Cycle A

Topic		Lesson Focus	Key Knowledge	Vocabulary
Animals Including Humans	1	Understand Nutrition	To know that **nutrition** is food necessary for health and growth. To know that **nutrients** are useful substances that help animals and plants to grow. To know that foods contain different nutrients. To know that one piece of food can provide a range of nutrients.	Nutrition, nutrients,
	2	Learn terms and definitions for carbohydrates, proteins, vitamins & minerals, fibre	To know that **carbohydrates** are foods that give us **energy** To know that **proteins** are important so the body can grow, repair and build muscle. To know that **vitamins and minerals** are substances found in foods which keep us healthy. To know that **fibre** helps to allow food to pass quickly through your body by keeping your digestive system in good working order.	carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water
	3	Identify foods which contain the above	Carbohydrates are found in sugary and starchy foods - healthy high carbohydrate foods include: whole grains, beans, vegetables, fresh fruits, nuts and seeds. To know that foods high in protein include fish, chicken, meat, soy products and cheese. To know that vitamins and minerals are found in fruit and vegetables. To know that foods high in fibre include: wholegrain/granary bread, pulses, vegetables and fruit (with their skin on).	carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water
	4	Plan balanced menu with all food groups	To know that to stay healthy we need to eat: a lot of grains, a lot of fruit and vegetables (7 portions), some meat/fish/egg/alternative, some milk/alternative, a little bit of fat/oil, salt and sugar. Can classify food into those that are high or low in particular nutrients Can answer their questions about nutrients in food based on their gathered evidence Can talk about the nutrient content of their daily plan	carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water
	5	Understand the terms skeleton, bone, joint, muscle	To know that a **skeleton** supports and protects the body, allowing it to move. To know that **bones** are the hard parts inside your body, which form your skeleton. To know that **muscles** are attached to bones and help us move. To know that **joints** are the place where two bones meet.	skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints
	6	Name and locate some bones in the skeleton and state some purposes	To know and locate the bones: skull, jaw, collar bone, rib cage, spine (back bone), radius, ulna, pelvis, femur, knee cap, tibia, fibula. To know the skull protects the brain. To know the rib cage protects the heart and lungs. To know that the bones in our legs support us and help us to stand. To know the bones and muscles in our legs help us to move.	skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints
	7	Compare skeletons of different mammals	Can give similarities e.g. they all have joints to help the animal move, and differences between skeletons	skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints

Light	1	Understand light and darkness	To know that we can see objects because our eyes can sense light. To know that darkness is the absence of light. To understand that the more light there is, the easier it is to see objects. To understand that a light source is an object that emits its own light. Can describe patterns in visibility of different objects in different lighting conditions and predict which will be more or less visible as conditions change Can clearly explain, giving examples, that objects are not visible in complete darkness	Light, light source, dark, absence of light,
	2	Understand terms transparent, translucent and opaque and classify objects	To know that transparent means a material that is completely see through so that all light can pass through it. To know that examples of transparent materials include: a clear plastic sheets, a clear window, a clear drinking glass, clear eye glasses. To know that translucent means a material that lets some light through but not all of it. To know that examples of translucent materials include: frosted glass, some plastics, ice, tissue paper. To know opaque is a material that light cannot pass through. To know that you cannot see through something that is opaque. To know that examples of opaque materials include: concrete, wood, metal. Use data loggers to measure and record amounts of light.	transparent, translucent, opaque, shiny, matt, surface,
	3	Understand how shadows are formed	To know that a shadow is formed when an opaque object blocks light. Can describe and demonstrate how shadows are formed by blocking light	shadow, reflect, mirror
	4	Investigate changing shadows	To understand that we can change the size of a shadow by changing the position of the: light source, object, surface where the shadow is being made. Can describe, demonstrate and make predictions about patterns in how shadows vary	shadow, reflect, mirror,
	5	Understand that light reflects off surfaces	To know that reflect means when light bounces off a surface. To know that a mirror is a sheet of glass or metal that reflects light. To understand that shiny surfaces reflect light very well. To understand that matt surfaces do not reflect light very well.	Reflect, light, surface, materials
	6	Know how to protect our eyes from the sun	To know that the light from the sun can be dangerous as it can damage our eyes. To know that we can protect our eyes by never looking directly at the sun. To know we can protect our eyes by wearing sunglasses or sunhats in bright sunlight.	Light, sunlight, dangerous

