



Seamer and Irton CP School

Progression of knowledge and skills in Science



Substantive Knowledge

Disciplinary Knowledge

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	<p style="text-align: center;">Plants</p> <ul style="list-style-type: none"> • I can describe some of the trees and plants I see a lot such as shape of leaves and colour of flowers. • I can point out trees that lose their leaves and those that keep them all year. • I can point to and name parts of a plant such as roots, leaves, petals and stem. • I can recognise how some plants can be different such as leaves and stems might not always be green. 	<p style="text-align: center;">Plants</p> <ul style="list-style-type: none"> • I can describe how plants grow from seeds or bulbs. • I can describe what a mature plant looks like. • I can describe where seeds come from. • I can plant seeds and see what conditions make it grow the best. 	<p style="text-align: center;">Plants</p> <ul style="list-style-type: none"> • I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. • I can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal, and germination. • I know what plants need for life and growth (air, light, water, nutrients from soil, and room to grow) and how these needs vary from plant to plant. • I have investigated the way in which water is transported within plants. • I can give different methods of pollination and seed dispersal, including examples. 	Link to living things and their environment	Link to living things and their environment	Link to living things and their environment
Vocabulary	branch, bulb, common, deciduous, evergreen, flower, flowering, fruit, garden, herb, leaf,	crop, nutrients, reproduce, seedling names of plants in local	absorb, carbon dioxide, dispersed (wind dispersal, animal dispersal, water	classification, classification keys	life cycle, reproduce, sexual, fertilises, asexual, stigma, anther, stamen, ovary, ovule	non-flowering, mosses, ferns, conifers

	petal, root, seed, stem, tree, vegetable, vegetation, weed, wild, names of trees in the local area, names of garden and wild flowering plants in the local area	habitats and micro-habitats	dispersal), dissect, fertilisation, function, germination, healthy, life cycle, mature, pollen, pollination (insect and wind), photosynthesis, male, female, minerals, temperature, transport			
Living things and their environment	Link to plants, animals including humans and seasonal changes	Living things and their environment <ul style="list-style-type: none"> • I explore and compare the differences between things that are living, dead, and things that have never been alive. • I can identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs for the animals. • I can identify and name a variety of plants and animals in their habitats, including micro-habitats. • I can 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. 	Link to plants	Living things and their environment <ul style="list-style-type: none"> • I can recognise that living things can be grouped in a variety of ways. • I can explore and use classification keys to help group. • I can identify and name a variety of living things in their local and wider environment. • I can recognise that environments can change and that this can sometimes pose dangers to living things. 	Living things and their environment <ul style="list-style-type: none"> • I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. • I can describe the life process of reproduction in some plants. • I can describe the life process of reproduction in some animals. 	Living things and their environment <ul style="list-style-type: none"> • I can describe how living things are classified into broad groups according to common observable characteristics and differences, including micro-organisms, plants and animals. • I can give reasons for classifying plants based on specific characteristics. • I can give reasons for classifying animals based on specific characteristics.
Vocabulary	N/A See seasonal changes	biomes, carnivore, depend, food chain, habitat, herbivore, invertebrate, microhabitat,	N/A See plants	classification key, criteria, deciduous, environment, evergreen, excretion, life processes, nutrition,	anther, bulb, cell, dispersed, dissect, embryo, fertilisation, flower, flowering, function, gamete,	mosses, ferns, conifers, non-flowering

		minibeast, offspring, omnivore, source, vegetation		organism, reproduction, respiration, urban, vertebrate	germination, life cycle, mature, metamorphosis, ovary, ovule, petal, pollen, pollination, reproduction, seed, sperm, stigma, structure	
Animals including humans	<p>Animals including humans</p> <ul style="list-style-type: none"> • I can name a range of animals which includes animals from each of the vertebrate groups (carnivore, omnivores and herbivores). • I can describe the key features of these named animals and label key features on a picture/diagram. • I can write descriptively about an animal. • I can label parts of the body on pictures and diagrams. • I can explore objects using different senses. 	<p>Animals including humans</p> <ul style="list-style-type: none"> • I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air). • I can describe the importance for humans of exercise and eating the right amounts of different types of food. • I can describe how good hygiene is important for preventing infections and illnesses. • I can describe what a life cycle is. • I can describe that animals have offspring which grow into adults, using scientific names for the stages. • I can describe that humans have offspring which grow into adults, using scientific names for the stages. • I can talk about a life cycle and explain each stage. 	<p>Animals including humans</p> <ul style="list-style-type: none"> • I can name the nutrients found in food. • I can 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. • I can identify and classify some bones in the skeleton. • I can describe the function of the skeleton in the bodies of humans and some other animals. • I can explain how muscles and joints help us move. • I can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients. 	<p>Animals including humans</p> <ul style="list-style-type: none"> • I can describe the simple functions of the basic parts of the digestive system in humans. • I can identify the different types of teeth in humans and their simple functions. • I can construct and interpret a variety of food chains, identifying producers, predators and prey. 	<p>Animals including humans</p> <ul style="list-style-type: none"> • I can describe the changes as humans develop to old age. • I understand that all living things have lifecycles. • I can explain how a baby changes physically as it grows, and also what it is able to do. • I can explain the changes that takes place in boys and girls during puberty. 	<p>Animals including humans</p> <ul style="list-style-type: none"> • I can identify, name and draw the main parts of the human circulatory system. • I can describe the functions of the heart, blood vessels and blood. • I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. • I can describe the ways in which nutrients and water are transported within animals, including humans. • I can identify some conditions that are caused by deficiencies in our diet e.g. lack of vitamin C causes scurvy.

