Trafalgar Community Infant School Science Long Term Progression Plan			
AUTUMN TERM	**Reception**	**Year 1**	**Year 2**
Knowledge (Substantive) and Experiences	Cumulative knowledge by the end of Yr R: • Talk about members of their immediate family and community. • Name and describe people who are familiar to them. • Draw information from a simple map. • Explore the natural world around them. • Describe what they see, hear and feel whilst outside. • Understand the effect of changing seasons on the natural world around them. • Look for minibeasts in different areas of the school grounds. • Look for plants in different areas of the school grounds. • Name and describe plants and animals they find in the school grounds. **Humans:** • Describe people who are familiar to them. • Learn about how to take care of themselves. **Seasonal Changes:** • Play and explore outside in all seasons and in different weather. • Observe living things throughout the year.	By the end of the Autumn Term, children in Year 1 will know and be able to: **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 • Describe the simple physical properties of a variety of everyday materials- understanding that physical properties means 'a characteristic of an object that you can measure or observe with at least one of your five senses.' Examples of observable physical properties are color, size, shape, smell, and form (e.g. liquid, solid, or gas). Physical properties that you can measure include weight and temperature. • Compare and group together a variety of everyday materials on the basis of their simple physical properties- understanding that comparing means 'looking at similarities and differences.' • Know classifying means 'grouping.' **Seasonal Changes:** • observe changes across the four seasons • describe weather associated with the seasons and how day length varies.	By the end of the Autumn Term, children in Year 2 will know and be able to: **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- understanding that a solid is firm and stable in shape; not liquid or fluid. **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 of exercise, eating the right amounts of different types of food, and hygiene- understanding hygiene is an activity to keep healthy and clean.

	Light: • explore shadows • explore rainbows **Living Things and their habitats:** • explore the plants in the surrounding natural environment. • explore the animals in the surrounding natural environment.		
SKILLS (Working Scientifically)	**Classification:** Which clothes are suitable for each season? Sort images of people according to their characteristics. Which objects/materials make dark shadows? **Observing over time:** How does a puddle change over time? How do the Sun and shade change during the day? How does a toy's shadow change during the day? How does a snowman change as it melts? How does the natural world change with the seasons? **Comparative testing:** Compare the shape of shadows made by different objects. Researching using secondary sources- learning that a secondary source is a document, text, image or object created by someone. Find out about how animals behave in different seasons. Find out about the weather and seasons. Find out about shadows. Find out about rainbows.	**Classification:** Classify objects made of one material in different ways e.g. a group of object made of metal. Classify in different ways one type of object made from a range of materials e.g. a collection of spoons made of different materials. Classify materials based on their properties. Ogden Trust Big Question: We need to choose a material to make an umbrella. Which materials are waterproof? Which materials will float and which will sink? Ogden Trust Big Question: How would you group these things based on which season you are most likely to see them in? **Comparative testing:** Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters Ogden Trust Big Question: Which materials are the most flexible? Which materials are the most absorbent?	**Uses of Everyday Materials:** **Classification:** Can name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use. Classify materials. Can label a picture or diagram of an object made from different materials. Can sort materials using a range of properties. Can recognise that a material may come in different forms which have different properties. For a given object can identify what properties a suitable material needs to have. Ogden Trust Big Question: Which materials are shiny and which are dull? Which materials will let electricity go through them, and which will not? **Comparative testing:** Test the properties of materials for particular uses e.g. compare the stretchiness of fabrics to select the most appropriate for Elastigirl's

	Find out information from visitors (dentist, nurse etc.). Pattern seeking: Are taller children faster? Are taller children stronger?	Present information in tables and charts to compare the weather across the seasons. Present information in different ways to compare the seasons. Ogden Trust Big Question: In which season does it rain the most? **Observing over time:** Collect information about the weather regularly throughout the year. Gather data about day length regularly throughout the year and present this to compare the seasons. **Pattern seeking:** Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans. Ogden Trust Big Question: Is there a pattern in the types of materials that are used to make objects in a school? Do trees with bigger leaves lose their leaves first in autumn? Is there a pattern in where we find moss growing in the school grounds? Does the wind always blow the same way? Researching using secondary sources- understanding a secondary source is a document, text, image or object created by someone. Ogden Trust Big Question: How are bricks made? Which materials can be recycled?	costume, test materials for waterproofness to select the most appropriate for a rain hat. Can explain using the key properties why a material is suitable or not suitable for a purpose. Can begin to choose an appropriate method for testing a material for a particular property. Make suggestions about alternative materials for a purpose that are both suitable and unsuitable. Can use their test evidence to select appropriate material for a purpose e.g. Which material is the best for a rain hat? Ogden Trust Big Question: Which shapes make the strongest paper bridge? Which material would be best for the roof of the little pig's house? **Observing over time:** Pattern seeking: Ogden Trust Big Question: Do magnetic materials always conduct electricity? Researching using secondary sources- understanding a secondary source is a document, text, image or object created by someone. Ogden Trust Big Question: How have the materials we use changed over time? How are plastics made? **Animals including humans:** **Classification:** Classify food in a range of ways, including using the Eatwell Guide.

