




Science Milestones

Knowledge categories	Big Idea (National Curriculum)	Year R	Years 1 and 2	Years 3 and 4	Years 5 and 6
 Investigating and Working as a Scientist	Being able to use different types of science enquiries to answer scientific questions.	<p>Begin to ask questions about what has happened.</p> <p>Observe using senses and simple equipment. Identify, sort and group.</p> <p>Record data in simple ways.</p>	<p>Begin to ask scientific questions: Gather and record data to answer scientific questions.</p> <p>Ask simple questions and recognise that they can be answered in different ways;</p> <p>Observe with explanations using simple equipment Perform simple tests to answer scientific questions.</p> <p>Identify and classify with explanation and suggest answers to questions</p>	<p>Ask relevant scientific questions using different types of scientific enquiries to answer them.</p> <p>Set up practical comparative enquiries.</p> <p>Understand fair tests.</p> <p>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers.</p>	<p>Plan, set and conduct different types of practical enquiries, whilst recognising and controlling variables.</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter</p>

			<p>Use observations and perform simple tests to answers scientific questions and gather and record data to help in answering questions.</p>	<p>Identify differences, similarities or changes related to simple, scientific ideas and processes.</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables;</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Make predictions for new values, suggest improvements and raise further questions.</p>	<p>graphs, bar and line graphs.</p> <p>Use test results to make predictions to set up further comparative and fair tests.</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>Identify scientific evidence that has been used to support or refute ideas or arguments.</p>
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Biology

<p>Being able to explore and explain the biology aspect of science.</p>	<p>Animals including human. Name and compare how they are the same or different.</p> <p>Understand how animals grow and develop.</p> <p>Living Things and their Habitats Compare different habitats.</p> <p>Explore the plants and animals in the surrounding natural environment</p> <p>Plants Know the basic parts of a plant. Begin to understand how plants grow.</p>	<p>Animals including humans Identify, name and compare a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>Identify and name a variety of common animals that are carnivores, omnivores and herbivores.</p> <p>Identify, name, draw and label the basic parts of the human body.</p> <p>Identify which part of the body is associated with each sense.</p> <p>Compare humans.</p> <p>I can find out about and describe the basic needs of animals, including humans, for survival.</p>	<p>Animals including humans Identify that humans have bones for support, protection and movement.</p> <p>Identify that some other animals have bones for support, protection and movement.</p> <p>Understand that animals, including humans, need the right type of nutrition.</p> <p>Name the basic parts of the digestive system and describe their functions.</p> <p>Identify the different teeth and describe their functions.</p> <p>Construct and interpret a variety of food chains.</p>	<p>Animals including humans Describe the human life cycle.</p> <p>Understand how a foetus develops in the womb.</p> <p>Describe what happens when I am a teenager and a senior.</p> <p>Identify and name the main parts of the human circulatory system.</p> <p>Identify and name the main parts of the heart.</p> <p>Describe how water and nutrients are transported in humans.</p> <p>Identify how humans can live a healthy lifestyle.</p> <p>Living things and their habitats</p>
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			<p>I notice that animals, including humans have offspring which grow into adults.</p> <p>Describe the importance for humans to exercise and eat the right amounts of different types of food.</p> <p>Describe the importance for humans to have good hygiene and look after themselves.</p> <p>Plants Identify different plants and describe the basic structure.</p> <p>Understand that plants can grow.</p> <p>Name a variety of common wild plants and a</p>	<p>Understand what producers, predators and prey are.</p> <p>Plants Explore the requirements of plants for life and growth.</p> <p>Identify, locate and describe the function of different parts of flowering plants.</p> <p>Identify, locate and describe the function of the roots in plants.</p> <p>Investigate the way in which water is transported within plants.</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and dispersal.</p>	<p>Discuss the seven life processes.</p> <p>Explain how mammals, animals and plants reproduce.</p> <p>Describe the differences in the life cycles of mammals, amphibians, reptiles, insects and birds.</p> <p>Explain the life cycle of plants.</p> <p>Describe how living things can be classified into broad groups.</p> <p>Understand how I can use classification keys to help group, identify and name a variety of living things.</p> <p>Understand that microorganisms are also living things.</p>
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			<p>variety of common plants that we can eat.</p> <p>Sort a variety of plants.</p> <p>Identify, name and describe the basic structure of deciduous and evergreen trees.</p> <p>Identify that fruit, vegetables and herbs are types of plant that we eat.</p> <p>Observe and describe how seeds grow into mature plants.</p> <p>Know what plants need to grow and stay healthy.</p> <p>Explain the life cycle of plants.</p> <p>Living things and their habitats</p>	<p>Living things and their habitats</p> <p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in my local environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>Know that scientists have developed different ways to classify living things.</p> <p>Evolution</p> <p>Identify how plants and animals are adapted to their environment.</p> <p>Explain natural selection and how it may lead to evolution.</p> <p>Explain how adaptations may lead to evolution.</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Recognise that living things have changed over time and that fossils provide information about</p>
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			<p>Explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats.</p> <p>Identify that most living things live in a habitat to which they are suited.</p> <p>Construct a simple food chain.</p>		<p>living things that inhabited the Earth millions of years ago.</p>
 <p>Chemistry</p>	<p>Being able to explore and explain the biology aspect of science.</p>	<p>Materials Identify and name a variety of everyday materials.</p>	<p>Materials Identify a variety of everyday materials.</p> <p>Describe the physical properties of a variety of everyday materials.</p>	<p>Rocks Compare and group together different kinds of rocks on the basis of their physical properties.</p> <p>Explain how some rocks are formed.</p>	<p>Materials Compare and group materials according to whether they are solids, liquids or gases and name their properties.</p> <p>Describe the properties of materials using scientific vocabulary.</p>

