## Subject: Science Long Term Plan (Showing Catch Up for 2020-2021)

'Science is fun. Science is curiosity. We all have natural curiosity. Science is a process of investigating. It's posing questions and coming up with a method. It's delving in.' Sally Ride

### Subject Intent:

- Encourage a sense of excitement and scientific curiosity.
- Encourage children to be independent, enquiring learners that pose their own questions, know ways to investigate these and form their own conclusions.
- Equip children with the scientific knowledge required to understand the uses and implications of Science.
- To widen children's horizons to understand the uses and implications of science, today and for the future.

### National Curriculum States – Purpose of study:

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.

EYFS and KS1

| | Term 1 | Term 2 | Term 3 | Term 4<br>British Science Week (focus on the impact of Science around us and in future job opportunities) | Term 5 | Term 6 |
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| EYFS<br><br>Class England | **Me and my family** | **Our local area** | **Toys** | **Weather and seasons**<br>**Links to EYFS Understanding of the World Term 4** | **People** | **Plants: How they grow**<br>**Links to EYFS Understanding of the World Term 4** |
| Knowledge | -To know similarities between living things.<br>-To know differences between living things. | -To know living things which can be found in their environment.<br>- To know differences between their own environments and other children's. | -To know similarities between objects and materials.<br>-To know differences between objects and materials. | -To know weather changes through the year.<br>-To know what can be found in their environment and how their environment changes. | -To know similarities and differences between humans.<br>-To know what they eat and how that can be different from person to person. | -To know how plants change over time.<br>-To know plants found in their own environment. |
| Skills | • Sort simple observations into what they think is similar and what is different. | • Make simple observations of their own environment.<br>• Ask simple questions. | • Explain similarities and differences. | • Ask simple questions.<br>• Make simple observations. | • Talk about changes.<br>• Make simple observations | • Explain why some things occur.<br>• Make simple observations. |

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| Vocabulary | Babies, toddlers, children, eyes, hair, height | Animal, habitat, minibeasts | Material, fluffy, soft, shiny, smooth, hard | Sun, clouds, wind, rain, snow, ice | Tall, small, middle sized, big, bigger, biggest, thin, long legs, long arms, girl, boy | Flower, plant, vegetables, energy, growth |
| | Term 1 | Term 2 | Term 3 | Term 4 | Term 5 | Term 6 |
| Year 1<br><br>Class France | **Seasonal Changes: Autumn**<br>*To observe and comment on changes in seasons including weather and length of the day.*<br><br>**Everyday Materials**<br>*Identify and name everyday materials, group based on physical features.* | **Seasonal Changes: Winter**<br><br>*To observe and comment on changes in seasons including weather and length of the day.*<br><br>→ | Links to PSHE Year 1 Term 4.<br><br>**Catch Up: Humans (EYFS)**<br>*Similarities and differences between humans and to know what humans eat*<br><br>**Animals including Humans**<br>*Name a variety of animals, classify using carnivore, omnivore and herbivore, sort into fish, amphibians, birds, reptiles and mammals and name parts of the human body you can see.* → | **Catch Up: Weather (EYFS)**<br>*To know that weather changes throughout the year (revisiting weather in Autumn and Winter from Autumn Term Y1 learning)*<br><br>*Weather in Spring (link to Seasonal Changes learning this term)*<br><br>**Seasonal Changes: Spring**<br>*To observe and comment on changes in seasons including weather and length of the day.* → | Links to EYFS Term 6.<br><br>**Catch Up: Plants (EYFS)**<br>*simple plant parts, how they change over time and plants found in their environment*<br><br>**Plants**<br>*To name variety of common wild and garden plants, name petal, stem, leaf and root and name roots, trunk and leaves of a tree.* | **Seasonal Changes: Summer**<br>*To observe and comment on changes in seasons including weather and length of the day.*<br><br>→ |
| Knowledge | **Seasonal Changes: Autumn**<br>-To know in the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day | **Seasonal Changes: Winter**<br>-To know in the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. | **Catch Up: Humans (EYFS)**<br>*-To know similarities and differences between humans.*<br>*-To know what they eat and how that can be* | **Catch Up: Weather (EYFS)**<br>-To know weather changes through the year.<br>-To know what can be found in their environment and how | **Catch Up: Plants: How they Grow (EYFS)**<br>*-To know how plants change over time.*<br>*-To know plants found in their own environment.* | **Seasonal Changes: Summer**<br>-To know in the UK, the day length is longest at mid-summer.<br>-To know the weather also changes with the |

