Science End of Year Milestones

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge and Understanding	To name different types of weather. To know plants and animals grow and change – To begin to understand life cycle of plants and animals.	To understand some important processes and changes in the natural world around them, including the seasons and changing states of matter – e.g. to name and simply describe features of the four seasons, to know key features of the life-cycle of a plant, butterfly and bird, to describe melting and freezing, floating and sinking.	To name some deciduous and evergreen trees. To identify and group deciduous and evergreen trees. To identify parts of a tree. To describe the structure of trees. To name some common wild and garden flowers. To identify parts of a flower. To describe the structure of flower. To compare some of the plants To. To identify and name animals including fish, amphibians, reptiles, birds and mammals and those kept as pets. To identify and name some common carnivores, herbivores and omnivores. To describe the bodies of common animals including fish, amphibians, reptiles, birds and mammals. To compare the bodies of common animals including fish, amphibians, reptiles, birds and mammals. To identify, name, draw and label basic	To observe and describe the lifecycle of a seed and bulb. To investigate what plants need to grow and stay healthy. To investigate and describe what a seed needs to germinate. To describe what plants need to grow and stay healthy. To observe how different plants grow. To what a plant needs to germinate, grow, survive and reproduce. To that animals, including humans have offspring which grow into adults. To recognise some of the signs of growth (e.g. egg, chic, chicken, egg or baby, toddler, child, teenager, adult. To find out about the basic needs of animals, including humans, for survival. To describe the basic needs of humans, for survival (water, food and air). To describe the importance of exercise for humans. To describe the importance of eating the correct amounts of different types of food. To describe the importance of hygiene.	To compare how things move on different surfaces. To that some forces need contact between two objects. To describe the effects of simple forces that do not involve contact (magnetic forces including those between like and unlike poles). To that magnets can attract or repel each other. To that magnets attract some materials but not others. To compare and group everyday materials based on whether they are attracted to a magnet. To identify some magnetic materials. To describe magnets as having two poles. To predict whether two magnets will attract or repel, depending on which poles are facing. To know that I need light to see things. To know that darkness is the absence of light.	To identify common appliances that run on electricity. To make a simple series electrical circuit. To name basic electrical components – cells, wires, bulbs, switches and buzzers. To identify whether or not a lamp will light based on whether or not the lamp is part of a complete loop with a cell. To recognise that a switch can be open or closed. To know that a switch can control whether a lamp will light in a simple series circuit. To recognise some common electrical conductors. To recognise some common electrical insulators. To know that metals are good electrical conductors. To use the idea that sounds are associated with vibrations and that they require a medium to travel through, to explain how sounds are made and heard. To describe the relationship between the pitch of a sound and the features of its	To explain that unsupported objects fall towards Earth because of the force gravity. To describe the effects of simple forces that involve contact (air resistance, water resistance and friction) and gravity. To identify simple mechanisms (levers, pulleys and gears) that increase the effect of a force. To describe the shapes and relative movements of the Sun, Moon, Earth, and other planets in the solar system. To describe the Sun, Earth and Moon as approximately spherical bodies. To explain day and night and the apparent movement of the Sun across the sky in relation to the Earth's rotation, and that this results in day and night. To group and identify materials according to their properties (including hardness, solubility, transparency, conductivity and response to magnets)., based on first-hand observation; and justify the use of different every day materials for different uses.	To use the observable features of plants, animals and micro-organisms to group, classify and identify them into broad groups, using keys or other methods. To give reasons for classifying plants and animals based on characteristics. To look at a classification system in greater detail. To look at subdivisions within a class of living things. To classify animals through direct observations. To find out about significant scientists e.g. Carl Linnaeus (pioneer of classification). To name and describe the functions of the main parts of the human circulatory system. To name the main parts of the human circulatory system. To describe the functions of the heart, blood vessels and blood. To describe the effects of diet, exercise, drugs and lifestyle on how the body functions. To describe the way nutrients and water are transported within animals.