			<p>Distinguish between an object and the material from which it is made.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>Identify a variety of everyday materials.</p> <p>Investigate the properties of different materials.</p>	<p>Explain how the Earth is made up of different layers of rocks and soils</p> <p>Describe how fossils are formed when things that have lived are trapped within rock.</p> <p>States of matter Identify solids, liquids and gases.</p> <p>Take accurate measurements using thermometers.</p> <p>Observe that some materials change state when they are heated or cooled.</p> <p>Identify the part played by evaporation and condensation in the water cycle.</p>	<p>Investigate the thermal insulation of different materials.</p> <p>Compare and group materials based on their response to magnets.</p> <p>Know that some materials dissolve in a liquid to make a solution.</p> <p>Predict how I could separate mixtures.</p> <p>Explain why some changes are irreversible.</p>
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Physics

				Associate the rate of evaporation with temperature.	
Being able to explore and explain the physics aspect of science.	<p>Seasonal Changes Observe seasonal changes.</p> <p>Forces Explain forces on objects (float, sink, push and pull)</p> <p>Earth & Space Understand day and night. Know that we live on the Earth which is one of many planets.</p> <p>Light To begin to understand shadows.</p> <p>Sound Know that various surfaces make various sounds under our feet.</p>	<p>Seasonal change Observe and describe changes across the four seasons.</p> <p>Observe how day length varies.</p> <p>Describe weather associated with the seasons.</p>	<p>Forces and magnets Compare how different things move.</p> <p>Compare how objects move on different surfaces</p> <p>Explore how magnetic forces act at a distance.</p> <p>Compare and group various everyday materials based on whether they are attracted to a magnet.</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>Light Recognise that there needs to be light in order</p>	<p>Forces and magnets Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and falling objects.</p> <p>Identify the effect of friction between moving surfaces and the effect of air and water resistance.</p> <p>Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.</p> <p>Earth and space Describe the planets in the solar system.</p>	