<p>Vocabulary</p>	<p>backbone, carnivore, cold-blooded, environment farm, gills, herbivore, omnivore, pet, temperature, vertebrate, warm blooded, wild</p>	<p>balanced diet, bones, disease, exercise, healthy, hygiene, medicine, muscles, offspring, reproduction, grow, baby, toddler, child, teenager, adult, old person, life cycle</p>	<p>nutrition, vitamins, minerals, protein, carbohydrate, fibre, fat, vertebrates, invertebrates, skull, tibia, fibula, phalanges, patella, femur, radius, ulna, rib, rib cage, pelvis, contract, relax, biceps, triceps</p>	<p>oesophagus, small intestine, large intestine, stomach, anus, tongue, liver, incisors, molars, canines, predator, consumer, producer, prey, energy, saliva, food chain</p>	<p>fertilisation, prenatal, gestation, reproduce, asexual reproduction, sexual reproduction, life cycle, puberty, adolescence, infancy</p>	<p>aorta, arteries, atrium, blood, vessels, capillaries, carbon dioxide, circulatory system, deoxygenated, heart, lungs, nutrients, organ, oxygen, oxygenated, pulse, respiration, veins, vena cava, ventricle, via</p>
<p>Area of study</p>	<p>Seasonal changes</p> <ul style="list-style-type: none"> • I can observe changes across the four seasons. • I can observe and describe weather associated with the seasons. • I can observe and describe how day length varies. 	<p>N/A</p>	<p>Rocks and fossils</p> <ul style="list-style-type: none"> • I can identify different types of rock. • I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. • I can describe in simple terms how fossils are formed when things that have lived are trapped within rock. • I can use a branching database in order to identify fossils. • I can recognize that soils are made from rocks and organic matter. 	<p>Sound</p> <ul style="list-style-type: none"> • I can identify how sounds are made, associating some of them with something vibrating. • I can recognise that vibrations from sounds travel through a medium to the ear. • I can find patterns between the pitch of a sound and features of the object that produced it. • I can find patterns between the volume of a sound and the strength of the vibrations that produced it. • I recognise that sounds get fainter as the distance from the sound source increases. 	<p>Earth and space</p> <ul style="list-style-type: none"> • I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system. • I can describe the movement of the Moon relative to the Earth. • I can describe the Sun, Earth and Moon as approximately spherical bodies. • I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. 	<p>Evolution and inheritance</p> <ul style="list-style-type: none"> • I can explain the process of evolution. • I can give examples of how plants and animals are suited to an environment. • I can give examples of how an animal or plant has evolved over time, e.g., penguin, peppered moth. • I can give examples of living things that lived millions of years ago and the fossil evidence we have to support this. • I can give examples of fossil evidence that can be used to support the theory of evolution.
<p>Vocabulary</p>	<p>weather, temperature, seasons, leaves, thunderstorms</p>	<p>N/A</p>	<p>fossils, sedimentary, absorbent, shiny, dull, organic matter, rough, smooth, permeable, impermeable, granite,</p>	<p>amplitude, decibel, electricity, energy, frequency, medium, pitch, power, sound waves, source, transmit,</p>	<p>asteroid, axis, comet, galaxy, gravity, leap year, meteorite, orbit, planet, shadow, solar system, dwarf planet,</p>	<p>adaptation, ancestor, biodiversity, biome, breeding, characteristics, environment, evolution, extinct, fossil,</p>

			texture, surface, slate, igneous, metamorphic	travel, vibrations, volume.	spin, star, time zones, universe, solar eclipse.	generation, inherit, maladaptation, mutation, natural selection, offspring, palaeontology, reproduction, species, survive, theory, variation
Materials	<p>Materials</p> <ul style="list-style-type: none"> • I can distinguish between an object and the material from which it is made. • I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. • I can describe the simple physical properties of a variety of everyday materials. • I can compare and group together a variety of everyday materials on the basis of their simple physical properties. 	<p>Materials</p> <ul style="list-style-type: none"> • I can identify the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • I can compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	Links to rocks and forces and magnets	<p>Materials</p> <ul style="list-style-type: none"> • I can compare and group materials together, according to whether they are solids, liquids or gases. • I can 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). • I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	<p>Materials</p> <ul style="list-style-type: none"> • I can 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. • I know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. • I use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. • I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic 	<p>Materials</p> <p>Revision in investigation half term</p>

