A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

	By the end of Reception	*By the end of Year 2*	*By the end of Year 4*	*By the end of Year 6*
Working Scientifically	Look closely at similarities, differences, patterns and change Where in the playground do mini beasts tend to live? Where does litter accumulate in the playground?	**Ask simple questions** questions, answer, explore, investigate **Know how to use simple equipment** data, measure, record, equipment, magnifying glass, hand lens, equipment **Know how to observe closely** Observe, changes, patterns, group / grouping, sort / sorting, classifying, compare, same, different, describe, notice, observe **Understand how to perform simple tests** test, aim, measure, record **Know how to identify and classify** observe, group / grouping, sort / sorting, classify, compare, identify **Use observations and ideas to suggest answers to questions** findings, notice, same, different **Know how to gather and record data to help answer questions** gather, record, tally chart, answer	**Ask relevant questions** question **To know how to set up simple practical enquiries and comparative and fair tests** Enquiry, practical enquiry, fair test, comparative test **To know how to make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers.** Accurate, thermometer, data logger, values estimate **To know how to gather, record, classify and present data in a variety of ways to help in answering questions.** data, gather, record, classify **Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.** chart, bar chart, diagram **Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.** conclusion, explanation, evidence, relationship **Know how to use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.** predictions, results	**Plan enquiries, including recognising and controlling variables where necessary.** variables **Knows how to use appropriate techniques, apparatus, and materials during fieldwork and laboratory work.** **Knows how to take measurements, using a range of scientific equipment, with increasing accuracy and precision.** precision, accuracy **Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models.** evidence, scatter graphs, bar graphs, line graphs **Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.** causal relationship **Present findings in written form, displays and other presentations** **Use test results to make predictions to set up further comparative and fair tests.**

			Knows how to identify differences, similarities or changes related to simple, scientific ideas and processes. similarity, difference **Understands how to use straightforward, scientific evidence to answer questions or to support their findings**	**Know how to use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments.** argument (science), justify

	By the end of Reception	***By the end of Year 2***		***By the end of Year 4***		***By the end of Year 6***
Working Scientifically Vocabulary		experience observe changes patterns group / grouping sort / sorting classifying compare identify data measure record equipment questions test	investigate explore magnifying glass / hand lens same different aim answer describe equipment tally chart table findings notice observe	enquiry practical enquiry fair test comparative test relationships conclusion accurate thermometer data logger estimate data diagram chart bar chart	results predictions explanation reason similarity difference question evidence criteria values classify	variables evidence justify accuracy precision scatter graphs bar graphs line graphs argument (science) causal relationship

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
To Understand Plants	**Children should know about similarities and differences in relation to places, objects, materials and living things.** **Know and talk about the features of their own immediate environment.** **Know how environments might vary from one another.** **They make observations of animals and plants and know / explain why some things occur, and talk about changes.** Soil, seed, bean, grow, shoots, leaves, stem, sunlight, water, air, roots,	**To know how to Identify and name a variety of common wild and garden plants. (IP L1, 2, 3 & 4)** plants, wild plants, garden plants, evergreen tree, deciduous tree, common flowering plant, weed, grass, sunflower, daffodil **To know how to Identify and describe the basic structure of a variety of common flowering plants (seeds, roots etc), including trees. (IP L5)** flower, vegetable, fruit, berry, leaf/leaves, petal, stem, trunk, branch, root, seed, bulb, bud, soil **To know how to observe and describe how seeds and bulbs grow into mature plants. (GP L1, 2, 3, 4 & 5)** germination, shoot, growth, grow, food store, life cycle, die, wilt, seeding, sapling **To know that and be able to describe how plants need water, light and suitable temperature to grow and stay healthy. (GP L2 & 4)** sunlight, light, air, water, space, temperature, warm, hot, cold, healthy, habitat **(IP L6 – Quiz – Recap)**	**Identify, know and describe the functions of different parts of flowering plants: roots, stem/truck, leaves and flowers. (HPG L1 & 2)** absorbs, evaporate, photosynthesis, energy, anchor **Explore and know the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. (HPG L3)** nutrients (mineral salts) **To know and understand the way in which water is transported within plants. (HPG L2)** transport **To know and explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (HPG L4, 5 & 6)** life cycle, pollination, seed formation, seed dispersal, plant growth, fertilisation, pollinator, carpel: stigma, style, ovary sepal, stamen: filament, anther, petal, pollen, nectar	

