

Steeple Claydon School Progression Criteria – (Science)

Substantive and Disciplinary Knowledge	End of EYFS	End of KS1	End of Year 4	End of KS2
Plants	Identify and name a variety of plants (including trees) that food comes from	<ol style="list-style-type: none"> 1. Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. 2. Identify and describe the basic structure of a variety of common flowering plants including trees. 3. Observe and explore plants in the local environment. 4. Observe changes in the growth of plants and vegetables they have planted. 5. Observe and describe how seeds and bulbs grow into mature plants. 6. Observe plants over time. 7. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	<ol style="list-style-type: none"> 1. Identify and describe the functions of different parts of flowering plants 2. Explore the part which flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 3. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary from plant to plant. 4. Investigate the way in which water is transported within plants. 	<ol style="list-style-type: none"> 1. Explore the process of reproduction in some plants, including sexual and asexual reproduction. 2. Describe how plants are classified into broad groups according to common observable characteristics based on similarities and differences. 3. Give reasons for classifying plants based on specific characteristics. 4. Identify how plants are adapted to suit their environment in different ways.
Vocabulary	Plants – Plant, seed, seedling, fruit, vegetable, sun, plant pot, soil, apple tree, carrot, potatoes.	Evergreen, deciduous, branches, trunk, crown, bark, leaves, flowers, blossom, petals, fruit, roots, bulb, stem, water, temperature, growth, season (winter, spring, summer, autumn), common, rare. Plants to identify: clover, horse chestnut (conker) tree, pine tree,	Air, light, water, nutrients, room, reproduction, carpel, style, ovary, ovule, pollen, stamen, anther, filament, sepal, seed formation, dispersal, germination, pollination, transportation, seed dispersal: wind, bursting, shaking, water and animals, transportation.	Reproduction, adaptation, root cuttings, tubers, bulbs, species, location, genetically identical, kingdoms, plantae, mosses and liverworts, ferns and horsetails, conifers, flowering plants, classification key.

		stinging nettles, dock, daisy, buttercup, dandelion, daffodil.	Plants to identify: ivy, oak, ash, willow tree, thistle, birch, bluebells, cow parsley.	Plants to identify: Galapagos plants: mangrove (coastal), prickly pear cacti (arid), orchids (rainforest), Nordmann Fir (arctic), banana plant, spider plant.
Living things and their habitats	Identify and name a variety of plants and animals in their habitats	<ol style="list-style-type: none"> 1. Explore and compare the difference between things which are living and dead, and those things which have never been alive. 2. 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. 3. Identify and name a variety of plants and animals in their habitats, including micro habitats. 4. 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. 	<ol style="list-style-type: none"> 1. Recognise that living things can be grouped in a variety of ways 2. Explore and use classification keys to help group and identify and name a variety of living things in their local and wider environment. 3. Recognise that environment can change and that this can sometimes pose dangers to living things 	<ol style="list-style-type: none"> 1. Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. 2. Describe the life processes of reproduction in some plants and animals. 3. Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences including microorganisms and animals 4. Give reasons for classifying animals and plants based on specific characteristics 5. Find out about the work of naturalists and animal behaviourists
Vocabulary	Seaside, woodland, countryside (see animals and plants)	Life process, living, non-living, dead, never alive, movement, respiration, growth, reproduction, excretion, nutrition, conditions, survive, habitat, urban, woodland, pond, coast, coastal, desert, energy, sun, food chain, predator, prey, dandelion, snail, thrush, fox. (Names of plants and insects living within the allotment at the time of teaching. Not identified	Living things and their habitats Fish, reptile, mammals, birds, amphibians, insects, environment, habitat, vertebrate, invertebrate, exo skeleton, adaption	

		within this document as it will vary according to conditions, time of year and activities within other year groups).		
Seasonal Change				
Vocabulary		Seasonal change – summer, spring, autumn, winter, season, sun, day, moon, night, light, dark		
Animals including humans		<ol style="list-style-type: none"> 1. identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals 2. identify and name a variety of common animals that are carnivores, herbivores and omnivores³ 3. describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) 4. identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 5. Notice that animals, including humans, have offspring which grow into adults. 6. Find out about and describe the basic needs of animals, including 	<ol style="list-style-type: none"> 1. 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. 2. Identify that humans and some other animals have skeletons and muscles for support, protection and movement. 3. Describe the simple functions of the basic parts of the digestive system in humans. 4. Identify the different types of teeth in humans and their simple functions. 5. Construct and interpret a variety of food chains, identifying producers, predators and prey. 	<ol style="list-style-type: none"> 1. Describe the changes as humans develop to old age. 2. Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. 3. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. 4. Describe the ways in which nutrients and water are transported within animals, including humans.