			parts of the human body. To identify which part of the body is associated with each sense. To observe changes across the four seasons. To observe weather associated with the seasons and how day length changes. To describe weather associated with the seasons and how day length changes. To that it is not safe to look at the Sun, even when wearing sun glasses. To what an object is called and what it is made from. To name a variety of different materials (including wood, plastic, glass, metal, water and rock). To describe the properties of some materials. To compare and group different materials based on their properties.	To some parts of the process of reproduction in humans and animals. To some of the process of growth in humans and animals. To explore the differences between things that are living, dead and things that have never been alive (e.g. is a flame alive? Is a tree dead in winter?). To compare the differences between things that are living, dead and things that have never been alive. To identify that living things live in habitats to which they are suited. To describe how different habitats provide for the basic needs of different kinds of plants and animals. To describe how plants and animals within a habitat depend on each other. To identify and name plants and animals within a habitat (including microhabitats e.g. woodlice under a log.) To describe how an animal gets their food from plants and other animals. To use a food chain. To identify and name different sources of food.	To notice that light is reflected from surfaces. To that light from the Sun can be dangerous. To ways to protect my eyes from sunlight. To use the idea that light travels from a light source, or reflected light, travels in straight lines to explain the formation and size of shadows. To compare different rocks based on their appearance and their physical properties. To group and identify different rocks based on their appearance and their physical properties. To use magnifying glasses to identify and classify rocks according to whether they are made of grains or crystals. To describe how fossils are formed. To recognise that soils are made from rocks and organic matter. To find out about the work of palaeontologists e.g. Mary Anning. To explore different soils and identify similarities and differences between them.	source; and between the volume of a sound, the strength of its vibrations and the distance from its source. To describe the characteristics of different states of matter and group materials on this basis; and describe how materials change state at different temperatures, using this to explain every day phenomenon e.g. water cycle. To measure and research temperatures (in degrees Celsius) that cause different materials to change state. To identify the part played by evaporation and condensation in the water cycle. To associate the rate of evaporation with temperature. To know that living things can be grouped in a variety of ways. To explore and use classification keys to group living things in the wider environment. To explore and use classification keys to identify and name living things in their local environment. To know that environments can change. To explain how environmental changes	To identify and describe what happens when dissolving occurs in everyday situations; and describe how to separate mixtures into their components. To know some materials dissolve in liquid to form a solution. To describe how to recover a substance from a solution. To use my knowledge of solids, liquids and gases to decide how to separate a mixture (including filtering, sieving and evaporating). To identify, with reasons, whether changes in materials are reversible or not. To describe changes as humans develop to old age. To draw a timeline to indicate stages in human growth and development. To learn about some changes experienced during puberty. To research the gestation period of other animals and comparing this with human gestation. To describe the life process of reproduction in some plants. To name, locate and describe functions of the main parts of plants, including those involved in reproduction.	To know some things that are harmful to my body. To know that living things have changed over time. To know that fossils provide information about living things that inhabited the Earth millions of years ago. To know that living things produce offspring, but normally offspring are not identical to their parents. To know that animals and plants are adapted to suit their environment in different ways. To know that adaptation can lead to evolution. To know that characteristics are passed from parents to their offspring. To use the basic principles of inheritance, variation and adaptation to describe how living things have changed over time and evolved. To provide evidence for evolution. To find out about how Darwin and Wallace developed their ideas about evolution. To recognise that light travels in straight lines. To know that because light travels in straight line, I am able to see objects because they give out or reflect light into the eye. To use the idea that light travels from a light

				TO understand the term 'habitat'. TO understand the term 'micro-habitat'. To compare animals that live in different habitats. To compare the whether a material is suitable for a job. To identify whether a material is suitable for a job. To know that solids can be malleable. To list a variety of uses for a given material e.g. metal – coins, spoons, cans, cars. To explain why an object can be made from different material e.g. a spoon can be wooden or metal.	To that animals, including humans, need the right types and amounts of nutrition. To that animals cannot make their own food. To that humans and some other animals have skeletons for support, protection and movement. To name and describe the functions and main parts of the musculoskeletal system in humans. To group animals with and without skeletons and compare their movement. To that humans and some other animals have muscles for support, protection and movement. To identify the different parts of a flowering plant. To describe the functions of different parts of a flowering plant. To describe the requirements of plants for growth. To know that different plants have different requirements. To name, locate and describe functions of the main parts of plants, including those involved in	may have an impact on living things. To construct and interpret food chains. To name and describe the functions of the main parts of the digestive system in humans. To identify different types of teeth in humans. To know the functions of different teeth in humans. To construct simple food chains. To interpret a variety of food chains. To identify producers, predators and prey.		source, or reflected light, travels in straight lines, and enters our eyes to explain how we see things. To use the idea that light travels from a light source, or reflected light, travels in straight lines to explain the shape of shadows. To use simple apparatus to construct and control a series circuit, and describe how the circuit may be effected when changes are made to it.; and use recognised symbols to represent a simple series circuit. To associate the brightness of a lamp and the volume of a buzzer with the voltage of cell used. To associate the brightness of a lamp and the volume of a buzzer with the number of cells used. To compare variations in how components function (brightness of bulbs, loudness of buzzers, on/off position of switches). To give reasons for variations in how components function (brightness of bulbs, loudness of buzzers, on/off position of switches). To know what precautions to take to work safely with electricity.