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
To Understand Plants Vocabulary	Soil, seed, bean, grow, shoots, leaves, stem, sunlight, water, air, roots,	plants, wild plants, garden plants, evergreen tree, deciduous tree, common flowering plant, weed, grass, sunflower, daffodil, flower, vegetable, fruit, berry, leaf/leaves, petal, stem, trunk, branch, root, seed, bulb, bud, soil, germination, shoot, growth, grow, food store, life cycle, die, wilt, seeding, sapling, sunlight, light, air, water, space, temperature, warm, hot, cold, healthy, habitat	absorbs, evaporates, photosynthesis, energy, nutrients (mineral salts), transport, life cycle, pollination, seed formation, seed dispersal, plant growth, fertilisation, germination, pollinator, carpel: stigma, style, ovary sepal, stamen: filament, anther, petal	

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
To Understand Animals and Humans	Physical development – Make healthy choices about food, drinks and tooth brushing. Know and talk about the different factors that support their overall health and wellbeing. Understand the life cycle of an animal. Look at and try a range of foods and decide which would be healthy and which need to be eaten in moderation. Effects of exercise – breathless and effect this has on you. Teeth cleaning – dentist visit, routines, how to guides. Cover pets, domesticated farm and wild life. Look at young – which animals come out of eggs.	**To know, identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (IA L1)** names of common animals: fish, amphibians, reptiles, birds, mammals **To know, identify and name a variety of common animals that are carnivores, herbivores and omnivores (IA L1, 2 & 5)** carnivores, herbivores, omnivores **To know, describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (IA L3 & 4)** **To know, name, draw and label the basic parts of the human body. (MB L1)** human, body (head, neck, arms, legs, ears, eyes, nose, mouth, tongue, hands, feet, fingers, toes, elbows, knees, hair, teeth) **To know which part of the body is associated with each sense. (MB L3, 4, 5, 6 & 7)** senses (see, hear, feel, smell, taste) **To know that animals, including humans, have offspring which grow into adults. (GS L1, 2 & 3)** offspring, adults, young, grow **To know and describe the basic needs of animals, including humans, for survival (water, food and air). (GS L4)** water, air, food, survive **To know and describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (GS L6 & 7)** exercise, hygiene, food, healthy **(IA – L6 – How to take care of animals and L7 – collect, present and interpret data)** **(MB – L2 – which parts of the body are used in different activities)** **(GS – L5 – environment for survival)**	**To know and identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food. (HM L1, 2 & 3)** Nutrition **To know that animals, including humans get nutrition from what they eat. (HM L1, L2 & L3)** diet **To know and identify that humans and some animals have skeletons and muscles for support, protection and movement. (HM L5, L6 & L7)** Skeleton, muscles, protection, support, movement, bones (types of bones) **To know the simple functions of the basic parts of the digestive system in humans. (ED L5 & L6)** digestive system, stomach, small intestine, large intestine, oesophagus, saliva **To know and identify the different types of teeth in humans and their simple functions. (ED L3 & L4)** types of teeth: molar, pre-molar, incisor, canine **To know how to Construct and interpret a variety of food chains, identifying producers, predators and prey. (ED L2)** food chains, producers, predators, prey **(ED – L1 – Carnivores, herbivores and omnivores)**	**To know and name the main parts of the human circulatory system. (HB L3)** circulatory system, heart, blood vessels, blood **To know and describe the functions of the heart, blood vessels and blood. (HB L3)** oxygen, circulatory system, heart, blood vessels, blood, lungs **To know the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (HB L2, L4 & L6)** exercise, diet, drugs, lifestyle **To know the ways in which nutrients and water are transported within animals, including humans. (HB L3)** water transportation, nutrient transportation **To know the changes as humans develop to old age. (CR L6)** puberty, gestation period **(HB – L5 – Muscles and Skeleton and L7 – evaluate what you can do to keep the body healthy).**