		<p>Know that various materials make various sounds when struck.</p> <p>Identify where a sound is coming from and recognise that some sounds are not the same as others.</p> <p>Explore making sounds & how they can be changed.</p> <p>Electricity Begin to understand safety around electricity.</p> <p>Discuss the basics of the workings of electricity.</p>		<p>to see things and that darkness is the absence of light Notice that light is reflected from surfaces.</p> <p>Recognise that light from the Sun can be dangerous and that there are ways to protect your eyes and skin from the Sun.</p> <p>Recognise that shadows are formed when light from a light source is blocked by an opaque object.</p> <p>Know that shadows take on the shape of the opaque object.</p> <p>Predict where a shadow will form in relation to an opaque object and a light source.</p>	<p>Describe the Sun, Earth and Moon as approximately spherical bodies. Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>Describe the movement of the Moon relative to the Earth.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p> <p>Electricity Use symbols when drawing a simple circuit diagram.</p> <p>Associate the brightness of a lamp with the number</p>
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				<p>Find patterns in the way that the length of shadows change.</p> <p>Electricity Identify common appliances that use electricity. Construct a simple circuit and name the parts of the circuit.</p> <p>Identify if a bulb will light up in a circuit.</p> <p>Recognise common conductors and insulators.</p> <p>Investigate switches.</p> <p>Sound Identify how sounds are made, associating some of them with something vibrating.</p>	<p>and voltage of cells used in the circuit.</p> <p>Investigate variations in how components function.</p> <p>Name renewable and non-renewable sources of energy.</p> <p>Light Recognise that light appears to travel in straight lines.</p> <p>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.</p> <p>Explain how the eye works.</p>
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				<p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it and between the volume of a sound and the strength of the vibrations that made it.</p>	<p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p> <p>Explain how shadows change during the day.</p>
		EYFS	Year 1 and 2	Year 3 and 4	Year 5 and 6
 <p>Biology Vocabulary</p>	<p>Animals including Humans main body parts: head, neck, arms, legs, knees, face, ears, hair, mouth, teeth, toes movement: fly, swim, crawl, run</p> <p>Plants parts of a plant: flower, roots, stem</p>	<p>Animals including Humans senses: hear, smell, touch, taste, see animals: beak, wing, paw, feathers, claw, talons main body parts: abdomen, chest, elbows, shoulders classification: herbivore, carnivore, omnivore, mammal, living, bird, fish,</p>	<p>Animals including Humans skeletal system: skeleton, muscle, bone, skull, ribs, spinal column, backbone, joints, sockets, femur, collarbone, humerus, ulna, radius, hip, pelvis, fibula, tibia, kneecap, shoulder blade, movement, support, protection, contract, relax classification: vertebrates, invertebrates, insects,</p>	<p>Animals including Humans reproduction/stages of life: baby, toddler, child, teenager, adult, senior, death, puberty, fertilise, egg, sperm, conception, foetus, womb, birth, develop, grow, change</p> <p>circulatory system: heart, heartbeat/heart rate, pulse, muscle, blood</p>	

	<p>leaf, bulb, seed, seedling</p> <p>Living Things and Habitats habitats: woodland, forest, jungle, polar region, desert, mountain, habitat</p>	<p>reptile, amphibian</p> <p>health: illness, medicine, exercise, hygiene, healthy, diet, fit, nutrition, unhealthy diet</p> <p>life processes: survive, living, movement, respiration, growth, basic needs, reproduction, excretion, life process</p> <p>life cycles: offspring, life cycle, baby, child, teenager, adult, elderly</p> <p>Plants types of plants: tree, daisy, birch, dandelion, fir tree, buttercup, wild plant, pine tree, fruit, flower, nettle, oak tree, holly, vegetable, weed, sycamore tree</p> <p>Living Things and Habitats classification: carnivore, herbivore, omnivore habitats: polar region, microhabitat</p>	<p>minibeasts, mammals, reptiles, fish, birds, amphibians</p> <p>nutrition: food, growth, healthy, unhealthy, nutrition, exercise, balanced diet, sugar, fruit, vegetables, protein, carbohydrates, fat, dairy, vitamins, minerals</p> <p>teeth: canines, incisor, molars, premolars</p> <p>diet/digestion: carnivore, herbivore, omnivore, digestion, large intestines, oesophagus, peristalsis, predator, prey, producer, saliva, small intestines, stomach</p> <p>Plants reproduction: pollen, pollination, pollinators, formation, dispersal, reproduce</p> <p>parts of a plant:</p>	<p>vessel, lungs, oxygen, oxygenated blood, deoxygenated blood, circulate, vein, artery</p> <p>diet: diet, exercise, unhealthy, harmful, healthy, nutrients, water, transport, hygiene, smoking, alcohol, overweight</p> <p>Living Things and Habitats life processes: nutrition, movement, respiration, reproduction, excretion, growth, sensitivity</p> <p>life cycles: egg, life cycle, womb, fertilisation, pollination, pollen, stamen, pistil, seed dispersal</p> <p>classification: vertebrate, invertebrate, exoskeleton, vascular, non-</p>
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			<p>root, branch, seed, flower, leaf, seedling, stem, bulb, fruit, flower, blossom, trunk</p> <p>needs of a plant: compost, nutrients, grow, air, light, soil</p> <p>Living Things and Habitats</p> <p>classification: exoskeleton, carnivore, herbivore, omnivore, mammal, reptile, bird, amphibian, key, classify, vertebrate, invertebrate, pigeon, eagle, gull, minibeast, insect</p> <p>life processes: movement, respiration, growth, reproduction, excretion, nutrition, sensitivity</p>	<p>vascular, taxonomy, herbivore, carnivore, omnivore, mammal, reptile, amphibian, bird, pigeon, eagle, seagull, fish</p> <p>microorganisms: microorganism, bacteria, virus, fungi</p> <p>Evolution</p> <p>evolution: environment, gene, natural selection, organism, evolution, change over time, species, population, features, trait, inherited, characteristics, reproduce, offspring, variation, mutation, survive, survival of the fittest, adaptation</p>
	<p>Materials properties: heavy, light, hard, soft, smooth, rough, strong,</p>	<p>Materials properties: fragile, heavy, light, hard, soft, smooth, rough,</p>	<p>Rocks types of rock: slate, marble, chalk, granite, sandstone, clay</p>	<p>Materials states of matter: solid, liquid, gas</p>