		<p>humans, for survival (water, food and air).</p> <p>7. Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>		
Vocabulary		<p>Omnivore, carnivore, herbivore, salmon, mackerel, pigeon, goldfish, blackbird, salamander, newt, toad, frogs, lion, mouse, deer, human, tuna, worm, jellyfish, lobster, amphibian, reptile, fish, mammal, bird, head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth</p> <p>Animals inc humans Fish, reptiles, mammals, birds, amphibians, herbivore, carnivore, omnivore, head, ear, eye, mouth, knee, arm, elbow, back, wings, beak, survival, water, air, oxygen, food, adult, baby, offspring, foal, kitten, calf, puppy, exercise, hygiene</p>	<p>Nutrition, carbohydrate, protein, omnivore, carnivore, herbivore, balanced,</p> <p>Animals inc humans Bones, muscles, skeleton, skull, ribs, support, protection, movement, herbivore, carnivore, omnivore, teeth, canine, molar, insicor, molar, mouth, tongue, oesophagus, stomach, small intestine, herbivore, carnivore, omnivore</p>	
Uses of everyday materials		<p>1. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>2. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>		

Vocabulary		<p>Everyday materials/materials and their uses – material, wood, plastic, glass, paper, metal, rock, hard, soft, smooth, shiny, rough, bendy, stiff, dull, absorbent, transparent, opaque, brick, foil, squashing, bending, twisting, elastic, bending</p>		
<p>Properties and changes of materials</p>				<ol style="list-style-type: none"> 1. 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. 2. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. 3. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. 4. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.

				<p>5. Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>6. 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>
Vocabulary				<p>Properties & changes of materials Hardness, solubility, mixing, dissolving, melting, solution, solute, transparency, conductivity, magnetic, filter, filtration, evaporation, condensation, reacting, reactants</p>
Rocks			<ol style="list-style-type: none"> 1. Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. 2. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. 3. Recognise that soils are made from rocks and organic matter. 	
Vocabulary			<p>Rocks and soils Sandstone, limestone, granite, marble, pumice, slate, crystals, properties, permeable,</p>	

			sedimentary, igneous, metamorphic, fossils, soil, organic matter, humus	
Light			<ol style="list-style-type: none"> 1. Recognise that they need light in order to see things and that dark is the absence of light. 2. Notice that light is reflected from surfaces. 3. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. 4. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. 5. Find patterns in the way that the size of shadows change. 	<ol style="list-style-type: none"> 1. Recognise that light appears to travel in straight lines. 2. 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. 3. 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. 4. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Vocabulary			Light Light, dark, shadows, blocking, mirror, reflect, reflective, reflection	Light Reflection, refraction, lens, prism, colour, light spectrum, prism, rainbow
Forces and Magnets			<ol style="list-style-type: none"> 1. Compare how things move on different surfaces. 2. Notice that some forces need contact between 2 objects, but 	<ol style="list-style-type: none"> 1. Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.

			<p>magnetic forces can act at a distance.</p> <p>3. Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>4. 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.</p> <p>5. Describe magnets as having 2 poles.</p> <p>6. Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.</p>	<p>2. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</p> <p>3. Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.</p>
Vocabulary				<p>Gravity, fulcrum, effort, load, air resistance, friction, pulley, gravity, mechanism, force</p> <p>Forces Force, friction, newton, gravity, newton meters, air resistance, water, resistance, gears, pulleys, leavers</p>

States of matter			<ol style="list-style-type: none"> 1. Compare and group materials together, according to whether they are solids, liquids or gases. 2. 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). 3. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	
Vocabulary			States of matter Solid, liquid, gas, temperature, heating, freezing point, particles, evaporation, condensation, thermometer, thermal, insulation	
Sound			<ol style="list-style-type: none"> 1. Identify how sounds are made, associating some of them with something vibrating. 2. Recognise that vibrations from sounds travel through a medium to the ear. 3. Find patterns between the pitch of a sound and features of the object that produced it. 	

			<ol style="list-style-type: none"> 4. Find patterns between the volume of a sound and the strength of the vibrations that produced it. 5. Recognise that sounds get fainter as the distance from the sound source increases. 	
Vocabulary			<p>Sound Volume, vibration, sound, wave, loud, soft, pitch, low pitch, tone, speaker, amplitude, frequency</p>	
Electricity			<ol style="list-style-type: none"> 1. Identify common appliances that run on electricity. 2. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. 3. 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. 4. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. 5. Recognise some common conductors and insulators, and 	<ol style="list-style-type: none"> 1. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. 2. 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. 3. Use recognised symbols when representing a simple circuit in a diagram.

			associate metals with being good conductors.	
Vocabulary			6.	Electricity Cells, batteries, wires, bulbs, switches, buzzers, circuit, series/parallel conductors, insulators, amps, volts
Earth and Space				<ol style="list-style-type: none"> 1. Describe the movement of the Earth and other planets relative to the sun in the solar system. 2. Describe the movement of the moon relative to the Earth. 3. Describe the sun, Earth and moon as approximately spherical bodies. 4. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.
Vocabulary				Earth and space Earth, sun, sea, moon, axis, planets, solar system, star, constellation, phases of the moon, waxing, waning, gibbous moon, full moon
Evolution and Inheritance				<ol style="list-style-type: none"> 1. Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. 2. Recognise that living things produce offspring of the same