	By the end of Reception	By the end of KS1		By the end of LKS2		By the end of UKS2	
To Understand Animals and Humans	Food, healthy, fruit, vegetables, meat, fish, treats, exercise, fit, teeth, clean, brush, toothpaste, dentist.	names of common animals: fish, amphibians, reptiles, birds, mammals carnivores herbivores omnivores human, body (head, neck, arms, legs, ears, eyes, nose, mouth, tongue, hands, feet, fingers, toes, elbows, knees, hair, teeth)	senses (see, hear, feel, smell, taste) offspring adults young grow water air food survive exercise hygiene food healthy	nutrition diet skeleton muscles protection support movement bones (types of bones) digestive system stomach small intestine	large intestine oesophagus types of teeth: molar, pre-molar, incisor, canine saliva food chains producers predators prey	puberty gestation period circulatory system heart lungs blood vessels blood lifestyle disease	water transportation nutrient transportation oxygen air breathing exercise diet drugs

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
To Investigate Living Things	Begins to understand the need to respect and care for the natural environment and all living things. Explore the natural world around them. How do we respect and care for mini - beasts and the animals we meet in everyday life (pets, wild life)? Impact of litter on the environment and how you can have an impact on this. Worm pick up – taking care of the natural world.	**To know and compare the differences between things that are living, dead, and things that have never been alive. (LH L1)** living, dead, not living, alive **To know that most living things live in habitats to which they are suited. (LH L2)** habitat, micro-habitat, pond, garden, field park, woodland, sea shore, river, ocean, forest, rainforest, stones, rocks, logs, leaf litter **To know how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other identify and name a variety of plants and animals in their habitats, including microhabitats. (LH L3, L4 & L5)** habitat, shelter, grow, growth, micro-habitat, pond, garden, field, park, woodland, sea shore, river, ocean, forest, rainforest, stones, rocks, logs, leaf litter **To know how animals obtain their food from plants and other animals, using the idea of a simple food chain. (LH L6)** food, food chain, depend, source of food **To know, identify and name different sources of food. (LH L6)** food, food chain, depend, source of food	**To know and name a variety of living things (plants and animals) in the local and wider. (LE L1)** Environment, non-flowering plants, flowering plants **To know reasons for classifying plants and animals based on specific characteristics. (LE L2, L3, L4 & L5)** vertebrate animals: fish, birds, mammals, amphibians, reptiles invertebrate animals **To know that environments are constantly changing and that this can sometimes pose dangers to specific habitats. (LE L6)** natural changes – floods, drought, man-made changes – pollution, littering, deforestation, population increase	**To know and describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (LC L3, L4 & L5)** Life cycle, metamorphosis, reproduction, processes, gestation, fertilise, asexual reproduction, sexual reproduction **To know and describe the life process of reproduction in some plants and animals** **To know how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. (CO L1, L2, L3, L5)** characteristics, classify, classification, taxonomist, microorganisms, organisms **To know how to classify plants and animals based on specific characteristics. (CO L6)** key, characteristics, classify, classification, taxonomist **(LC – L1 – Flowering plants, L2 – Asexual reproduction in plants & L6 – Well known naturalist).** **(CO – L6 – Organisms in local area)**

	By the end of Reception	By the end of KS1		By the end of LKS2		By the end of UKS2	
To Investigate Living Things Vocabulary	Autumn, spring, summer, winter, mini beasts, worm, woodlice, ladybird, spider, fly and caterpillar. Care/caring, living, respect, pets, dog, cat, rabbit, guinea pig.	pond garden field park woodland sea shore river ocean forest rainforest stones rocks logs leaf litter habitat	micro-habitat living dead not living alive healthy food food chain depend source of food shelter grow growth healthy	environment non-flowering plants flowering plants natural changes – floods, drought, man-made changes – pollution, littering, deforestation, population increase	vertebrate animals: fish, birds, mammals, amphibians, reptiles invertebrate animals: snails, worms, slugs, spiders, insects	asexual reproduction fertilise gestation life cycle metamorphosis reproduction sexual reproduction characteristics	classify classification taxonomist key organisms microorganisms life processes