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| | until mid-winter (about 8 hours) before getting longer again.<br>-To know the change in weather causes many other changes; leaves on trees and type of clothes worn by people.<br>-To know the Earth orbits the Sun with one orbit constituting a year of 365/366 days.<br><br>**Everyday Materials**<br>-To know all objects are made of one or more materials.<br>-To know some objects can be made from different materials.<br>-To know materials can be described by their properties. | -To know in the UK, it is usually colder and rainier in Winter.<br>- To know that the Earth orbits the Sun with one orbit constituting a year of 365/366 days. | *different from person to person.*<br><br>**Animals**<br>**-**To know animals vary in many ways having different structures. They also have different skin coverings. These key features can be used to identify them.<br>-To know animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.<br>-To know carnivores eat other animals not just meat | their environment changes.<br><br>**Seasonal Changes: Spring**<br>-To know change of weather causes other changes eg number of mini beasts found outside and seed and plant growth.<br><br>**Humans**<br>-To know humans have keys parts in common, but these vary from person to person. (Link to PHSE SRE)<br>-To know humans (and other animals) find out about the world using their senses.<br>-To know humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body. | **Plants**<br>-To know growing locally there will be a vast array of plants which all have specific names. (Local Link)<br>-To know these can be identified by looking at the key characteristics of the plant.<br>-To know plants have common parts but they vary between the different types of plants.<br>-To know some trees keep their leaves all year whilst other trees drop their leaves during autumn and grow them again during spring. (Link to Seasonal Changes – Autumn) | seasons –hotter and dryer in the summer. |
| Skills | **Seasonal Changes: Autumn**<br><br>• *record simple data* | As per Term 1 | **Catch Up: Humans (EYFS)**<br>• Talk about changes.<br>• Make simple observations | **Catch Up: Weather (EYFS)**<br>• Ask simple questions.<br>• Make simple observations. | **Catch Up: Plants: How they Grow (EYFS)**<br>• Explain why some things occur. | • Use secondary sources to find answers. |

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| | • *talk about what they have found out*<br><br>**Everyday Materials**<br><br>• ***I****dentify and classify*<br>• *Perform simple tests* | | **Animals including Humans**<br>• *Record simple data.*<br>• *Identify and classify (animals in different groups by features, what they eat etc)*<br>• *Use simple secondary sources to find answers* | **Seasonal Changes: Spring**<br>• *Ask simple questions.*<br>• *Perform simple tests.*<br>• *Talk about what they have found out.* | • Make simple observations.<br>**Plants (Year 1)**<br>• *Record simple data.*<br>• *Identify and classify.* | • Talk about what they have found out. |
| Vocabulary | **Seasonal Changes: Autumn**<br>sun, sunrise, sunset, day length, Autumn<br><br>**Everyday Materials**<br>object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, absorption, matter, property | **Seasonal Changes: Winter**<br>day length, Winter, snowy, windy, rainy | **Catch Up: Humans (EYFS)**<br>*tall, small, middle sized, big, bigger, biggest, thin, long legs, long arms, girl, boy*<br><br>**Animals**<br>Energy, growth, habitat, fish, amphibian, reptile, bird, mammal, offspring, carnivore, herbivore, omnivore, vertebrate, skeleton, organ, Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves | **Catch Up: Weather (EYFS)**<br>sun, clouds, wind, rain, snow, ice<br>**Seasonal Changes: Spring**<br>Spring, sunny, rainy, day length, sunrise and sunset.<br>**Humans**<br>senses, touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue | **Catch Up: Plants : How they Grow (EYFS)**<br>flower, plant, vegetables, energy, growth<br><br>**Plants (Year 1)**<br>leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud | **Seasonal Changes: Summer**<br>Summer, sunny, warm, hot, day length, sunrise and sunset |