					<ul style="list-style-type: none"> • I can demonstrate that dissolving, mixing and changes of state are reversible changes. • I can 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	absorbent, bendy, brick, dull, elastic, fabrics, foil, glass, man-made, metal, natural, opaque, plastic, rock, rough, shiny, smooth, soft, stiff, stretchy, transparent, waterproof, wood	reflective, non-reflective	N/A	viscosity, molecular structure, molecule, evaporation, condensation, precipitation	thermal insulator, thermal conductor, solubility, dissolve, solution, soluble, change of state, insoluble, solute, solvent, filter, reversible, non-reversible, molecular structure, molecule	N/A
Light	Link to animals including humans	N/A	<p>Light</p> <ul style="list-style-type: none"> • I can recognise that they need light in order to see things, and that dark is the absence of light. • I notice that light is reflected from surfaces. • I recognise that light from the sun can be dangerous and that there are ways to protect their eyes. • I recognise that shadows are formed when the light from a 	<p>Light</p> <p>Revision in investigation half term</p>	Link to materials	<p>Light</p> <ul style="list-style-type: none"> • I can recognise that light appears to travel in straight lines. • I can 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. • I can explain that we see things because light travels from light sources to our eyes or from light sources to

			<p>light source is blocked by an opaque object.</p> <ul style="list-style-type: none"> • I can find patterns in the way that the size of shadows change. 			<p>objects and then to our eyes.</p> <ul style="list-style-type: none"> • I use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Vocabulary	N/A	N/A	<p>angle, bright, chemical reactions, dark, dim, electricity, emits, mirror, opaque, product, reflects, shadows, source, sunglasses, surface, torches, translucent, transparent</p>	N/A	N/A	Straight lines, light rays
Forces	<p>Forces Revision in investigation half term</p>	Link to materials	<p>Forces</p> <ul style="list-style-type: none"> • I can compare how things move on different surfaces. • I can notice that some forces need contact between two objects, but magnetic forces can act at a distance. • I observe how magnets attract or repel each other and attract some materials and not others. • I can 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>Forces Revision for investigation half term</p>	<p>Forces</p> <ul style="list-style-type: none"> • I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. • I can identify the effects of air resistance, water resistance and friction that act between moving surfaces. • I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	N/A

			<ul style="list-style-type: none"> • I can describe magnets as having two poles. • I can predict whether two magnets will attract or repel each other, depending on which poles are facing. 			
Vocabulary			force, magnet, contact force, attract, repel, friction, weight, mass, acceleration		air resistance, water resistance, lever, pulley, gear	
Electricity	N/A	Electricity Revision in investigation half term	N/A	<p>Electricity</p> <ul style="list-style-type: none"> • I can identify common appliances that run on electricity. • I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • I can 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. • I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • I can recognise some common conductors and insulators, and associate metals with being good conductors. 	<p>Electricity</p> <p>Revision in investigation half term</p>	<p>Electricity</p> <ul style="list-style-type: none"> • I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. • I can 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. • I can use recognised symbols when representing a simple circuit in a diagram.