			Show what they know about looking after a baby/animal by creating a parenting/pet owners' guide. Can describe, including using diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. by creating a life cycle book for a younger child. Ogden Trust Big Question: Which offspring belongs to which animal? **Comparative testing:** Explore the effect of exercise on their bodies. Investigate washing hands, using glitter gel. Can measure/observe how animals, including humans, grow. Ogden Trust Big Question: Do bananas make us run faster? **Observing over time:** Observe animals growing over a period of time e.g. chicks, caterpillars, a baby. Can describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages. Explain how development and health might be affected by differing conditions and needs being met/not met. **Pattern seeking:** Ogden Trust Big Question: Which age group of children wash their hands the most in a day? Researching using secondary sources- understanding a secondary source is a document, text, image or object created by someone.

			Ask people questions and use secondary sources to find out about the life cycles of some animals. Can state the basic needs of animals, including humans, for survival. Can name foods in each section of the Eatwell Guide. Ask questions of a parent about how they look after their baby and/ or pet owners questions about how they look after their pet. Can state the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. Ogden Trust Big Question: What do you need to do to look after a pet dog/cat/lizard and keep it healthy? What food do you need in a healthy diet and why?
VOCABULARY	Model and encourage children to use vocabulary such as: spring, summer, autumn, winter, seasons, sunny, cloudy, light, shadow, shady, clouds, torch, see-through, non-see through, source, light source, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers, tree, bush, vegetable, herb, weed, animal, names of plants and animals they see Expose children to supplementary vocabulary such as: hibernate, migrate, snowflake, casting a shadow, pale, dark, transparent, opaque.	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through Weather (sunny, rainy, windy, snowy etc.) Seasons (winter, summer, spring, autumn) Sun, sunrise, sunset, day length	Names of materials: wood, metal, plastic, glass, brick, rock, paper, cardboard. Properties of materials: as for Year 1, plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)

SPRING TERM	Reception	Year 1	Year 2
Knowledge (Substantive) and Experiences	**Cumulative knowledge by the end of Yr R:** Explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them. **Materials, including changing materials:** • Explore a range of materials, including natural materials- understand that 'natural materials' are those found in nature and have not been made by humans, like plants, rocks, and water. • Make objects from different materials, including natural materials. • Observe, measure and record how materials change when heated and cooled. • Compare how materials change over time and in different conditions. **Seasonal Changes:** • Play and explore outside in all seasons and in different weather. • Observe living things throughout the year. **Forces:** • Explore how to change how things work. • Know that the wind can move objects. • Explore how objects move in water. **Sound:** • Listen to sounds outside and identify the source.	By the end of the Spring Term, children in Year 1 will know and be able to: **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 - understanding carnivore as an animal that feeds on other animals; a herbivore as an animal that feeds on plants; an omnivore as an animal or person that eats a variety of food of both plant and animal origin. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)- understanding 'structure' as meaning head, tail, body, limbs, sense organs. All animals have structures that help them survive in their environment. The environment is everything around us. All our surroundings including the air, soil, water, plants, and animals make up the environment. • Know that comparing means 'looking at similarities and differences.' • Know that classifying means 'grouping.' • Identify, name, draw and label the basic parts of the human body • Know which part of the body is associated with each sense.	By the end of the Spring Term, children in Year 2 will know and be able to: **Living things and their habitats:** • Explore and compare the differences between things that are living, dead, and things that have never been alive • Know that all living things do certain things to stay alive. These are called life processes. A dead organism used to perform the processes, but no longer does. An organism that was never alive doesn't carry them out and has never done them. • 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 • Know that a 'habitat' is a place where living things naturally live and grow. Habitats provide living things with the food, water and shelter they need to live.' • Identify and name a variety of plants and animals in their habitats, including micro-habitats • Know that a micro habitat as a very small part of a habitat, such as a clump of grass, space between rocks, a fallen branch or the space under a stone. It is a habitat for extremely small creatures, such as woodlice