| | Term1 | Term 2 and 3 | Term 4 | Term 5 and 6 | |
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| Year 2<br><br>Class Morocco | **Materials**<br>*Identify and name a range of materials, suggest why a material may or may not be used for a specific purpose and explain how shapes can be changed.* | **Living things and their habitats**<br>*Know the differences between living and dead, habitats suited to purpose, identify and name a variety of plants and animals including their habitats, explain how animal obtain their food – food chains.*<br>Links to Year 1 Term 3<br><br>**Catch Up: Weather and Habitat**<br>*Y2 Ongoing unit -1 week of weather and habitat observations per season or per half term: Spring* | **Catch-up:**<br><br>**Plants (Year 1)**<br>*To name variety of common wild and garden plants, name petal, stem, leaf and root and name roots, trunk and leaves of a tree.*<br><br>**Plants**<br>*Describe how seeds and bulbs grown into plants, describe what plants need in order to grow and stay healthy.*<br>Links to EYFS Term 6 and Year 1 Term 5 | **Animals including humans**<br>*To know the stages of a life cycle for animals including humans, basic needs, importance of exercise and hygiene for humans.* | |
| Knowledge | **Materials**<br>-To know all objects are made of one or more materials that are chosen specifically because they have suitable properties for the task.<br>-To know when choosing what to make an object from, the properties needed are | **Catch Up: Weather and Habitat (Year 1)**<br>- *observe and describe weather associated with the seasons and how day length varies.*<br>*observe changes across the four seasons*<br>- *observe changes across the four seasons*<br><br>**Living things and their Habitats**<br>-To know all objects are either living, dead or have never been alive.<br>-To know an object made of wood is classed as dead.<br>-To know objects made of rock, metal and plastic have never been alive. Link to Year 1 Everyday Materials and Year 2 Materials | **Catch Up: Plants (Year 1)**<br>-Identify and name a variety of common wild and garden plants including deciduous and evergreen trees.<br>-Identify and describe the basic structure of a variety of common flowering plants, including trees | **Animals**<br>-To know animals including humans have offspring which grow into adults. (Link to PHSE SRE)<br>-To know in humans and some animals these offspring will be young, such as babies or kittens, which grow into adults.<br>In other animals, such as chickens or insects, | **Humans**<br>-To know all animals including humans have basic needs of feeding, drinking and breathing that must be satisfied in order to survive, and to grow into healthy adults they also need the right amounts and types of food and exercise.<br>-To know good hygiene is also important in |

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| | compared with the properties of the possible materials.<br>-To know objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. | -To know animals and plants live in a habitat to which they are suited.<br>-To know the habitat provides the basic needs of the animals and plants – shelter, food and water.<br>-To know within a habitat there are different micro-habitats. These micro-habitats have different conditions. These conditions affect what plants and animals live there.<br>-To know the way that animals obtain their food from plants and other animals can be shown in a food chain. | **Plants (Year 2)**<br>-To know plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. -These mature plants may have flowers which then develop into seeds, berries, fruits etc.<br>-To know seeds and bulbs need to be planted outside at particular times of the year and they will germinate and grow at different rates.<br>-To know some plants are better suited to growing in full sun and some grow better in partial or full shade.<br>-To know plants also need different amounts of water and space to grow well and stay healthy. | there may be eggs laid that hatch to young or other stages which then grow to adults.<br>-To know the young of some animals do not look like their parents e.g. tadpoles. | preventing infections and illnesses. |
| Skills | • *Identify and classify*<br>• *Ask simple questions*<br>• *Perform simple tests* | **Catch Up: Weather and Habitat (Year 1)**<br>• *Observations of different weather, plants and habitats during different seasons.*<br>• *Children talk about what they have found*<br>• *Record simple data.*<br>**Living things and their Habitats**<br>• *Perform simple tests.*<br>• *Using simple secondary sources to find answers.* | • *Classify and identify*<br>• *Record simple data*<br>• *Talk about what they have found out.* | • *Ask simple questions.*<br>• *Use secondary sources to find answers.* | • *Classify and identify*<br>• *Perform simple tests.*<br>• *Talk about what they have found out.* |