<p>Vocabulary</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>	<p>appliances, battery, bulb, buzzer, cell, circuit, component, conductor, current, device, electricity, energy, insulator, mains, motor, power, source, switch, wires</p>	<p>N/A</p>	<p>voltage, circuit diagram, circuit symbol, series circuit, parallel circuit</p>
<p>Working scientifically</p>	<p>Plan I can, with prompting, ask simple questions that can be tested, e.g. about plants growing in their habitat.</p> <p>I can offer ways of gathering evidence to answer a question.</p> <p>Do I can examine objects, e.g., observe growth of plants I have planted.</p> <p>I can, with support, conduct simple tests, e.g. comparing the properties of different materials.</p> <p>Record I can, with prompting, identify what might usefully be recorded.</p> <p>Report I can identify key findings from an investigation.</p> <p>Review</p>	<p>Plan I can ask simple questions that can be tested, e.g. about how organisms depend on each other.</p> <p>I can suggest different ways to answer a question.</p> <p>Do I can examine objects carefully, e.g., observe growth of plants I have planted.</p> <p>I can conduct simple tests, e.g., comparing the properties of different materials.</p> <p>Record I can, with assistance, draw and label diagrams.</p> <p>Report I can identify and group key findings from an investigation.</p> <p>Review</p>	<p>Plan I can, with support, develop relevant testable questions.</p> <p>I can plan an enquiry e.g. fair testing, sorting or comparing.</p> <p>I can set up a comparative test.</p> <p>Do I can use a variety of equipment as instructed.</p> <p>I can use standard measurements.</p> <p>Record I can, with prompting, draw and label diagrams and use tables.</p> <p>I can, with prompting, gather and display evidence in a variety of ways.</p> <p>Report</p>	<p>Plan I can develop relevant testable questions.</p> <p>I can plan investigations using different types of scientific enquiry.</p> <p>I can set up a comparative and fair tests.</p> <p>Do I can use a variety of equipment as instructed.</p> <p>I can recognise the importance of using standard measurements.</p> <p>Record I can use words and diagrams to record findings.</p> <p>I can use various ways to record and display evidence.</p> <p>Report I can write a conclusion based on evidence.</p>	<p>Plan I can, with support, answer questions using evidence gathered from different types of scientific enquiry.</p> <p>I can, with prompting, identify and manages variables.</p> <p>Do I can, following discussion of alternatives, select appropriate equipment.</p> <p>I can take measurements that are precise as well as accurate.</p> <p>I can know how to process repeat readings.</p> <p>Record I can start to use labelled diagrams to show more complex outcomes.</p>	<p>Plan I can answer questions using evidence gathered from different types of scientific enquiry.</p> <p>I can identify and manages variables.</p> <p>Do I can select appropriate equipment.</p> <p>I can consider how by modifying instrument or technique, measurements can be improved.</p> <p>I can identify situations in which taking repeat readings will improve the quality of evidence.</p> <p>Record I can use labelled diagrams to show more complex outcomes.</p> <p>I can use various ways to record complex evidence.</p>

	<p>I can collect data.</p> <p>I can suggest answers to enquiry questions using data.</p>	<p>I can collect data.</p> <p>I can answer enquiry questions using data.</p>	<p>I can, with prompting, write a conclusion to an investigation.</p> <p>I can suggest how findings from an investigation can be reported.</p> <p>Review</p> <p>I can, with prompting, recognise patterns in the data.</p> <p>I can, with support, use evidence to produce simple conclusions.</p>	<p>I can present findings either written or orally.</p> <p>Review</p> <p>I can recognise patterns in the data.</p> <p>I can use evidence to produce simple conclusions.</p> <p>I can use evidence to suggest further relevant investigations.</p>	<p>I can, with prompting, use various ways to record complex evidence.</p> <p>I can use a line graph to record basic data.</p> <p>Report</p> <p>I can, with prompting, write a conclusion using evidence and identifying causal links.</p> <p>I can, with support, display and present key findings from enquiries orally and in writing.</p> <p>I can, with support, indicate why some results may not be entirely trustworthy.</p> <p>Review</p> <p>I can show how evidence supports a conclusion.</p> <p>I can suggest further relevant comparative or fair tests.</p>	<p>I can use a line graph to record complex data.</p> <p>Report</p> <p>I can write a conclusion using evidence and identifying causal links.</p> <p>I can display and present key findings from enquiries orally and in writing.</p> <p>I can indicate why some results may not be entirely trustworthy.</p> <p>Review</p> <p>I can identify how an idea is supported or refuted by evidence.</p> <p>I can use evidence to suggest further comparative or fair tests that would develop the investigation.</p>
Vocabulary	classify, observe, equipment, identify, interpret results, group, sort, compare, contrast, biology, chemistry, physics, record	classify, observe, equipment, identify, interpret results, group, sort, compare, contrast, test, investigate, patterns, grouping	classify, research, conclusion, identify, compare, contrast, biology, chemistry, physics, prediction, interpret, evaluate, properties, evidence	classify, research, conclusion, identify, compare, contrast, biology, chemistry, physics, prediction, interpret, data, evidence, fair test, systematic, construct,	classify, research, conclusion, identify, compare, contrast, biology, chemistry, physics, prediction, interpret, data, force meter, scatter graphs, variable, dependent variable, justify	classify, research, conclusion, identify, compare, contrast, biology, chemistry, physics prediction, interpret, data, evidence, fair test, systematic, construct, accurate, variables, line

				accurate, variables, line graphs		graphs, factor, scatter graph
--	--	--	--	-------------------------------------	--	----------------------------------