						<p>kind, but normally offspring vary and are not identical to their parents.</p> <p>3. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	
Vocabulary						<p>Evolution/inheritance Fossils, adaption, evolution, characteristics, reproduction, genetics</p>	
Disciplinary knowledge	End of EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Asking and answering questions	Asks questions about aspects of the familiar world (natural world)	Use everyday language/ begin to use simple scientific words to ask or answer a scientific question.	Ask simple scientific questions and know that they can be answered using simple secondary sources, such as books and video clips.	Pose questions independently and begin to answer with support from secondary sources about the world around them.	Suggest relevant questions and find answers using secondary sources such as ICT. Answer questions using straight forward scientific evidence.	Raise different types of scientific questions, and hypotheses using scientific evidence.	Pose/select the most appropriate line of enquiry to investigate scientific questions. Hypotheses using scientific evidence.
Investigating	Make simple investigations based on their own interests.	Follow instructions to complete a simple test individually or in a group.	Do things in the correct order when performing a simple test and begin to recognise when something is unfair.	Discuss enquiry methods and describe a fair test.	Make decisions about different enquiries, including recognising when a fair test is necessary.	Plan a range of science enquiries, including comparative and fair tests. Begin to identify variables.	

Observing	Look closely at similarities, differences, patterns and change	Observe objects, materials and living things and describe what they see.	Observe objects, materials and living things and describe changes over time.	Make decisions about what to observe during an investigation.	Make systematic and careful observations.	Plan and carry out comparative and fair tests, making systematic and careful observations.	
Equipment and Measuring	Order items by weight or capacity.	Use simple, non-standard measurements in a practical task.	Use simple equipment, such as magnifying glasses to take measurements and make observations. Begin to measure using standard units.	Take accurate measurements using standard units.	Take accurate measurements using standard units and a range of equipment, including thermometers and data loggers.	Take measurements using a range of scientific equipment with increasing accuracy and precision.	Choose the most appropriate equipment in order to take measurements, explaining how to use it accurately and check results with additional readings.
Identifying and Classifying	Look closely at similarities, differences, patterns and change. Use language of sorting and grouping.	Begin to sort and group objects, materials and living things with help, according to simple observational features.	Decide, with help, how to group materials, living things and objects, noticing changes over time and beginning to see patterns.	Talk about criteria for grouping, sorting and categorising. Discuss patterns and begin to make appropriate links.	Identify similarities/differences/changes when talking about scientific processes. Use and begin to create simple keys.	Use and develop keys to identify, classify and describe living things and materials.	Use keys to identify and explain patterns seen in the natural environment using causal relationships and explanations.
Recording and Reporting on Findings	Can talk about some of the things they have observed.	Use simple everyday language to talk about findings and explain what they found out.	Gather data, record and talk about their findings using simple scientific vocabulary.	Record their findings using scientific language and present in note form, writing frames, diagrams, tables and charts.	Choose appropriate ways to record and present information, findings and conclusions (e.g. oral or written explanations)	Record data and results of increasing complexity using scientific diagrams, labels, classification keys, tables, bar and line graphs, and models.	Choose the most effective approach to record and report results.

Analysing Data and Drawing Conclusions		Use everyday language and start to use simple scientific language to ask and answer a question about data. Explain with support what they think they have found out.	Identify simple patterns and/or relationships using simple scientific language to explain what they have found out.	Gather record and use data in a variety of ways to answer a simple question. Draw, with help, a simple conclusion based on evidence from an enquiry or observations.	Use results to draw conclusions, make predictions and suggest improvements. Identify differences, similarities or changes related to simple scientific ideas and processes.	Use relevant scientific language and illustrations to discuss, communicate and justify scientific ideas. Be able to justify conclusions and begin to recognise how scientific ideas change over time.	Identify and explain causal relationships in data and identify evidence that supports or refutes their findings. Identify validity of conclusions and improvements of methodology needed. Discuss how scientific ideas develop over time.
Knowledge and Understanding		Demonstrate concrete knowledge and understanding of all national curriculum areas within year group.	Demonstrate concrete knowledge and understanding of all national curriculum areas within year group.	Demonstrate concrete knowledge and understanding of all national curriculum areas within year group.	Demonstrate concrete knowledge and understanding of all national curriculum areas within year group.	Demonstrate concrete knowledge and understanding of all national curriculum areas within year group.	Demonstrate concrete knowledge and understanding of all national curriculum areas within year group.
Vocabulary		Working scientifically Investigation, enquiry, what to change, what we used, what we did, what we found out	Working scientifically Investigation, enquiry, prediction, variable, dependent variable, independent variable, constant, patterns, equipment, apparatus, method, results, conclusion	Working scientifically Investigation, enquiry, prediction, variable, dependent variable, independent variable, constant, patterns, equipment, apparatus, method, results, conclusion			