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| | | • *Ask simple questions.* | | | |
| Vocabulary | Revision of Year 1<br>Names and properties of materials (as Year 1)<br><br>New Vocabulary<br>opaque, transparent and translucent, reflective, non-reflective, flexible, rigid<br>shape, push/pushing, pull/puling, twist/twisting, squash/squashing. bend/bending, stretch/stretching | **Catch Up: Weather and Habitat (Year 1)**<br>Spring, Autumn, Winter, Summer, sunny, rainy, day length, sunrise and sunset.<br><br>**Living things and their Habitats**<br>living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland etc., names of micro-habitats | Revision of Year 1<br>leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud<br><br>New Vocabulary<br>light, shade, sun, warm, cool, water, grow, healthy | offspring, reproduction, growth, child, young/old stages | exercise, heartbeat, breathing, hygiene, germs, disease, food types |

KS2

| | Term 1 | Term 2 | Term 3 | Term 4<br>British Science Week<br>British Science Week (focus on the impact of Science around us and in future job opportunities) | Term 5 | Term 6 |
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| Year 3<br><br>Class China | **Rocks and Soils**<br>To compare and group rocks, formation of fossils and soil, differences between types of rock. | **Forces and Magnets**<br>To make comparisons between forces, magnetic force, repel or attract, how objects move on different surfaces. | **Light**<br>To know that reflections, shadow, light sources, dangers of direct sunlight. | **Catch-up: Plants (Year 2)**<br>*Describe how seeds and bulbs grown into plants, describe what plants need in order to grow and stay healthy.*<br><br>**Plants**<br>*To describe function of different parts of flowering plants, explore and describe needs of plants for survival, describe plant life cycle and water transportation.*<br>Links with Year 1 Term 5 and 2 Term 4. | **Catch-up: Animals (Year 2)**<br>*To know the stages of a life cycle for animals including humans, basic needs, importance of exercise and hygiene for humans.*<br><br>**Animals including humans**<br>To know the importance of nutritious balanced diet, transportation of nutrients, water and oxygen, describe and explain the skeletal and muscular system and purpose of skeletons in humans and animals. | |
| Knowledge | -To know rock is a naturally occurring material. | -To know a force is a push or a pull.<br>-To know when an object moves on a surface, the | -To know dark is the absence of light. | **Plants (Year 2)**<br>*-find out and describe how plants need water, light and a suitable* | **Animals including Humans (Year 2)**<br>-To know in humans and some animals these offspring will be young, such as babies or kittens, which grow into adults. | |

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| | -To know there are different types of rock which have different properties.<br>-To know rocks can be different shapes and sizes.<br>-To know soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter).<br>-To know some rocks contain fossils.<br>-To know fossils were formed millions of years ago. | texture of the surface and the object affect how it moves.<br>-To know magnets have two poles – a north pole and a south pole.<br>-To know if two like poles e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles e.g. a north and south, are brought together they will pull together – attract.<br>-To know for some forces to act there must be contact. | -To know we cannot see anything in complete darkness.<br>-To know some objects, for example the sun, light bulbs and candles are sources of light.<br>-To know some surfaces reflect light.<br>-To know objects are easier to see when there is less light if they are reflective.<br>-To know the light from the sun can damage our eyes.<br>-To know shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light.<br>-To know the size of the shadow depends on the position of the source, object and surface. | *temperature to grow and stay healthy.*<br>*-observe and describe how seeds and bulbs grow into mature plants*<br><br>**Plants (Year 3)**<br>-To know many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom.<br>-To know the roots absorb water and nutrients from the soil and anchor the plant in place.<br>-To know the stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal.<br>-To know the leaves use sunlight and water to produce the plant's food. Some plants produce flowers which enable the plant to reproduce.<br>-To know the process of the plant lifecycle. | In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults.<br>-To know the young of some animals do not look like their parents e.g. tadpoles.<br><br>**Animals including Humans (Year 3)**<br>To know animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need.<br>Link to food groups from Year 2.<br>-To know food contains a range of different nutrients that are needed by the body to stay healthy.<br>-To know a piece of food will often provide a range of nutrients.<br>-To know humans and some other animals have skeletons and muscles which help them move and provide protection and support. |
| Skills | • *Ask relevant scientific questions* | • *Set up a fair test.* | • *Ask relevant scientific questions* | **Plants (Year 2)**<br>• *Observe plants in different* | **Animals including Humans (Year 2)** |