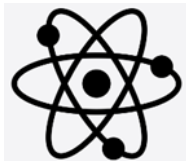
Chemistry Vocabulary

weak, bumpy, stretchy,
see-through,
breakable
materials:
plastic, wood, fabric,
metal, brick, glass,
paper, material,
cotton, wool

squidgy, waterproof,
strong,
weak, bumpy, stretchy,
see-through, breakable
materials:
plastic, wood, rubber,
fabric, metal, brick, rock,
glass, paper, material,
cotton, wool, fleece

properties: hard, soft,
permeable, appearance,
physical properties, acid
rock formation:
sedimentary,
metamorphic, igneous,
magma, bedrock, fossil
States of matter
states of matter:
solid, liquid, gas, state of
matter, carbon dioxide,
oxygen, helium, natural
gas, air
processes:
solidify, heat, measure,
condensation, boiling,
cool, condense,
evaporation, evaporate,
melt/melting,
freeze/freezing
water cycle:
water cycle, run-off,
precipitation, collection,
condensation,
evaporation, droplet

properties: flexible,
soluble, insoluble, durable,
thermal, magnets,
magnetic, permeable,
absorbent
processes:
dissolving, evaporating,
sieving, filtration, heat,
boiling, condensing,
evaporation, freezing,
melting, chemical change,
physical change



Physics Vocabulary

Seasonal Changes

autumn, spring,
winter, summer,
seasons, grow, new
life, year, change, tree,
plant, shadow

Seasonal Changes

weather types:
sun, snow, rain, hail, wind
temperature:
cold, hot, warm

Forces and Magnets

contact, non-contact, iron,
force, pull, push, magnet,
poles, attract, repel,
magnetic,
non-magnetic, metal,
stronger, weaker,
movement, bigger, smaller
force

Electricity

appliance, battery,
conductor, circuit,
components, current,
electrical, insulator, mains
power, portable, pylon,
switch

Light

dark, absence of light,
luminous, travel,
reflection, reflect, shadow,
see, eyes, mirror,
direction, straight lines

light source:

Forces and Magnets

gear, lever, pull, newton
meter, surface area, push,
pull, movement, grip,
contact, streamlined

types of force:

repel, upthrust/buoyancy,
friction, air resistance,
gravity, drag

Earth and Space

day, month, year, gravity,
shadow, time zones,
revolve, orbit, spin, rotate,
axis, reflect

solar system:

Neptune, Mercury, Venus,
Mars, Jupiter, Saturn,
Uranus, Earth, Sun, Moon,
planet, star, space, solar
system

phases of the Moon:

waning gibbous, waxing
gibbous, waxing crescent,
waning crescent, last
quarter, full Moon, first
quarter, new Moon

			<p>torch, sunlight, light source</p> <p>properties: opaque, translucent, transparent, reflective, block</p> <p>Sound vibrate, vibration, travel, sound, source, tension, particle, air</p> <p>parts of the ear: pinna, cochlea, eardrum, ear</p> <p>volume: quiet, loud, soft, loudness, volume, muffle, faint, noise</p> <p>pitch: pitch, high, low</p>	<p>Electricity appliance, battery, conductor, circuit, components, current, electrical, insulator, mains power, pylon, renewable energy, non-renewable energy</p> <p>Light dark, absence of light, luminous scattering, absorption, refraction, travel, direction, straight lines, bend, reflective, mirror, reflection, reflect, block, shadow, cast rainbow, colours see, eyes</p> <p>light source: torch, light beam, Sun, light, light source, light ray</p> <p>properties: opaque, translucent, transparent</p>
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