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Evolution and Inheritance				**To know that living things have changed over time. (EI L5)** Evolve, theory of evolution, mutations, ancestors, **To know that fossils provide information about living things that inhabited the Earth millions of years ago. (EI L5)** **To know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. (EI L1)** Inherit, inherited traits, variation, generation, off spring, selective breeding, artificial selection, breed, cross breeding, biological parents, chromosomes, genes **To know how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. (EI L2 & L3)** adaptation, natural selection, adaptive traits, **(EI – L4 – Charles Darwin and L6 – Human adaptations)**

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Evolution and Inheritance				Evolve, theory of evolution, mutations, ancestors, Inherit, inherited traits, variation, generation, off spring, selective breeding, artificial selection, breed, cross breeding, biological parents, chromosomes, genes, adaptation, natural selection, adaptive traits,

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Investigating Materials	Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Explore and talk about different forces they can feel. Talk about the differences between materials and changes they notice. Join different materials and explore different textures.	**To know how to distinguish between an object and the material from which it is made. (EM L1)** material, object, wood, paper, plastic, metal, glass, water, rock, brick, stone, cardboard, clay, fabric, foil, elastic, dough, rubber, card **To know and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (EM L2)** everyday materials, wood, paper, plastic, metal, glass, water, rock, brick, stone, cardboard, clay, fabric, foil, elastic, dough, rubber, card **To know the simple physical properties of a variety of everyday materials. (EM L3)** hard/soft, shiny/dull, stretchy/stiff, rough/smooth, bendy/not bendy, waterproof/not waterproof, transparent/opaque, absorbent/not absorbent **To know, compare and group together a variety of everyday materials based on their simple physical properties. (EEM L1)** hard/soft, shiny/dull, stretchy/stiff, rough/smooth, bendy/not bendy, waterproof/not waterproof, transparent/opaque, absorbent/not absorbent **To know how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (EEM L3)** squash, twist, bend, stretch	**To know how to compare and group materials together, according to whether they are solids, liquids or gases. (SM L1 & L2)** solid, liquid, gas **To know that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C). (SM L3 & L4)** temperature, heat (heating), cool (cooling), melting, freezing **To know the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (SM L5, L6 & L7)** water cycle, evaporation, condensation	**To know how to compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (PCM L6)** properties, hardness, solubility, transparency, electrical conductivity, thermal conductivity, magnetism **To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. (PCM L1)** dissolve, solution **To know (using knowledge of solids, liquids and gases) how mixtures might be separated, including through filtering, sieving and evaporating. (PCM L2)** filtering, sieving, separating **To know and give reasons, based on evidence from comparative and fair tests, the particular uses of everyday materials, including metals, wood and plastic. (PCM L7)** **To know that dissolving, mixing and changes of state can be reversible changes. (PCM L4)** mixing, filtering, sieving, reversible change

		To know and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard. (EEM L4 & L5) wood, paper, plastic, metal, glass, water, rock, brick, stone, cardboard, clay, fabric, foil, elastic, dough, rubber, card **(EM – L4 – why some materials are better suited, L5 – waterproof investigation & L6 – recap)** **(EEM L2 – natural and man-made materials, L6 – different materials used for the same object & L7 – material inventions)**		**To know 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. (PCM L3 & L5)** burning, rusting, reactions, irreversible change

	By the end of Reception	By the end of KS1		By the end of LKS2		By the end of UKS2	
Investigating Materials		everyday materials wood paper plastic metal glass water rock brick stone fabric material foil elastic dough rubber card	cardboard clay object make/made hard/soft shiny/dull stretchy/stiff rough/smooth bendy/not bendy waterproof/not waterproof transparent/opaque absorbent/not absorbent squash twist bend stretch	solid liquid gas temperature heat (heating) cool (cooling)	water cycle evaporation condensation melting freezing	properties hardness solubility transparency electrical conductivity thermal conductivity magnetism dissolve solution substance separating	mixing filtering sieving reversible change burning rusting reactions irreversible change