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| | • *Use observations and knowledge to answer scientific questions*<br>• *Set up a simple enquiry.*<br>• *Use secondary sources to answer questions.* | • *Make careful and accurate observations.*<br>• *Gather, record, classify and present* | • *Use observations and knowledge to answer scientific questions*<br>• *Set up a test to compare two things.*<br>• *Use equipment to make measurements* | *conditions (little/no water, no light, warm place or cold place).*<br>• *To talk about how seeds and bulbs grow into mature plants.*<br>**Plants (Year 3)**<br>• *Use observations and knowledge to answer scientific questions*<br>• *Gather, record, classify and present* | • *Use secondary sources to find out about what animals (including humans) need to survive.*<br>• *Perform simple tests to investigate the effect of exercise on our bodies*<br><br>**Animals including Humans (Year 3)**<br>• *Ask relevant scientific questions*<br>• *Use observations and knowledge to answer scientific questions*<br>• *Set up a fair test.*<br>• *Make careful and accurate observations.*<br>• *Use equipment to make measurements* |
| Vocabulary | Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil | Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole | Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous | **Plants (Year 3)**<br>leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud<br><br>New Vocabulary<br>light, shade, sun, warm, cool, water, grow, healthy<br>Revision of Year 1 and 2<br>leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, light, shade, sun, warm, | **Animals including Humans (Year 2)**<br>offspring, reproduction, growth, child, young/old stages<br>exercise, heartbeat, breathing, hygiene, germs, disease, food types<br><br>**Animals including Humans (Year 3)**<br>Revision of Year 2<br>exercise, heartbeat<br><br>New Vocabulary<br>Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints |

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| | | | | cool, water, grow, healthy<br><br><u>New Vocabulary</u><br>Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal | |
| | Term 1 | Term 2 | Term 3 | Term 4 | Term 5 and 6 |
| Year 4<br><br>Class Chile | **States of Matter**<br>To group materials based on solids, liquids or gases, describe changes of state, measure temperature with changes of state, describe water cycle. | **Electricity**<br>To identify common appliances, circuit construction, switches, conductors and insulators. | **Sound**<br>To describe how sound is made, pitch and patterns, volume and strength of vibrations, describe distance of sound and effects. | **Catch up: Plants (Year 3)**<br>*To describe function of different parts of flowering plants, explore and describe needs of plants for survival, describe plant life cycle and water transportation.*<br><br>**Living things and their Habitats**<br>To group living things using classification keys, create keys and describe how changes to the environment endanger living things.<br>Link to Year 2 Term 2 and 3. | **Catch up: Humans (Year 3)**<br>*To know the importance of nutritious balanced diet, transportation of nutrients, water and oxygen, describe and explain the skeletal and muscular system and purpose of skeletons in humans*<br><br>**Animals including humans**<br>To identify and name parts of the digestive system, describe functions of organs in the digestive system, identify and describe different teeth in humans, use food chains – producer, predator and prey. |
| Knowledge | -To know a solid keeps its shape and has a fixed volume. | -To know many household devices and appliances run on electricity. | -To know a sound source produces vibrations which travel through a | **Plants (Year 3)**<br>-To know many plants, but not all, have roots, | **Humans (Year 3)** Link to food groups from Year 2. |

