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SCIENCE - LTP (Long Term Plan)

Biology	The study of living organisms and their structure, life-cycles, adaptations and environment
Chemistry	The study of the composition, behaviour and properties of matter, and elements of the Earth and its atmosphere
Physics	The study of energy, forces, mechanics, waves, the structure of atoms and the universe

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
FS1						Scientists and Inventors
FS2						Scientists and Inventors
Year 1	Animals including humans	Seasonal Change (Autumn & Winter)	Everyday Materials	Plants	Seasonal Change (Spring & Summer)	Scientists and Inventors
Year 2	Plants	Living Things and Their Habitat	Animals including humans	Properties and Uses of Everyday Materials	Living Things and Their Habitat (minibeasts)	Scientists and Inventors
Year 3	Rocks	Animals including humans	Forces and Magnet	Light	Plants	Scientists and Inventors
Year 4	Animals including humans	Sound	Electricity	Living Things and Their Habitat	States of matter	Scientists and Inventors
Year 5	Properties and Changes of Materials	Earth and Space	Forces	Living Things and Their Habitat	Animals including humans	Scientists and Inventors

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Year 6	Light	Electricity	Living Things and Their Habitat	Animals including humans	Evolution and Inheritance	Scientists and Inventors

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
FS1	Name parts of the human body: *head, arms, legs, back, neck, elbows, shoulders, knees, feet* Understand and name different weather Know there are four seasons and describe changes (AUTUMN) Recognise and name common animals and insects (PETS): *dog, cat, fish, hamster.* *Woodland- hedgehog, squirrel, rabbit, fox, badger*	Understand and name different weather Know there are four seasons and describe changes (WINTER)	Explore collections of materials with similar and/or different properties Talk about similarities and differences between materials (HARD/SOFT) Name further body parts: *Eyes, ears, nose, hands and mouth*	Identify a plant and understand what it needs to survive: *Water, light, food* Recognise and name common animals and insects (FARM): *pig, cow, sheep, horse, hen, duck. Insects- spider, caterpillar, butterfly, ladybird, fly, ant, bee*	Understand and name different weather Know there are four seasons and describe changes (SPRING) Talk about similarities and differences between materials (SHINY/NOT SHINY)	Identify and name everyday materials *Wood, plastic, glass and metal* Talk about similarities and differences between materials (BUMPY/SMOOTH) Talk about different forces they can feel/ produce *lifting, pulling, pushing, twisting* Forces they can feel on their bodies *swings, wobble board, slides* Investigate push and pull Know there are four seasons and

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						describe changes (SUMMER)
FS2	Name parts of the body *Head, arms, legs, back, neck, elbows, shoulders, knees, feet, hands, eyes, ears, mouth, nose* Understand different seasons have different weather (AUTUMN) Children recognise and name common animals and insects *Dog, cat, fish, hamster, woodland- hedgehog, squirrel, rabbit, fox, badger*	Recognise and name common animals (FARM) *Pig, cow, sheep, horse, hen, duck* Identify and name baby animals *Piglet, calf, duckling, chick, foal, puppy and kitten* Know where animals live and what type of environment they need – FARM Identify and name everyday materials – wood, plastic, glass and metal	Recognise and name prehistoric animals – sort into dinosaur/non dinosaur CARNIVORE and HERBIVORE to describe dinosaur diet Know the role of a scientist – paleontologist Name common animals in the arctic *Polar bear, penguin, whale, walrus* Know where animals live/environment – ARCTIC Explore changes in the season – WINTER	Describe what humans need to grow and stay healthy Identify healthy and unhealthy foods Know how to keep healthy (food and exercise) Discuss keeping teeth healthy → egg shell experiment Know where animals live/environment they need to live – JUNGLE Explain diet of jungle animals Talk about similarities/differences between	Identify a plant and understand it is a living thing Describe what plants need to survive *Water, light and food* Name parts of a plant → Grow a bean plant Name common insects in the UK *spider, caterpillar, butterfly, ladybird, fly, ant, bee* Know where animals live/environment they need to live Understand how certain animals grown and discuss	Identify and sort materials based on properties and results from experiments (FLOAT/SINK and HARD/SOFT) Understand why certain materials are better to use (WATERPROOF) Identify that object are made of different materials and name objects made of wood, metal and plastic Order the seasons, talk about similarities/differences and compare all 4 Recognise and name common sea creatures

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			Notice what happens to puddles when it's cold Low temperature can cause freezing + warm temperature can lead to melting Name 5 senses: *sight, hear, smell, touch and taste* Use different vocabulary to describe taste *Sweet, sour, salty* Science experiment – volcanic eruption	materials (SHINY/NOT SHINY) Explore how magnets work and experiment magnetic/non-magnetic materials Understand different seasons have different weather (SPRING)	life cycle – BUTTERFLY	*Whale, dolphin, fish, octopus, jellyfish, starfish*
Year 1	Animals including humans • identify and name a variety of common animals including **fish, amphibians, reptiles, birds and mammals** • identify and name a variety of common animals that are **carnivores, herbivores and omnivores**	Seasonal Change (Autumn & Winter) • observe changes across the 4 seasons • observe and **describe weather associated** with the seasons and **how day length varies**	Everyday Materials • **distinguish between** an **object** and the **material** from which it is made • identify and name a variety of **everyday materials, including wood, plastic, glass, metal, water, and rock**	Plants • identify and name a variety of **common wild** and **garden** plants, including deciduous and evergreen trees • **identify and describe the basic structure** of a variety of common flowering plants, including trees	Seasonal Change (Spring & Summer) • observe changes across the 4 seasons • observe and **describe weather associated** with the seasons and **how day length varies**	Scientists and Inventors