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Rocks			**To know how to compare and group together different kinds of rocks based on their appearance and simple physical properties. (RSF L1, L2 & L3)** sedimentary rock, igneous rock, metamorphic rock, man-made, natural, marble, chalk, granite, sandstone, slate, permeable, semi-permeable, impermeable, durable. **To know, in simple terms, how fossils are formed when things that have lived are trapped within rock (RSF L6)** fossil, fossilisation, erosion, sediment, magma, lava, molten rock, erosion, fossilisation, layers, bone, fossil. **To know that soil is made from rocks and organic matter. (RSF L5)** soil, organic matter, mineral, sandy, chalky, clay, peaty, loamy, topsoil, subsoil, bedrock, organic matter, compost. Other: palaeontology **(RSF L4 – what rocks are used for & L7 – identify fossil remains)**	

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Rocks Vocabulary			sedimentary rock, igneous rock, metamorphic rock, man-made, natural, marble, chalk, granite, sandstone, slate, permeable, semi-permeable, impermeable, durable, fossil, fossilisation, erosion, sediment, magma, lava, molten rock, erosion, fossilisation, layers, bone, fossil, soil, organic matter, mineral, sandy, chalky, clay, peaty, loamy, topsoil, subsoil, bedrock, organic matter, compost. Other: palaeontology	

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Seasons / Earth and Space	Understand the effect of changing seasons on the natural world around them. Seasons boards 4 across the year using school environment to show changes. Describe what they see, hear and feel whilst outside in the different seasons. Autumn, conkers, leaves acorns, sycamore keys. Spring, dafodils, hyacinth, crocus – flowers in classroom. Summer – sun hats, cream, glasses. Winter – coat, hat, scarf, gloves, snow balls, ice, frost.	**To know and talk about changes across the four seasons. (SC L1 & L2)** seasons, seasonal change, spring, summer, autumn, winter **To know about and describe weather associated with the seasons and how day length varies. (SC L5 & L6)** weather, sun, sunshine, rain, snow, sleet, ice, frost, fog, cloud, hot, cold, storm, wind, thunder, sky, night, day **To know that it is unsafe to look directly at the Sun. (SC L4)** danger **(SC L3 – how animals are affected by seasons)**		**To know about and describe the movement of the Earth, and other planets, relative to the Sun in the solar system. (ES L1 & L6)** solar system, star, planet planets: Mercury, Venus, earth, Mars, Jupiter, Saturn, Neptune, Uranus **To know about and describe the movement of the Moon relative to the Earth. (ES L1 & L4?)** Moon, orbit, **To know the Sun, Earth and Moon as approximately spherical bodies. (ES L1)** spherical bodies, sphere **To know about and use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky. (ES L2)** Rotation, rotate, axis, sunrise, sunset, midday, time zone. **(ES L3 – seasons & L4 Phases of the moon)**

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Seasons / Earth and Space Vocabulary	Seasons, winter, spring, summer, autumn,	seasons, seasonal change, spring, summer, autumn, winter, weather, sun, sunshine, rain, snow, sleet, ice, frost, fog, cloud, hot, cold, storm, wind, thunder, sky, night, day, danger		solar system, star, planet planets: Mercury, Venus, earth, Mars, Jupiter, Saturn, Neptune, Uranus, Moon, orbit, spherical bodies, sphere, rotation, rotate, axis, sunrise, sunset, midday, time zone.

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Light and Sound			**To know that they need light in order to see things and that dark is absence of light. (LS L1)** Light source, dark (absence of light) **To know that light is reflected from surfaces. (LS L6)** reflect, reflective surface, mirror, ray **To know that light from the sun can be dangerous and that there are ways to protect the eyes. (LS L2)** UV Light, direct, **To know that shadows are formed when light from a light source is blocked by a solid object. (LS L3)** shadow, opaque, translucent **To know how to find patterns in the way that the size of shadows change. (LS L4 & L5)** **To know how sounds are made, associating some of them with something vibrating. (S L1)** Vibration, particles **To know that vibrations from sounds travel through a medium to the ear. (S L2)** sound wave, eardrum **To know and find patterns between pitch of a sound and features of the object that produced it. (S L6 & L7)** pitch **To know the relationship between the volume of a sound and the strength of the vibrations that produced it. (S L5)** volume **To know that sounds get fainter as the distance from the sound's source increases. (S L3)** distance **(LS – L7 – investigate reflective materials in everyday lives)** **(S – L4 – prevent sound from travelling)** soundproof	**To know that light appears to travel in straight lines. (SL L1)** light waves, wavelength, straight line, refraction. **To know that objects are seen because they give out or reflect light into the eye. (SL L3 & L4)** visible spectrum, prism. **To know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. (SL L3 & L4)** light sources **To know and explain why shadows have the same shape as the objects that cast them. (SL L1)** **(SL- L2 – how shades change, L5 – reflection, L6 – Refraction & L7 – colours in white light** periscope.