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| | -To know a liquid has a fixed volume but changes in shape to fit the container.<br>-To know a liquid can be poured and keeps a level, horizontal surface.<br>-To know a gas fills all available space; it has no fixed shape or volume.<br>-To know melting is a state change from solid to liquid.<br>-To know freezing is a state change from liquid to solid.<br>-To know the freezing point of water is 0°C.<br>-To know boiling is a change of state from liquid to gas.<br>-To know water boils when it is heated to 100°C.<br>-To know evaporation is the same state change as boiling (liquid to gas) but it happens slowly at lower temperatures and only at the surface of the liquid.<br>-To know condensation is the change back from a gas to a liquid caused by cooling.<br>- To know the process of the water cycle. | -To know an electrical circuit consists of a cell or battery connected to a component using wires.<br>-To know if there is a break in the circuit, a loose connection or a short circuit the component will not work.<br>-To know a switch can be added to the circuit to turn the component on and off.<br>-To know metals are good conductors so they can be used as wires in a circuit.<br>-To know non-metallic solids are insulators except for graphite (pencil lead).<br>-To know water, if not completely pure, also conducts electricity. | medium from the source to our ears.<br>-To know different mediums such as solids, liquids and gases can carry sound but sound cannot travel through a vacuum.<br>-To know the vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound.<br>-To know the loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium.<br>-To know a sound insulator is a material which blocks sound effectively.<br>-To know pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. | stems/trunks, leaves and flowers/blossom.<br>-To know the roots absorb water and nutrients from the soil and anchor the plant in place.<br>-To know the stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal.<br>-To know the leaves use sunlight and water to produce the plant's food. Some plants produce flowers which enable the plant to reproduce.<br>-To know the process of the plant lifecycle.<br>**Living Things and their Habitat (Year 4)**<br>To know living things can be grouped (classified) in different ways according to their features.<br>-To know living things live in a habitat which provides an environment to which they are suited. | -To know food contains a range of different nutrients that are needed by the body to stay healthy.<br>-To know a piece of food will often provide a range of nutrients.<br>-To know humans and some other animals have skeletons and muscles which help them move and provide protection and support.<br><br>**Animals including Humans**<br>To know food enters the body through the mouth.<br>-To know digestion starts when the teeth start to break the food down.<br>-To know the food is swallowed and passes down the oesophagus to the stomach.<br>-To know here the food is broken down further by being churned around and other chemicals are added. -The food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body.<br>-To know the rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet.<br>-To know humans have four types of teeth - incisors for cutting, canines for tearing, molars and premolars for grinding (chewing).<br>-To know living things can be classified as producers, predators and prey according to their place in the food chain. |

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| | | | | -To know these environments may change naturally.<br>-To know humans also cause the environment to change. This can be in a good way i.e. positive human impact, such as setting up nature reserves or in a bad way i.e. negative human impact, such as littering.<br>-To know these environments also change with the seasons; different living things can be found in a habitat at different times of the year. | |
| Skills | • *Ask relevant scientific questions*<br>• *Use equipment to make measurements*<br>• *Make careful and accurate observations*<br>• *Set up a fair test.*<br>• *Set up a test to compare two things.* | • *Ask relevant scientific questions*<br>• *Use observations and knowledge to answer scientific questions*<br>• *Set up a simple enquiry.* | • *Set up a simple enquiry.*<br>• *Make careful and accurate observations.*<br>• *Use equipment to make measurements* | • *Gather, record, classify and present*<br>• *Use secondary sources to answer questions.* | • *Gather, record, classify and present*<br>• *Set up a simple enquiry.*<br>• *Use observations and knowledge to answer scientific questions* |
| Vocabulary | Solid, liquid, gas, state change, melting, freezing, melting point, boiling | Electricity, electrical appliance/device, mains, plug, electrical circuit, | Sound, source, vibrate, vibration, travel, pitch | Classification, classification keys, environment, habitat, | Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, |