					transporting water and nutrients. To explore the job of a flower in the lifecycle of a flowering plant. To know how flowers are pollinated. To know how seeds are formed. To know how seeds are dispersed. To explore the role of the roots and stem in nutrition and support.			
Skills	To talk about what they see, using a wide vocabulary e.g. naming familiar animals, natural objects and materials. To explore how things work. To talk about the differences between materials and changes they notice. To care for growing plants.	To explore the natural world around them making observations and drawing pictures of animals and plants. To comment and ask questions about aspects of their familiar world such as the place where they live or the natural world. To talk about why things happen and how things work (e.g. materials and changes). To describe their immediate environment using knowledge from observation.	To ask simple questions. To observe closely using simple equipment. To suggest answers to questions based on what I have observed. To perform a simple test. To identify plants, animals and materials. To compare plants, animals and materials. To gather data to answer a question. To record data to answer a question.	To ask simple questions. To observe closely using simple equipment. To know that questions can be answered in different ways. To suggest answers to questions based on what I have observed. To perform a simple test. To identify plants, animals, habitats and materials. To compare plants, animals, habitats and materials. To gather data to answer a question. To record data to answer a question. To use simple equipment.	To ask relevant questions. To conduct a scientific enquiry to answer my own questions. To set up a simple scientific enquiry. To make careful observations. To take accurate measurement using standard units of measure. To use data loggers. To gather data to answer a question. To record data to answer a question. To report findings using simple scientific language. To report findings using drawings. To report findings using labelled diagrams. To report findings using a table. To report findings from an enquiry	To ask relevant questions. To conduct a scientific enquiry to answer my own questions. To set up a comparative enquiry. To set up a fair test. To make systematic observations. To use thermometers. To use data loggers. To gather data to answer a question. To record data to answer a question. To classify data to answer a question. To report data to answer a question. To report findings using simple scientific language. To report findings using keys. To report findings using a bar chart. To report findings from an enquiry orally and in a written conclusion.	To plan different types of scientific enquiries to answer questions. To recognise and control variables. To take accurate and precise measurements using scientific equipment. To take repeat measurements where appropriate. To record data and results using diagrams with labels. To record data and results using tables. To record data and results using bar and line graphs. To use test results to make further predictions which will feed into further comparative and fair tests. To report findings from an enquiry both orally and in writing. To make a conclusion based on a test. To explain results from an enquiry.	To plan different types of scientific enquiries to answer questions. To recognise and control variables. To take accurate and precise measurements using scientific equipment. To take repeat measurements where appropriate. To record data and results using classification keys. To record data and results using scatter graphs. To record data and results using bar and line graphs. To use test results to make further predictions which will feed into further comparative and fair tests. To report findings from an enquiry both orally and in writing. To make a conclusion based on a test.

					orally and in a written conclusion. To use results to draw a simple conclusion. To use results to make a prediction for further values. To identify difference, similarities and changes related to simple scientific ideas. To use scientific evidence to answer a question and support my findings.	To use results to suggest improvements to a method. To use results to develop further questions. To identify difference, similarities and changes related to simple scientific ideas. To use scientific evidence to answer a question and support my findings.	To identify a degree of trust within an enquiry.	To identify causal relationships from an enquiry. To explain results from an enquiry. To identify a degree of trust within an enquiry. To identify scientific evidence that can be used to support or refute an idea or argument.