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	• **describe and compare the structure** of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) • identify, name, draw and **label the basic parts of the human body** and say which part of the body is associated with each sense		• describe the **simple physical properties** of a variety of everyday materials • **compare and group** together a variety of everyday materials on the basis of their simple **physical properties**			
Year 2	Plants • observe and describe **how** seeds and bulbs **grow into mature plants** • find out and describe how plants need **water, light** and a **suitable temperature** to grow and stay healthy	Living Things and Their Habitat • explore and **compare** the differences between things that are **living, dead, and things that have never been alive** • identify that most living things live in **habitats to which they are suited** and describe 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 including humans • notice that animals, including humans, have **offspring which grow into adults** • find out about and describe the **basic needs of animals**, including humans, for survival (**water**, **food** and **air**) • describe the importance for humans to **exercise**, **eating** the right amounts of different types of food, and **hygiene**	Properties and Uses of Everyday Materials • identify and **compare the suitability** of a variety of everyday materials, including **wood, metal, plastic, glass, brick, rock, paper and cardboard** for particular uses • find out how the **shapes of solid objects** made from some materials can be changed by **squashing**, **bending**, **twisting** and **stretching**	Living Things and Their Habitat *(Biodiversity – minibeasts)*	Scientists and Inventors

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		animals in their habitats, including microhabitats • describe how animals **obtain their food** from plants and other animals, using the idea of a **simple food chain**, and identify and name **different sources of food**				
Year 3	Rocks • **compare and group** together different kinds of rocks on the basis of their **appearance** and **simple physical properties** • describe in simple terms **how fossils are formed** when things that have **lived are trapped within rock** • recognise that **soils** are made from **rocks and organic matter**	Animals including humans • identify that animals, including humans, need the **right types and amount** of **nutrition**, and that they cannot make their own food; they **get nutrition from what they eat** • identify that humans and some other animals have **skeletons and muscles for support**, **protection** and **movement**	Forces and Magnet • compare **how things move on different surfaces** • notice that some forces need contact between 2 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	Light • 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 an opaque object	Plants • 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 (**air, light, water, nutrients from soil, and room to grow)** 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	Scientists and Inventors

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			some **magnetic materials** • describe magnets as having **2 poles** • predict whether 2 magnets will **attract or repel** each other, depending on **which poles are facing**	• **find patterns** in the way that the **size of shadows change**	**pollination**, **seed formation** and **seed dispersal**	
Year 4	Animals including humans • 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**	Sound • 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**	Electricity • 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 **buzzers** • **identify whether or not 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 • **recognise** that a **switch opens and closes a circuit** and associate this with whether or not a	Living Things and Their Habitat • recognise that living things can be **grouped in a variety of ways** • explore and use **classification keys** to help group, 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**	States of matter • **compare and group materials** together, according to whether they are **solids, liquids** or **gases** • 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 (°C) • identify the part played by **evaporation** and **condensation** in the **water cycle** and associate the **rate of evaporation** with temperature	Scientists and Inventors

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		as the **distance** from the sound source **increases**	**lamp lights** in a simple series circuit • recognise some **common conductors** and **insulators**, and **associate metals** with being **good conductors**			
Year 5	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** • know that some materials will **dissolve** in liquid to **form a solution**, and describe how to **recover a substance from a solution** • use knowledge of **solids**, **liquids** and **gases** to decide **how mixtures might be separated**, including through **filtering**, **sieving** and **evaporating** • give **reasons**, based on evidence from comparative and fair tests, **for the particular uses of** everyday	Earth and Space • 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	Forces • 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**	Living Things and Their Habitat • 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**	Animals including humans • describe the **changes** as **humans develop to old age**	Scientists and Inventors

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	materials, including **metals, wood** and **plastic** • demonstrate that **dissolving**, **mixing** and **changes of state** are **reversible** changes • 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					
Year 6	Light • 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**	Electricity • associate the **brightness of a lamp** or the **volume of a buzzer** with the **number** and **voltage of cells** used in the circuit • 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**	Livings Things and Their Habitat • **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**	Animals including humans • 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**	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 • recognise that living things **produce offspring of the same kind**, but normally offspring vary and are not identical to their parents • identify how **animals and plants are adapted to suit their environment** in	Scientists and Inventors

	the same shape as the objects that cast them	• use **recognised symbols** when **representing a simple circuit** in a diagram		**animals**, including humans	different ways and that **adaptation may lead to evolution**	