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| | point, evaporation, temperature, water cycle | complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol | (high, low), volume, faint, loud, insulation | human impact, positive, negative, migrate, hibernate<br><br>**Year 3 Plants Catch Up**<br>leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud | canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain |
| | Term 1 | Term 2 | Term 3 | Term 4 | Term 5 and 6 |
| Year 5<br><br>Class India | **Properties and changes of Materials**<br>To compare and group, dissolve, separation of mixtures, comparative testing, reversible and irreversible changes of state. | **Forces**<br>To know that gravity, air resistance, water resistance, friction, levers, pulleys and gears. | **Earth and Space**<br>To describe movement of earth and other planets relative to the sun, describe movement of the moon relative to the earth, demonstrate night and day. | **Catch up:**<br>**Digestive system**<br>**Teeth, different types and their function in humans**<br>**Food Chains- producers, predators and prey**<br>**(Teach as Stand-alone 3 lessons)**<br>**Year 4**<br><br>**Animals including humans**<br>Timeline of stages of growth in humans.<br>Link to Year 5 PSHE Term 4. | **Living things and their habitats**<br>To know that life cycle of different living things, process of reproduction in plants and animals. |
| Knowledge | -To know materials have different uses depending on their properties and state (liquid, solid, gas).<br>-To know properties include hardness, | -To know a force causes an object to start moving, stop moving, speed up, slow down or change direction. | -To know the Sun is a star. It is at the centre of our solar system.<br>-To know there are 8 planets. | **Digestive System, Teeth and Food Chains Catch Up Year 4**<br>To know food enters the body through the mouth. | -To know as part of their life cycle plants and animals reproduce.<br>-To know most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. |

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| | transparency, electrical and thermal conductivity and attraction to magnets.<br>-To know some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment.<br>-To know some changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible. | -To know gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity.<br>-To know air resistance, water resistance and friction are contact forces that act between moving surfaces.<br>-To know a mechanism is a device that allows a small force to be increased to a larger force.<br>-To know pulleys, levers and gears are all mechanisms, also known as simple machines. | -To know these travel around the Sun in fixed orbits.<br>-To know Earth takes 365¼ days to complete its orbit around the Sun.<br>-To know the Earth rotates (spins) on its axis every 24 hours. -As Earth rotates half faces the Sun (here it is day) and half is facing away from the Sun (night).<br>-To know the Moon orbits the Earth. It takes about 28 days to complete its orbit. | -To know digestion starts when the teeth start to break the food down.<br>-To know the food is swallowed and passes down the oesophagus to the stomach.<br>-To know here the food is broken down further by being churned around and other chemicals are added. -The food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body.<br>-To know the rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet.<br>-To know humans have four types of teeth - incisors for cutting, canines for tearing, molars and premolars for grinding (chewing).<br>-To know living things can be classified as | -To know animals including humans have offspring which grow into adults.<br>-To know in humans and some animals these offspring will be born live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults. Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis.<br>-To know plants reproduce both sexually and asexually.<br>-To know sexual reproduction occurs through pollination, usually involving wind or insects. |

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| | | | | producers, predators and prey according to their place in the food chain.<br><br>**Animals including Humans (Year 5)**<br>To know when babies are young they grow rapidly.<br>-To know they are very dependent on their parents.<br>-To know as they develop they learn many skills.<br>-To know at puberty, a child's body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce. | |
| Skills | • *Plan different types of scientific enquiry*<br>• *Record data and results using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs* | • *Plan different types of scientific enquiry*<br>• *Measure accurately using a range of equipment*<br>• *Explain conclusions*<br>• *Use secondary sources for research.* | • *Report findings in different ways*<br>• *Read, spell and pronounce scientific vocabulary*<br>• *Use secondary sources for research* | ***Taught as instructional rather than skills*** | • *Plan different types of scientific enquiry*<br>• *Control variables*<br>• *Relate the outcome of an enquiry to scientific knowledge* |

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| | • *Use the outcome of test results to make predictions and set up a comparative fair test*<br>• *Explain causal relationships* | | | | | |
| Vocabulary | Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve reversible/non-reversible change, burning, rusting, new material | Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears<br>Link to Year 3 Term 2. | Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune) spherical, solar system, rotates, star, orbit, planets | Puberty: the vocabulary to describe sexual characteristics<br><br>**Catch Up Year 4 Digestive System, Teeth and Food Chains**<br>digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain | Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings | |
| | Term 1 | Term 2 | Term 3 and 4 | | Term 5 | Term 6 |
| Year 6<br><br>Class USA | **Evolution and Inheritance**<br>To understand the change of living things, fossils, offspring, genetics and evolution. | **Light**<br>To know how light travels, shadows and their shape the same as the object, explain how optical instruments work – periscope, telescope, binoculars. | **Electricity (Link with DT Project)**<br>To know the voltage of cell, compare and reason about variations in how components function and draw circuit diagrams using correct symbols.<br><br>**Catch up:**<br>**Gestation with Sex and Relationships Term 4 PSHE** | | **Living things and their habitats**<br>To classify into broad groups, describe how classified and give reasons. | **Animals including humans**<br>To identify and name main parts of the human circulatory system, function of heart, blood vessels and blood, discuss impact of |