Key Vocabulary	**Seasonal changes:** Cloudy, snow, sun, rain, weather, hot, cold, light, dark **Animals including humans:** baby, caterpillar, butterfly **Plants:** grass, flower, tree, seeds, growing, plant **Living things and their habitats:** farm, garden, bird, animal, insect **Materials:** wet, dry, hard, soft	**Science skills:** question, predict **Seasonal changes:** Cloudy, snow, sun, rain, weather, hot, cold, warm, icy, light, dark, season, spring, summer, autumn, winter **Animals including humans:** baby, caterpillar, butterfly, egg, hatch, change, body, fur, feathers **Plants:** grass, flower, tree, seeds, growing, plant, seed, stem, leaves, petals **Living things and their habitats:** farm, garden, bird, animal, insect, dead, alive, growth, habitat **Materials:** wet, dry, hard, soft, ice, melt, freeze, float, sink	**Science skills** equipment, measure, observe, results, test **Plants** bulb, seed, stem, trunk **Animals inc humans** feathers, fur, skin, pets, wild animals, touch, smell, hear, tase, see **Materials** absorbant, material, stretchy, stiff, rough, smooth, shiny, dull, metal, wood, glass, wood, water **Seasonal changes** seasons, Spring, Summer, Autumn, Winter. *…and revisit words from Reception year.*	**Science skills** describe, difference, group, patterns, similar **Living things and their habitats** woodland, pond, meadow, dead, alive, food chain, grow, habitat, microhabitat, shelter, suited **Plants** damp, dry, Earth, growth, seedling, shoot, wither **Animals in humans** adult, baby, toddler, child, teenager, healthy, hygiene, survival **Uses of materials** fluid, reflective, opaque, property, rigid, transparent, translucent. *…and revisit words from Year 1.*	**Science skills** accurate, question, careful, comparative, data logger, results, fair test, gather, prediction, record, thermometer, scientific enquiry **Plants** dispersal, formation, transported,life cycle, nutrients, pollination, root **Animals inc humans** carbohydrates, fibre, fat, muscles, protection, protein, skeleton, skull, vertebra, tendons **Rocks** crystals, fossils, grains, organic matter **Light** block, dark, direction, light source, opaque, reflect, shadow, transparent, translucent **Forces and magnets**	**Science skills** conclusion, identify, classify, evidence, keys, increase, descrease, present, sort **Living things and their habitats** amphibians, birds, classification key, environment, fish, human impact, invertebrates, mammals, reptiles, vertebrates **Animals inc humans** molar, incisor, cainine, prey, preditor, consumer, producer, large intestine, stomach, rectum, oesophagus, herbivore, carnivore,omnivore, food chain, nutrients **States of matter** air, freeze, melting point, evaporate, evaporation, crystals, condense, condensation, degrees Celcius, solidify, states	**Science Skills** causal relationships, controlled variable, data, evidence, dependent variable, degree of trust, independent variable, line graph, present, scatter graph, variables **Living things and their habitats** asexual, sexual, germination, live young, pollen, reproduction, stamen, stigma **Animals inc humans** Drugs, diet, exercise, infant, toddler, child, adolescent, puberty, middle age, old age, gestation **Properties and changes of materials** change state, dissolve, electrical conductivity, filter, insoluble, new material, reversible, non reversible, particle, residue, sieving, solubility, soluble, thermal conductivity	**Science Skills** accuracy, evidence, identify, opinion, fact, order, precision, secondary sources, support, refute,types of scientific enquiry **Living things and their habitats** arachnid, crustatean, fungus, micro-organism, organism **Animals inc humans** blood, blood vessel, circulatory system, carbon dioxide, drugs, oxygen **Evolution and Inheritance** adapted, adaptation, characteristics, inherit, inheritance, suited, vary, variation **Light** absorb, reflect, reflective, shadow, transparent, translucent, opaque **Electricity** circuit diagram, circuit symbol, components,

					attract, repel, magnet, force, poles. *…and revisit words from Year 2.*	of matter, gas, liquid, solid, water cycle, water vapour, transpiration **Sound** pitch, volume, travel, sound source, high, low **Electricity** battery, bulb, buzzer, cell, circuit, components, conductor, crocodile clip, insulatorpositive, negative, switch, wire. *…and revisit words from Year 3.*	**Forces** air resistance, friction, gravity, levers, mechanisms, transfer, water resistance **Earth and Space** Earth, geocentric, heliocentric, Jupiter, Mars, Mercury, Moon, Neptune, orbit, planets, Pluto, revolve, rotate, rotation, Saturn, Solar System, spin, Sun, Uranus, Venus. *…and revisit words from Year 4.*	conductor, motor, positive, precaution, negative, switch, terminal, variation, volume. *…and revisit words from Year 5.*