Changing state Evaporation and condensation Water cycle	How can I test different properties of materials- flexibility, hardness, transparency, magnetism Insulators and conductors Material that trap air make good insulators	
End of KS expectations		Children should be taught to - 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. Identify and compare the suitability of a variety of everyday materials for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		Children should be taught to - 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 rock Recognise that soils are made from rocks and organic matter. Compare and group materials together, according to whether they are solids, liquids or gases 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) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 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 Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic		

			Demonstrate that dissolving, mixing and changes of state are reversible changes 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.		
Vocabulary	absorb · bumpy · dry · floating · frozen · ice · material · melting · reflection · sinking · smooth · symmetry · texture · waterproof · wet flexible · gas · liquid · magnetic · materials · metal · opaque · plastic · rigid · shiny · stretch · transparent · waterproof · wood bend · metal · plastic · squash · stretch twist wood		<u>KS1 Vocabulary and –</u> bicarbonate conductivity dissolve evaporation filtering irreversible melting reversible separate soda solubility thermal transparency	<u>Rocks work –</u> crystal fossil igneous metamorphic mineral organic matter rock sedimentary soil	<u>State of matter work –</u> celsius condensation evaporation freezing point gas irreversible liquid matter melting point molecules precipitation reversible solid temperature

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light and Sound	Explore the natural world around them Describe what they see, hear and feel whilst outside.	**<u>Seasonal changes</u>** The difference between the four seasons How weather changes between seasons How length of day varies across the year Winter has short days/ summer long days		Need light to see Dark is when there is no light Reflection of light from different surfaces Danger of light from sun – how to keep safe How shadows are formed when light is blocked Investigate how shape and size of shadows change	Sounds are made by things vibrating Vibrations travel through medium to ear- How we hear Sound can travel through different materials Pitch can be altered by changing length of thing vibrating Volume can be changed by changing intensity of vibration Sounds become fainter further from the source you are	**<u>Earth and Space</u>** Earth, moon and sun are roughly a sphere Relative movement of Earth moon and sun to each other The Earth spins once around its own axis in 24 hours, giving day and night. The Earth orbits the Sun in one year Use Earth's rotation to explain day and night Changes of shadow length over day/ times of sunset and sunrise giving evidence of Earth's rotation We see the moon because of reflection of sun off moon – moon orbits Earth every 28 days and how we see it changes	Light appears to travel in straight lines. Use how light travels to explain how we see Explain that we see things because the light that 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.

End of KS expectations		Children should be taught to - Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.	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 byan opaque object Find patterns in the way that the size of shadows change. 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. 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 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.	
Vocabulary		<u>Seasonal work –</u> autumn spring summer temperature thermometer weather weather symbol winter	concave convex cornea iris lens light source light wave pupil refraction retina	<u>Earth and Space work –</u> astronomical crescent moon eclipse gibbous moon lunar orbit planet rotation solar solar system spherical

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Forces	Explore the natural world around them			A force is a push or a pull How things move on different surfaces Investigate magnets- which materials are attracted to a magnet Magnets can attract and repel Magnets have two poles Make prediction whether magnets will attract or repel based on poles		Examples of forces (push, pull, friction, air resistance, water resistance, magnetic forces, gravity). Effect of gravity on falling object Friction Air resistance Water resistance Levers and pulleys	

End of KS expectations				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. 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.
Vocabulary				attract force magnet magnetic magnetic field magnetic pole non-magnetic repel air resistance friction gears gravity levers parachute pulleys surface resistance water resistance

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

Electricity	Explore the natural world around them				Appliances that run on electricity Construct simple series circuit name parts Predict whether or not a circuit will light Using simple switches Conductors and insulators know that metals are insulators		Change voltage/number of cells and comment on effect on brightness of bulb or volume of buzzer circuit diagrams use symbols when writing and drawing diagrams Trying different arrangements of components in series circuits comment on effect
End of KS expectations				<u>Children should be taught to –</u> 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.		

Vocabulary			appliance battery buzzers cells circuits conductor insulator socket switch		Cells conductor dimmer switch fuses generator insulator series circuits socket volts

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living things and their habitats	Explore the natural world around them Describe what they see, hear and feel whilst outside. Recognise some environments that are different from the one in which they live. Understand the effect of the changing seasons the natural world around them.		Dead, alive and never alive Living things are suited to their habitat Explore habitats and micro habitats around school name some plants and animals within them Note conditions within habitat in terms of light/ shade Temperature, dampness and how this affects life Compare animals in familiar habitats with less familiar habitats such as woodland, seashore, ocean,		Use classification keys to identify plants and animals in local habitats Environments can change and this can pose threat to living things		Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. Classification of plants and animals from different habitats

End of KS expectations		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 micro-habitats 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.	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 and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things. 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 Give reasons for classifying plants and animals based on specific characteristics.	
Vocabulary		desert dinosaur indigenous microhabitats ponds rainforest rivers sea species woodland	Algae amphibians birds fish fungi invertebrate mammals micro-organism reptiles species vertebrate	algae bacteria fungi invertebrates micro-organism monera protista species vertebrates