| | | | Living Things and their Habitats | | exercise, diet and drugs on health. |
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| Knowledge | -To know that all life on Earth began from a single point around 4.5 billion years ago.<br>-To know living things changes over time and that this gradual change is called evolution.<br>-To know natural selection is the cause of this change; natural selection works as across a species there is natural variation within a species; there is also competition to survive and reproduce and that members of a species with advantageous characteristics survive and reproduce - these characteristics are passed down to their offspring.<br>-To know offspring vary and are not identical to their parents.<br>-To know Charles Darwin posited this theory of evolution by natural selection.<br>-To know the gradual change of species over millions of years can be observed by looking at examples of fossil. | -To know light appears to travel in straight lines and we see objects when light from them goes into our eyes.<br>-To know the light may come directly from light sources but for other objects some light must be reflected from the object into our eyes for the object to be seen.<br>-To know objects that block light (are not fully transparent) will cause shadows.<br>-To know because light travels in straight lines the shape of the shadow will be the same as the outline shape of the object. | **Electricity (Year 6)**<br>-To know adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound.<br>-To know if you use a battery with a higher voltage, the same thing happens.<br>-To know adding more bulbs to a circuit will make each bulb less bright.<br>-To know using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter.<br>-To know turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well.<br>-To know how to use recognised circuit symbols to draw simple circuit diagrams.<br><br>**Living Things and their Habitats Catch Up (Year 5)**<br>-To know as part of their life cycle plants and animals reproduce.<br>-To know most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg.<br>-To know animals including humans have offspring which grow into adults.<br>-To know in humans and some animals these offspring will be born live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults. Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis. | -To know living things can be formally grouped according to characteristics.<br>-To know plants and animals are two main groups but there are other livings things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms.<br>-To know animals can be divided into two main groups – vertebrates and invertebrates.<br>-To know vertebrates can be divided into five small groups – fish, amphibians, reptiles, birds and mammals.<br>-To know invertebrates can be divided into a number of groups including insects, spiders, snails and worms. | -To know the heart pumps blood in the blood vessels around to the lungs.<br>Oxygen goes into the blood and carbon dioxide is removed.<br>The blood goes back to the heart and is then pumped around the body.<br>-To know nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed. As they are used they produce carbon dioxide and other waste products.<br>-To know carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body.<br>This is the human circulatory system.<br>-To know diet, exercise, drugs and lifestyle have an impact on the way our bodies function. |

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| | | | -To know plants reproduce both sexually and asexually.<br>-To know sexual reproduction occurs through pollination, usually involving wind or insects. | -To know plants can be divided broadly into two main groups – flowering plants and non-flowering plants. | |
| Skills | • *Use secondary sources for research.*<br>• *Report findings in different ways*<br>• *Read, spell and pronounce scientific vocabulary* | • *Measure accurately using a range of equipment*<br>• *Explain conclusions*<br>• *Relate the outcome of an enquiry to scientific knowledge* | • *Plan different types of scientific enquiry*<br>• *Control variables*<br>• *Use the outcome of test results to make predictions and set up a comparative fair test*<br>• *Explain causal relationships* | • *Record data and results using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs*<br>• *Use secondary sources for research* | • *Plan different types of scientific enquiry*<br>• *Record data and results using scientific diagrams and labels, classification keys, scatter graphs, bar and line graphs*<br>• *Relate the outcome of an enquiry to scientific knowledge* |
| Vocabulary | Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, natural selection, inherited, species, fossils<br>Link to Year 3 Term 1 | As for year 3 plus straight lines, light rays. | Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage<br><br>**Year 5 Catch Up Living Things and their Habitat**<br>life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings | Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering | Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle |