KS2 Science objectives and key vocabulary

Year A	Autumn 1 Earth and Space
LKS2	Observe how the sun appears to move across the sky from East to West Observe how the apparent movement of the Sun across the sky causes shadows to form Describe how we can see the Moon because the Sun's light reflects off it Describe how the Earth and Moon go around the Sun in one year Recognise that humans have been to the moon
UKS2	Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky
LKS2 Vocabulary	Earth, Sun, Moon, Shadow, spin, reflect, astronaut
UKS2 Vocabulary	Earth, Sun, Moon, planets, Solar System, celestial body, sphere/spherical, rotate/rotation, orbit, spin, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, 'dwarf' planet

Year A	Autumn 2 Materials
LKS2	**States of matter** - compare and group materials together, according to whether they are solids, liquids or gases **States of matter** - 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 **States of matter** - identify part played by evaporation and condensation in water cycle and associate the rate of evaporation with temperature
UKS2	**Properties and changes of materials** - 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 **Properties and changes of materials** - know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution **Properties and changes of materials** - use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating

	Properties and changes of materials - give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic **Properties and changes of materials** - demonstrate that dissolving, mixing and changes of state are reversible changes **Properties and changes of materials** - 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
LKS2 Vocabulary	States of matter, solids, liquids, gases, water vapour, melt, freeze, evaporate, condensation, precipitation
UKS2 Vocabulary	Material, mixture, dissolve, solution, solvent, solute, soluble, insoluble, separate, filtering, sieving, evaporating, reversible, irreversible, conductor, insulator

Year A	Animals including humans
LKS2	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get their nutrition from what they eat Identify that humans and some other animals have skeletons and muscles for support, protection and movement
UKS2	Describe the changes as humans develop to old age
LKS2 Vocabulary	Nutrition, nutrients, food types, fruit and vegetable, bread, rice, potato, pasta, milk and dairy foods, foods high in fat or sugar, meat, fish, egg, beans, carbohydrates, protein, vitamins and mineral, fat, dietary fibre, water, balanced diet, skeleton, muscles, support, protection, movement, skull, ribs, spine/vertebra, joints, sockets, bones, tendons
UKS2 Vocabulary	Prenatal, infancy, childhood, adolescence, adulthood, fertilisation, gestation, reproduce, life cycle, puberty, life expectancy

Year A	Light
LKS2	Recognise that they need light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that light from the Sun can be dangerous and that there are ways to protect their eyes Recognise that shadows are formed when the light from a light source is blocked by a solid object Find patterns in the way that the size of shadows change
UKS2	Recognise that light appears to travel in straight lines 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 Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
LKS2 Vocabulary	Light, light source, names of light sources e.g. torch, dark/darkness, reflect, reflective, mirror, shadow, block, direct/ direction, transparent , opaque, translucent

UKS2 Vocabulary	Light, light source, names of light sources e.g. torch, dark/darkness, reflect, reflective, mirror, shadow, block, absorb, direct/ direction, transparent , opaque , translucent

Year A	Plants
LKS2	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Explore the requirements of plants for life and growth and how they vary from plant to plant Investigate the way in which water is transported within plants Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal
UKS2	Describe how seed dispersal ensures that new plants survive Describe how nutrients are taken in through plant roots Recognise that leaves use light to make food for the plant Find out and describe how keys are a way of identifying different living things
LKS2 Vocabulary	Part, role, leaf/leaves, flower, blossom, petal, fruit, berry, root, bulb, seed, trunk, branch, stem, bark, stalk, water, light, air, nutrients, soil, fertiliser, damp/wet/dry, dark/light, hot/warm/cool/cold, use comparatives e.g. hotter, grow/growth, healthy, transported, life cycle, pollination, seed formation, seed dispersal
UKS2 Vocabulary	Seed, dispersal, nutrients, roots, keys

Year A	Living things and habitat
LKS2	Recognise that living things can be grouped in a variety of ways Use classification keys to help group, identify and name living things
UKS2	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals
LKS2 Vocabulary	Classification keys, environment, fish, amphibians, reptiles, birds, mammals, vertebrates, invertebrates
UKS2 Vocabulary	Life cycle, reproduction, sexual, asexual, germination, pollination, seed formation, seed dispersal, pollen, stamen, stigma, plantlets e.g. spider plant, runners e.g. strawberry plant, mammal, amphibian, insect, bird, fish, reptile, eggs, live young

Year B	Sound
LKS2	Identify how sounds are made, associating some of them with something vibrating

	Recognise that vibrations from sounds travel through a medium to the ear Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it Recognise that sounds get fainter as the distance from the sound source increases
UKS2	Recognise that sounds can be high or low (pitched) Describe how sounds are made when objects vibrate Recognise that not all objects can be seen to vibrate Recognise that vibrations can travel at different speeds through different mediums
LKS2 Vocabulary	Sound, sound source, noise, vibrate/vibration, travel, solid/liquid/gas, pitch, tune, high/low, volume, loud/quiet, fainter, muffle, strength of vibrations, insulation, instrument, percussion, strings, brass, woodwind, tuned instrument
UKS2 Vocabulary	Sound, sound source, noise, vibrate/vibration, travel, solid/liquid/gas, pitch, tune, high/low, volume, loud/quiet, fainter, muffle

Year B	Animals including humans
LKS2	Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey
UKS2	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Describe the ways in which nutrients and water are transported within animals, including humans
LKS2 Vocabulary	Digestive system, nutrition, nutrients, mouth, teeth, canines, incisor, molar, pre-molar, saliva, tongue, rip, tear, chew, grind, cut, oesophagus (gullet), stomach, small intestine, large intestine, rectum, anus, carnivore, herbivore, omnivore, producer, consumer, predator, prey, food chain
UKS2 Vocabulary	Circulatory system, heart, blood, blood vessels, pumps, oxygen, carbon dioxide, lungs, nutrients, water, diet, exercise, drugs, lifestyle

Year B	Rocks/ Evolution and inheritance
LKS2	Rocks - compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Rocks - describe in simple terms how fossils are formed when things that have lived are trapped within rock Rocks - recognise that soils are made from rocks and organic matter
UKS2	Evolution and inheritance - recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago

	Evolution and inheritance - recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Evolution and inheritance - identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
LKS2 Vocabulary	Rock, stone, pebble, boulder, soil, fossils, grains, crystals, hard/soft, texture, absorb water, permeable, impermeable, marble, chalk, granite, sandstone, slate, sandy soil, clay soil, chalky soil, peat
UKS2 Vocabulary	Evolution, suited/suitable, environment, suited, adapted/adaptation, offspring, characteristics, vary/variation, inherit/inheritance, fossils

Year B	Electricity
LKS2	Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzer Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a loop with a battery Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors
UKS2	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuits 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 Use recognised symbols when representing a simple circuit in a diagram
LKS2 Vocabulary	Electricity appliances/device mains plug electrical circuit symbol component cell battery positive negative connection wire crocodile clip bulb bright dim switch buzzer motor conductor insulator metal non-metal
UKS2 Vocabulary	current voltage resistance circuit diagram symbol

Year B	Forces
LKS2	Compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces can act at a distance Observe how magnets attract or repel each other and attract some materials and not others 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 Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing

UKS2	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect
LKS2 Vocabulary	Force, push/pushing, pull/pulling, contact force, non contact force, magnetic force, magnet, strength, bar magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, non magnetic material, poles, north pole, south pole
UKS2 Vocabulary	Fall, Earth, gravity, weight, mass, Newtons, force meter, air resistance, water resistance, friction, moving surfaces, mechanisms, levers, pulleys, gears, force

	Living things and their habitats
LKS2	Identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things
UKS2	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics
LKS2 Vocabulary	Classification keys, environment, fish, amphibians, reptiles, birds, mammals, vertebrates, invertebrates, human impact, positive human impact, negative human impact, climate change, plastic pollution
UKS2 Vocabulary	Micro-organisms, fungus, mushrooms, classification keys, environment, fish, amphibians, reptiles, birds, mammals, vertebrates, invertebrates, arachnid, mollusc, insect, crustacean