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Light and Sound			Light source, dark (absence of light), reflect, reflective surface, mirror, ray, UV Light, direct, shadow, opaque, translucent Vibration, particles, sound wave, eardrum, pitch, volume, distance Soundproof	light waves, wavelength, straight line, refraction, visible spectrum, prism, light sources periscope.

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Electricity and Circuits			**To know common appliances that run on electricity. (CC L1 & L2)** electricity, appliances, mains electricity, mains-powered, battery-powered **To know how to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (CC L3)** simple circuit, light bulb, cell, wire, buzzer, switch, motor, battery **To know whether 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. (CC L1, L3 & L6)** complete circuit, incomplete circuit **To know that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (CC L5)** complete circuit, incomplete circuit, switch **To know some common conductors and insulators and associate metals with being good conductors. (CC L4)** electrical conductor, electrical insulator	**To know that the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. (CC L4 & L5)** voltage, amps, resistance, electrons, volts (V), current. **To know how to 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. (CC L4 & L5)** Components, dimmer, brighter, louder, quieter. **To know how to use recognised symbols when representing a simple circuit in a diagram. (CC L3)** symbols, circuit diagram **(CC L1 & L2 – recap pervious learning & L6 – Create a device)**

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Electricity and Circuits			electricity, appliances, mains electricity, mains-powered, battery-powered, simple circuit, light bulb, cell, wire, buzzer, switch, motor, battery, complete circuit, incomplete circuit, complete circuit, incomplete circuit, switch, electrical conductor, electrical insulator	voltage, amps, resistance, electrons, volts (V), current, components, dimmer, brighter, louder, quieter, symbols, circuit diagram

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Forces and Magnets	Explore and talk about the different forces they can feel. How do you make a toy move? Push or pull, spin, twist. Playground activities pushing and pulling, balls, outdoor		**To know and compare how things move on different surfaces. (FM L2)** move, movement, surfaces, distance, friction, strength **To know that some forces need contact between 2 objects, but magnetic forces can act at a distance. (FM L1 & L3)** forces, push, pull, contact force, non-contact force **To know how magnets attract or repel each other and attract some materials and not others. (FM L3)** attract, repel, magnet, bar magnet, ring magnet, horseshoe magnet, poles (of magnets) **To know, compare and group together a variety of everyday materials based on whether they are attracted to a magnet, and identify some magnetic materials. (FM L4)** magnetic, magnetic materials **To know that magnets as having 2 poles. (FM L3)** magnetic poles, attract, repel, north pole, south pole, magnetic field, **To know whether 2 magnets will attract or repel each other, depending on which poles are facing. (FM L3** poles, attract, repel **(FM L 5 – Uses of magnets)**	**To know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. (FA L1)** gravitational pull, gravity, opposing forces, driving force, Newtons (N), **To know the effects of air resistance, water resistance and friction, that act between moving surfaces. (FA L2, L3 & L4)** air resistance, water resistance, buoyancy, upthrust, streamlined **To know that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. (FA L5 & L6)** mechanism, Levers, pulleys, gears, springs, clogs

	By the end of Reception	By the end of KS1	By the end of LKS2	By the end of UKS2
Forces and Magnets			move, movement, surfaces, distance, friction, strength, forces, push, pull, contact force, non-contact force, attract, repel, magnet, bar magnet, ring magnet, horseshoe magnet, poles (of magnets), magnetic, magnetic materials, magnetic poles, north pole, south pole, magnetic field	gravitational pull, gravity, opposing forces, driving force, Newtons (N), air resistance, water resistance, buoyancy, upthrust, streamlined, mechanism, Levers, pulleys, gears, springs, clogs