	• Make sounds.	(N.B. The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics. The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals, not just meat. Although we often use our fingers and hands to feel objects, the children should understand that we can feel with many parts of our body.) **Seasonal Changes:** • Observe changes across the four seasons • Describe weather associated with the seasons and how day length varies.	or a beetle. A microhabitat has its own temperature and light and its own creatures. • 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 • Know that a food chain shows us how plants and animals within a habitat rely on each other for food. Food chains usually start with a green plant (a producer) which is eaten by an animal (a consumer), which is then eaten by another animal (a predator). • Know that sources of food are divided into two major groups: plants and animals are the two main sources of sustenance. All of the food we consume comes from one of these two sources.
SKILLS (Working Scientifically)	**Comparative testing:** E.g, How quickly do ice cubes melt in different areas of the playground? How do cupcakes cook if they have different amounts of mixture? How many cubes/small plastic animals can fit in different 'boats'? Compare how cars move down ramps/gutters. Compare how wheels turn when sand or water is poured through. Compare how objects fall. Compare how objects fall with and without parachutes. Compare how different balls bounce. Compare how things move when blown.	**Observation:** Observing closely animals from each of the groups, using simple equipment; make first- hand close observations of parts of the body, e.g. hands, eyes. Investigate human senses. **Comparison:** Compare two animals from the same or different groups; compare two people, take measurements and compare parts of the body; Ogden Trust Big Question: Is our sense of smell better when we can't see? Identification & Classification: Identify animals; classify animals using a range of features and by according to what they eat; sort and	**Observation:** Explore the outside environment regularly to find objects that are living, dead and have never lived. Observe animals and plants carefully, drawing and labelling diagrams. Name a range of animals and plants that live in a habitat and micro-habitats that they have studied. **Comparison:** Can sort into living, dead and never lived. Ogden Trust Big Question: Is there the same level of light in the evergreen wood compared with the deciduous wood?

	Compare how a marble moves through different liquids. Compare how different paper aeroplanes fly. How does rain sound different when it lands in different containers? Observing over time: How does the block of ice change over time? How does a snowman change over time? How does cake mixture/bread dough change as it is cooked?	group animals using similarities and differences; using their observations and ideas to suggest answers to questions; classify people according to their features. Ogden Trust Big Question: How can we organise all the zoo animals? What are the names for all the parts of our bodies? **Pattern seeking:** Ogden Trust Big Question: Do you get better at smelling as you get older? Observe how plants change over a period of time; collect information on features that change during the year; use photographs to talk about how plants change over time; look for patterns between people e.g. Do people with big hands have big feet? Researching using secondary sources- understanding a secondary source is a document, text, image or object created by someone. Using simple charts to identify unknown animals; finding out what animals eat- e.g. asking pet owners, zoologists. Ogden Trust Big Question: How are the animals in Australia different to the ones that we find in Britain? Do all animals have the same senses as humans? Talk about their findings from investigations using appropriate vocabulary; name body parts correctly when talking about measurements and comparisons	Do amphibians have more in common with reptiles or fish? Identification & Classification: Classify objects found in the local environment. Give key features that mean the animal or plant is suited to its micro-habitat. Explain in simple terms why an animal or plant is suited to a habitat- what the animals eat in a habitat and how the plants provide shelter for them. Ogden Trust Big Question: How would you group these plants and animals based on what habitat you would find them in? How would you group things to show which are living, dead, or have never been alive? **Pattern seeking:** Ogden Trust Big Question: Do bigger seeds grow into bigger plants? What conditions do woodlice prefer to live in? Which habitat do worms prefer – where can we find the most worms? Researching using secondary sources- understanding a secondary source is a document, text, image or object created by someone. Using a food chain can explain what animals eat. Create simple food chains for a familiar local habitat from first-hand observation and research- starting with a plant with arrows in the correct direction. Ogden Trust Big Question:

			How does the habitat of the Arctic compare with the habitat of the rainforest?
VOCABULARY	Model and encourage children to use vocabulary such as: ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back, float, sink, up, down, top, bottom, surface, move, roll, drop, fly, turn, spin, fall, fast, slow, faster, slower, fastest, slowest, further, furthest, wind, air, water, blow, bounce, sound, noise, listen, hear, music, voices, bird song, traffic, sirens, thunder, high, low, loud, quiet, soft, volume, crackle, thunder, hum, buzz, roar Expose children to supplementary vocabulary such as: solid, liquid, gas, most suited, force, rotate, solid, liquid, gravity, source, crescendo, vibration, pitch	Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves. Names of animals experienced first-hand from each vertebrate group. Parts of the body including those linked to PSHE teaching (see joint document produced by the ASE and PSHE Association). Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue.	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 e.g. under logs, in bushes etc.

