



Clyst St Mary Primary School

Science Progression Framework



Being a Scientist – Exemplifying scientific behaviours which ensure pupils know more and remember more

Scientific Enquiry – The skills every pupil needs to ensure they can be a scientist

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
------	--------	--------	--------	--------	--------	--------

Reception Making observations and drawing pictures Children know about similarities and differences in relation to places, objects, materials and living things Children talk about the features of their own immediate environment and how environments might vary from one another Children describe shapes, spaces, and measures	E1: ask simple questions and recognise that they can be answered in different ways E2: observe closely, using simple equipment E3: perform simple tests E4: identify and classify E5: use their observations and ideas to suggest answers to questions E6: gather and record data to help in answering questions	E1: ask relevant questions and use different types of scientific enquiries to answer them E2: set up simple practical enquiries, comparative and fair tests E3: make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers E4: gather, record, classify and present data in a variety of ways to help in answering questions E5: record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables E6: report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions E7: use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions E8: identify differences, similarities or changes related to simple scientific ideas and processes E9: use straightforward scientific evidence to answer questions or to support their findings.	E1: plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary E2: take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate E3: record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs E4: using test results to make predictions to set up further comparative and fair tests E5: report and present 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 E6: identify scientific evidence that has been used to support or refute ideas or arguments
---	--	--	--

Children make observations of animals and plants and explain why some things occur, and talk about changes Children use what they have learnt about media and materials in original ways, thinking about uses and purposes	B1: Enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. B2: They should be encouraged to be curious and ask questions about what they notice. B3: They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. B4: They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.	B1: Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. B2: They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys. B3: They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them B4: They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. B5: They should learn how to use new equipment, such as data loggers, appropriately. B6: They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data. B7: With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. B8: With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done. B9: They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. B10: Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.	B1: Pupils in years 5 and 6 should use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. B2: They should use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. B3: They should make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately. B4: They should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas. B5: They should use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. B6: They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.
--	---	--	--

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore the natural world around them, by making observations and drawing pictures of animals Understand the key features of the life cycle of a plant and animal.	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 describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	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.	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.	<u>Animals including humans</u> 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.
Working scientifically skills						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Draw simple pictures and talk about what they see and do. Ask questions using why and how	2 Animal classification: interpret and report 2 Body parts: evaluate	Handspans: evaluate	Investigating skeletons: Ask questions and plan	Teeth (eggs) in liquid: evaluate	Growth survey: observe and measure	Heart rate: set up enquiry
Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ear and tongue. Roots, leaves, stem, petals, seeds, soil, growing, changes. Seasons weather, changes,	head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ear and tongue.	Offspring, reproduction, growth, child, young/old stages (e.g. chicken/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (eg. meat, fish, vegetables, bread, rice, pasta).	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles and joints.	digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain.	puberty - the vocabulary to describe sexual characteristics.	Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle.
Knowledge Assessment						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

https://drive.google.com/drive/u/0/folders/1w9echxjePH5CPJ8WXPrDPbrmoAxTLFgG	https://docs.google.com/presentation/d/14VyMgHcAmVYst6LkT3-4LZmwP1q8l_AUuRKUSnfSreE/edit#slide=id.p1	https://docs.google.com/presentation/d/10Rs-TDJ8Rf1WUA01BAsoWTPlwzcM7FrQ/edit#slide=id.p1	https://docs.google.com/presentation/d/1CRFL78gK-LpN06AivgKglc12i9kfTp5us6xyK0j5YXE/edit	https://docs.google.com/presentation/d/1TEhs563AWRYTzB4w9TmljH5y4FnSPpw3wkdcDOO3IRQ/edit	https://docs.google.com/presentation/d/1AJBjFGyF6d8W1zFsmcuuGJ5zH-n-cETJm31f-QAE9RM/edit#slide=id.p1	https://docs.google.com/presentation/d/1RbMT8EEFM01IbrK6nc2d9CdI46BBocM1-cZuVayjZAo/edit
---	---	---	---	---	---	---

Knowledge - Living Things and Their Habitats						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise that some environments are different to the ones in which they live. Understand the effect of changing seasons on the natural world around them. Explore the natural world around them.	<u>Seasonal changes</u> observe changes across the 4 seasons observe and describe weather associated with the seasons and how day length varies.	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 microhabitats 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 the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals.	<u>Living things and their habitats</u> 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
Working Scientifically Skills						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Grow and plant seeds and watch the changes taking place. Being able to dress appropriately for the	Seasons: record	1. Woodlice: record 2. Nature spotters: interpret and report		Local survey: record		1. Outdoor keys: record 2. Invertebrate research: Interpret/report

weather. E.g. sun safety. Talk about significant events that take place in a season, eg. Christmas is in winter. Leaves falling in the Autumn.						
Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Weather, seasons sun, snow, wind, rain, thunder, lightening, frost. Spring, Summer, Autumn, Winter. Heat, cold, celebrations, events.	Weather, sunny, rainy, windy, snowy, winter, summer, spring, autumn, sun, sunrise, sunset, day, length. classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate.	living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed. Names of local habitats e.g. pond, woodland etc...Names of micro-habitats e.g under logs, in bushes etc..		classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate.	lifecycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings.	Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering.
Knowledge Assessment						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
https://drive.google.com/drive/u/0/folders/1w9echxjePH5CPJ8WXPrDPbrmoAxTLFgG	https://docs.google.com/presentation/d/10MgOoURhjxy6OpWIK_ItSig9OemJPImy/edit	https://docs.google.com/presentation/d/1ZgCuyBR1DUpacV9KukR1o3Fk2Fx2GNxn1tjbTMTt71A/edit#slide=id.p1		https://docs.google.com/presentation/d/1vkgav0GT6oVcSHKjh1-9RMGQlQjxsy2ztB8847VZpXE/edit	https://docs.google.com/presentation/d/1yPr-R0nLGy8zDP52BCfz7M2VGEO2l7x5/edit	https://docs.google.com/presentation/d/1kpm1ldnyROgNBorLHWots1veujBO0SAcKo6LV_o2zQk/edit#slide=id.p1

Knowledge - Properties of Materials and States of Matter						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	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, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses compare how things move on different surfaces. find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching		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.	