Rocks	1	Describe properties of rocks	To know that a rock is a naturally occurring material made of minerals. To know that rocks can be different sizes: stones, pebbles, boulders. To be able to describe the appearance of rocks using the language: hard/soft, grains, absorb water or not, crystals, texture, layers. Can classify rocks in a range of different ways using appropriate vocabulary Can devise tests to explore the properties of rocks and use data to rank the rocks .	Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, hard/soft, grains, absorb water or not, crystals, texture, layers.
	2	Explain why rocks are used for different purposes	Can link rocks changing over time with their properties e.g. soft rocks get worn away more easily To know that rocks are used for different things depending on their properties: Chalk is used for drawing because it is crumbly and soft. Marble is good for floors because it does not rub away. Granite is good for worktops because it is hard and does not absorb water.	marble, chalk, granite, sandstone, slate,
	3	To know how fossils are formed	To know that fossils are the bones or other remains of living things that are sometimes preserved in rocks as fossils. To know how fossils are formed: 1. Plants and animals died and sank into the sea bed. 2. The soft part decayed away leaving the hard part. 3. The hard parts were covered and squashed by many layers of sand and other materials. 4. The animal/plant matter dissolves and is replaced by minerals, leaving a replica of the original bone called fossil. Can present in different ways their understanding of how fossils are formed e.g. in role play, comic strip, chronological report, stop-go animation etc	absorb water, soil, fossil
	4	Know how fossils help us learn about the past	A fossil is the preserved remains or impressions of a living organism such as a plant, animal, or insect. Some fossils are very old. Studying fossils helps scientists to learn about the past history of life on Earth.	absorb water, soil, fossil
	5	Understand what soil is and how its properties vary	To know that soil is ground up rock mixed with plant and animal remains. To know that the property of soil is affected by the: type of rock, size of rock pieces, amount of organic matter in it. To know the properties of peat soil are: water logged, contain partially decomposed plant material, soft and easily compressed. To know the properties of sandy soil are: light and dry, lots of air gaps so water can drain through quickly. To know the properties of chalky soil are: stony and water drain through quickly, found in areas with lots of chalk. To know the properties of clay soil are: very sticky when wet, a heavy soil, water does not drain through it quickly. Can identify plant/animal matter and rocks in samples of soil	soil, peat, sandy/chalk/clay soil

	6	Investigate properties of soils	Can devise a test to explore the water retention of soils	soil, peat, sandy/chalk/clay soil
Forces & Magnets	1	Understand what a force is and how objects move on surfaces	To know that a force is a push or a pull. To understand why objects move on surfaces. i.e. ice skates have a sharp blade to help them move better on ice, trainers do not have a good grip on ice and so the surface becomes slippy to walk on. A bowling green is closely mown so the grass is short and the ball can roll easily, otherwise the ball would stop.	Force, push, pull, twist,
	2	Know what a magnetic force is	To know that a magnetic force is an invisible force that attracts magnetic metals. To understand that many forces need contact to act. This is called a contact force. To understand that pushing a door open, pulling a suitcase are examples of contact force. To know that non-contact force is a magnetic force that does not need contact and can act at a distance	contact force, non-contact force, magnetic force, magnet,
	3	Investigate everyday materials in terms of being magnetic/non-magnetic	To know that a magnet attracts magnetic materials	strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles,
	4	Understand how magnets attract and repel each other	To know that attract means to pull towards. To know that repel means to push away. To know that a magnet has two poles: a north pole and a south pole. To know that opposite poles attract: the south pole attracts the north pole. To know that same poles repel: the south pole repels the south pole and the north pole repels the north pole.	north pole, south pole, attract, repel
Plants	1	Identify the parts of flowering plants and their functions	To know that roots anchor a plant in place. The roots also absorb water and nutrients from the soil. To know the stem/trunk transports water and nutrients around the plant. It also holds the leaves/flowers up in the air.	Roots, anchor, plant, absorb, nutrients, trunk, stem
	2	Investigate what plants need to grow and live	To know that leaves use sunlight and water to produce the plant's food. To know that photosynthesis is the way in which plants make food in their leaves.	Photosynthesis,
	3	Understand what plants need to grow	To understand that, in order to grow, plants need: air, water, light, room, nutrients from the soil. To know that in order for a plant to take in water: the roots take up the water from the soil, the stem carries this water to the leaves.	air, water, light, room, nutrients, water, soil, leaves
	4	Understand how water is	To know that roots anchor a plant in place. The roots also absorb water and nutrients from the soil.	Roots, absorb, nutrients, soil, stem, leaves, stem

		transported in plants	To know the stem/trunk transports water and nutrients around the plant. It also holds the leaves/flowers up in the air. To know that in order for a plant to take in water: the roots take up the water from the soil, the stem carries this water to the leaves.	
	5	Understand pollination	To know that during pollination insects, like bees and wasps, transfer the pollen from the male part of the flower to the female part of other flowers. To know that pollination is the process by which pollen is transferred to the female part of the flower To know that during pollination wind or water carries the pollen from the male part of the flower to the female part of another flower To know that pollen is part of the male part of a flower	pollen, insect/wind pollination, female, male,
	6	Understand seed formation	To know that pollen is the very fine powder that is produced by the male part of the flower. To know that pollination can be done by wind or by insect. To know that these are all methods of seed dispersal: by wind, on animal's fur, by animal's eating them, in water, when the seed pod explodes.	seed formation, pollen, pollination, seed dispersal
	7	Understand seed dispersal	To know that seed dispersal can happen in different ways: for example, the wind can blow seeds, animals can carry seeds, water can disperse seeds.	seed dispersal – wind dispersal, animal dispersal, water dispersal seed formation, pollen, pollination, seed dispersal
	8	Understand the life cycle of flowering plants and the importance of flowers	Germination is when a seed sprouts a root and a shoot. To know that seed dispersal can happen in different ways: for example, the wind can blow seeds, animals can carry seeds, water can disperse seeds.	Germination, sprout, shoot, root, seed dispersal, disperse

Cycle B

Topic		Lesson Focus	Key Knowledge	Vocabulary
Living things and their habitats	1	Understand classification	To know that classification means to group things based on their characteristics so that they can be identified To know that a classification key is a series of yes/no questions that help identify or classify things. To use a classification key to sort leaves and minibeasts	Classification, leaves, minibeasts, sort, groups, same, different
	2	Explain and name habitats	To know that the environment is the condition in which a living thing exists. Soil, climate and other living things all count as part of the environment. To know that habitat is the place where animals or plants live.	Habitat, home, live, animal, plant

	3	Understand why animals change their habitat	To know that migrate is the long-distance movement of animals, usually due to changes in the seasons. To know an arctic tern migrates from the Arctic to the Antarctic. To know that hedgehogs hibernate in the winter in small, dry, sheltered places, like tree roots. To know that hibernate means an animal or plant spends the winter in a dormant state	Migrate, seasons, artic, hibernate, dormant
	4	Understand the difference between vertebrates and invertebrates	To know that vertebrates is an animal that has a backbone. This includes fish, amphibians, reptiles, birds and mammals. To know that an invertebrate is an animal that does not have a backbone. To know that examples of invertebrates include: snails, worms, spiders and insects.	Vertebrate, invertebrate
	5	Explore how humans have a positive impact the environment	To know that humans can have a positive impact on the environment such as: setting up nature reserves, tree planning, creating a garden pond	Positive, impact, environment
	6	Explore how humans have a negative impact the environment	To know that humans can have a negative impact on the environment such as littering, deforestation, air pollution, plastic in the ocean	negative, impact, environment
Animals including humans	1	Understand the digestive system	To know that the digestive system is the organs in your body involved in the digestion of food. To know that digestion is the way the body breaks down food so the body can absorb it.	Digestive system, digestion, saliva, oesophagus, stomach, small intestines, nutrients, large intestines, water, rectum, anus.
	2	Know the different types of animals	To know that a herbivore is an animal that only eats plants. To know that a carnivore is an animal that eats other animals. To know that an omnivore is an animal that eats both plants and animals.	herbivore, carnivore, omnivore,
	3	Categorise plants and animals	To know that a producer includes all green plants and can make food in their leaves. They are the only producers of food. To know that a consumer is an animal that eats plants in the food chain. To know that a predator is an animal that catches and eats other animals.	producer, consumer, predator
	4	Understand a food chain	To know that prey are animals that are hunted and eaten by predators. To know a food chain is the process by which animals eat plants and other animals; the way this happens is shown in a food chain. To know examples of food chain include: Algae – tadpole – fish – stork Grass – beetle – mouse - fox	prey, food chain,

	5	Understand the different types of teeth	To know that we have four types of teeth: Incisors- used for cutting Canines- rip and tear food Molars and premolars- for grinding and chewing food	teeth, incisors, canines, molars, premolars, mouth,
States of matter	1	Understand states of matter	To know that change of state is when a material changes from one state to another. To know that melting is a solid changing into a liquid. To know that melting point is the temperature at which a solid becomes a liquid To know that temperature is the measure of how hot or cold something is To know a liquid has a fixed volume but changes in shape to fit the container. To know a liquid can be poured.	State of matter, liquid, gas, solid, temperature, melting, melting point
	2	Explore solids and their properties	To know that a solid keeps its shape and has a fixed volume. To know that ice and sugar are examples of solid.	Solid, properties, fixed volume
	3	Explore gases and their properties	To know a gas fills all the available space; it has no fixed shape or volume. To know water vapour and bubbles in cola are examples of gas. To know that evaporation is the change from a liquid to a gas at the surface of the liquid. To know that boiling point is the temperature at which a liquid turns to a gas. To know that evaporation is when a liquid changes to a gas. To know that condensation is the process when a gas changes into a liquid, caused by cooling.	Gas, no fixed shape/volume, evaporation, boiling point, temperature, condensation
	4	Explore liquids and their properties	To know the melting point of water is 0 degrees C. To know that freezing is when a liquid becomes cold enough to turn solid, it freezes. To know that freezing point of water is 0 degrees C To know the boiling point of water is 100 degrees C	Liquid, melting point, freezing, freezing point, degrees
	5	Understand and describe the water cycle	To know the water cycle: To know water evaporates into the air (To know water vapour condenses into clouds To understand precipitation. To know water returns to the sea.	Water cycle, evaporation, vapour, condenses, condensation, precipitation
Sound	1	Understand how we hear	To know that sound is something you can hear or that can be heard. To know we hear sound with our ears. To know a sound source is a source that produces sound when some part of it is vibrating. To know vibrations means that something moves quickly backwards and forwards and that sounds are made when something vibrates. To know how we hear: i..e banging a drum produces vibrations, the sound travels through the air to our ears, the vibrations cause parts of our body inside our ears to vibrate.	Sound, ear, sound source, vibrates
	2	Explore volume	To know that volume is how loud or quiet a sound is. To know that volume of a sound depends on the size of the vibrations. To know that the closer we are to a sound source, the louder it will be. To know the further away from the sound the fainter it will be.	Volume, loud, quiet, size of vibrations, sound source, fainter
	3	Investigate sound insulation	To know that as well as traveling through air (gas), sound can travel through solids and liquids. To know that sound insulation is a material which blocks sound effectively.	Travel, sound, insulation, material, protect

			To know we can wear ear defenders to protect our ears from very loud sounds.	
	4	Link sound with a musical instrument	To know that pitch is how high or low a sound is. To know that the longer bars on the xylophone make a lower sound. To know the shorter bars on the xylophone make a higher sound.	Pitch, low, high, lower, higher, xylophone
Electricity	1	Identify electrical appliances	To know that electricity is a form of energy used for lighting, heating, making sound and making machines work. To know that electrical appliances are machines or devices that run on electricity. To know that appliances can plug into the mains (kettle, laptop) or run on batteries (torch, moving toy). To know that mains are the electricity supplied to households from power stations.	Electricity, energy, appliances, power stations, supplied
	2	Identify the key components of a circuit	To know electrical circuits consist of a cell or battery connected to a component using wires. To know a cell and battery: cell is a single nit and a battery is a collection of cells. It needs to be a complete circuit to work. To know an electrical component is a part that combines with others to form a circuit To know the circuit will not work if the circuit is not complete (has a break in it). To know that examples of an electrical component are bulb, motor, buzzer. To know that a switch can be added to a circuit to turn a component on or off. To know a switch allows electricity to flow or stops it.	Circuit, cell, battery, component, wire, cells, bulb, motor, buzzer, flow, electricity
	3	Create a circuit using electrical components	To know electrical circuits consist of a cell or battery connected to a component using wires. To know a cell and battery: cell is a single nit and a battery is a collection of cells. It needs to be a complete circuit to work. To know an electrical component is a part that combines with others to form a circuit To know the circuit will not work if the circuit is not complete (has a break in it). To know that examples of an electrical component are bulb, motor, buzzer. To know that a switch can be added to a circuit to turn a component on or off. To know a switch allows electricity to flow or stops it.	Circuit, cell, battery, component, wire, cells, bulb, motor, buzzer, flow, electricity
	4	Understand conductors and insulators	To know a conductor is a material that allows electricity to pass through. To know that metals are good electrical conductors, such as iron, copper and steel. To know an insulator is a material that does not allow electricity to pass through it. To know that insulators include plastic, wood, rubber and glass.	Conductor, material, electricity, metal, insulator