SUMMER TERM	Reception	Year 1	Year 2
Knowledge (Substantive) and Experiences	Cumulative knowledge by the end of Yr R: Recognise some environments that are different to the one in which they live. Explore the natural world around them. Describe what they see, hear and feel whilst outside. **Animals, excluding humans:** • Name and describe animals that live in different habitats. • Describe different habitats. • Explore plants and animals in a contrasting natural environment. **Seasonal Changes:** • Play and explore outside in all seasons and in different weather. • Observe living things throughout the year.	By the end of the Summer Term, children in Year 1 will know and be able to: **Plants:** • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • Know that an evergreen plant/tree is a one that has leaves throughout the year that are always green and don't fall out. This is different to deciduous plants, which completely lose their leaves during the winter or dry season. • Identify and describe the basic structure of a variety of common flowering plants, including trees- understanding 'structure' as meaning the parts of a plant which include petal, root, stem, leaf, trunk, branch, seed, flower, fruit, and bulb. **Seasonal Changes:** • Observe changes across the four seasons • Describe weather associated with the seasons and how day length varies.	By the end of the Summer Term, children in Year 2 will know and be able to: **Plants:** • Observe and describe how seeds and bulbs grow into mature plants- understanding when a plant becomes mature, it starts to grow a flower (in a flowering plant) and flowers produce seeds. A mature plant has leaves, roots, stem, flower and fruits. • Know that some plants grow first from a seed, and then develop a bulb that helps them to grow back year after year. A bulb lets the plant rest underground over the winter when it is too cold, then grow back later in the year when conditions are right. • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy- understanding that temperature is the measure of the warmth or coldness of an object or material. 'Suitable' means it will help the plant to stay healthy and grow.
SKILLS (Working scientifically)	**Classification:** Sort animals according to where they live. Researching using secondary sources: Learn how animals from a different habitat are cared for. Learn about animals in a different habitat. Find out about nocturnal animals. **Pattern seeking:**	**Observation:** Close observations of leaves, seeds, flowers etc, using simple equipment **Comparison:** Compare two leaves, seeds, flowers, etc Ogden Trust Big Question: Which type of compost grows the tallest sunflower? Which tree has the biggest leaves? **Identification & Classification:**	**Observation:** Make close observations of seeds and bulbs. Make close observations and measurements of their plants growing from seeds and bulbs. Comparison: Make comparisons between plants as they grow. Can spot similarities and difference between bulbs and seeds. Can nurture seeds and bulbs

	Find simple patterns in how light levels and temperature change with the movement, or obscuring of, the Sun.	Identify plants by matching them to named images; sorting and grouping leaves, seeds, flowers using a range of characteristics/ similarities and differences; using their observations and ideas to suggest answers to questions. Ogden Trust Big Question: How can we sort the leaves that we collected on our walk? Pattern seeking: Observe how plants change over a period of time; collect information on features that change during the year; use photographs to talk about how plants change over time; when further afield, spot plants that are the same as those in the local area studied regularly, describing the key features that helped them. Researching using secondary sources- understanding a secondary source is a document, text, image or object created by someone. Using simple charts to identify plants. What are the most common British plants and where can we find them? Are there plants that are in flower in every season? What are they?	into mature plants identifying the different requirements of different plants. Ogden Trust Big Question: Do cress seeds grow quicker inside or outside? **Identification & Classification:** Classify seeds and bulbs. Identify plants that grew well in different conditions. Ogden Trust Big Question: How can we identify the trees that we observed on our tree hunt? **Pattern seeking:** Describe how plants that they have grown from seeds and bulbs have developed over time. Look after the plants as they grow – weeding, thinning, watering etc Researching using secondary sources- understanding a secondary source is a document, text, image or object created by someone. Research and plan when and how to plant a range of seeds and bulbs. Ogden Trust Big Question: How does a cactus survive in a desert with no water?
VOCABULARY	Model and encourage children to use vocabulary such as: names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice, name of a contrasting environment e.g. beach, forest. Expose children to supplementary vocabulary such as: • environment, polar regions, ocean, camouflage	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area. Names of garden and wild flowering plants in the local area.	As for Year 1, plus light, shade, sun, warm, cool, water, grow, healthy.