Working Scientifically Skills

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	1. Reflections tests: ask q's and plan 2. Floating and Sinking: set up enquiry	1. Materials hunt: ask q's and record data		1. Measure temperature: observe and measure. 2. Drying materials: set up enquiry	1. Dissolving: asking questions 2. Insulation layers: set up enquiry	
Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	object, wood, material, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears/rough, smooth, shiny, dull, see-through, not see through.	wood, metal, plastic, glass, brick, rock, paper, cardboard and other names of materials, same properties as Year 1 plus opaque, transparent, translucent, reflective, non-reflective, flexible and rigid.		solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle.	thermal, electrical, insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material.	
Knowledge Assessment						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	https://docs.google.com/presentation/d/1jMQbFkTgQRYE_Tlpi0bXBI6ODDg2mM-M300lGeg7EEc/edit	https://docs.google.com/presentation/d/1k-ochSiOGNXahZecWy7xQj28WrKQWt_f49_wT2QMW4Q/edit#slide=id.p1		https://docs.google.com/presentation/d/1uOHMhBFgG_VTIl-tJfID-z6AMKcVEZcvDm1aJHkQaA/edit#slide=id.p1	https://docs.google.com/presentation/d/1ALsRQI_2WSLlDMoh6S3m6Qdq37FjMOVfw_Cp7OtDXMg/edit	

Knowledge - Physics						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Understand some important processes and changes in the natural world around them, including changing states of matter.(Freezing and			Forces and Magnets compare how things move on different surfaces	Electricity identify common appliances that run on electricity	Earth and Space: describe the movement of the Earth, and other planets, relative to the Sun in the	Light recognise that light appears to travel in straight lines use the idea that light

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore and talk about the different forces they can feel.			Strongest magnet: set up enquiry Making shadows: record	Conductors: interpret and report Investigating pitch: asking questions	Craters: record Aquadynamics: explain the degree of reliability	Investigating shadows: asking questions
Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cold, frozen, ice, solid, liquid, melting, dissolving.			force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north Light: light, light source, dark, absence of light, transparent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight and dangerous.	electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connections short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol. sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation.	Earth, Sun, Moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune, spherical, solar system, rotates, star, orbit, planets Force, gravity, Earth, air resistance, friction, mechanisms, simple machines, levers, pulleys, gears. Amps, volts, voltage, cell circuit diagram, symbols	As for Year 3 - light, plus straight lines, light rays.
Knowledge Assessment						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
https://drive.google.com/drive/u/0/folders/1w9echxjePH5CPJ8WXPrDPbrmoAxTLFgG			https://docs.google.com/presentation/d/1k07d7y6mNpY7PqOh0TF0Y5TNGGr1DB96-QHTg9N6A58/edit https://docs.google.com/presentation/d/12gNB7STmEaVp_XCw_fIwvl3d4sy2v1Uf3bYbY_saMJk/edit#slide=id.p1	https://docs.google.com/presentation/d/1gd3GnbTBgL23FZJ-firm8UaqnmBKzIWajEVerqatydm/edit https://docs.google.com/presentation/d/1UjLvxSt54-bUiWSmSQx3OFwuanSP1TGGOIIIIfMYTB6s/edit#slide=id.p1	https://docs.google.com/presentation/d/13c8jc9orTyEP-sQg7tZYuBPVZPhS5Ne0/edit https://docs.google.com/presentation/d/11HfvO5fwnDB9pm2EZlhYZqX5D3Pf0aOb/edit?t?rtfpof=true	https://docs.google.com/presentation/d/1v6vyE5Uotk8cH2RP_n7GRkV0AOkjeTKxmGkXa08RxU0/edit

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	identify and name a variety of common wild and garden plants, including deciduous and evergreen trees identify and describe the basic structure of a variety of common flowering plants, including trees	observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	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.			
Working Scientifically Skills						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Structure: observe and measure	Compare growth: Observe and measure	- Measuring plants: observe and measure - Function of stems: evaluate			
Vocabulary						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud. Names of trees, garden and wild-flowers in the local area.	As for Year 1 plus: deciduous, evergreen, blossom, bulb, temperature, growth Names of trees and wild-flowers in the local area.	photosynthesis, pollen, insect/wind pollination, seed formation, seed/wind/animal/water dispersal seed formation.			
Knowledge Assessment						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil.			Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils.
Knowledge Assessment						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			https://docs.google.com/presentation/d/14Ihl1B2OKVOnW3VMadIvTsZ6GIIm-hUQz6AqVv0vpO4/edit			https://docs.google.com/presentation/d/1ejKEAG8zM7k5J969J47H6dcuIc-JzxXB5U9TjS6Bra0/edit