LONG DITTON
INFANT AND NURSERY SCHOOL
THE HEART OF LONG DITTON SINCE 1911

Ember Learning Trust
Five schools, one aim

SCIENCE Long Term Planning Overview

	AUTUMN	SPRING	SUMMER
NURSERY	**22-36 months – The World** • Enjoys playing with small-world models such as a farm, a garage, or a train track	**22-36 months – The World** • Notices detailed features of objects in their environment	**30-50 months – The World** • Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world • Talks about why things happen and how things work
RECEPTION	**30-50 months – The World** • Talks about why things happen and how things work • Developing an understanding of growth, decay and changes over time	**30-50 months – The World** • Shows care and concern for living things in the environment • Can talk about some of the things they have observed such as plants, animals, natural and found objects	**40-60+ months - The World** • Looks closely at similarities, differences, patterns and change **Early Learning Goal** Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

<table>
<tr><td rowspan="3">YEAR 1</td><td colspan="4">In Year 1 across the year the children will be taught:</td></tr>
<tr><td>Seasonal Changes
Observing changes across the four seasons
Observing and describing weather associated with the seasons and how day length varies.
(Note: Pupils will be warned that it is not safe to look directly at the Sun, even when wearing dark glasses. Pupils might work scientifically by: making tables and charts about the weather; and making displays of what happens in the world around them, including day length, as the seasons change.)</td><td>Plants
To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
To identify and describe the basic structure of a variety of common flowering plants, including trees.</td><td>Animals Including Humans
To 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
To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)
To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</td><td>Everyday Materials
To distinguish between an object and the material from which it is made
To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
To describe the simple physical properties of a variety of everyday materials
To compare and group together a variety of everyday materials on the basis of their simple physical properties.</td></tr>
<tr><td colspan="2">Observe Seasonal Changes – eg: shorter days, morning mists, colder temperatures, changes in weather, clocks go back
Materials
To sort materials by their properties</td><td>Seasonal Changes – days getting longer, clocks go forward, frost, snow, ice, changes in weather temperature, wind, rain, animals out of hibernation, changes of the trees/leaves</td><td>Seasonal Changes – To know that the sun appears to move through the sky, longest day, sun safety, lighter evenings,</td></tr>
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	To describe the properties of materials To sort materials into different groups To recognise similarities and differences between materials To use some scientific vocabulary to describe materials – hard, soft, prickly, stretchy, spongy, waterproof etc. To use senses to guess a material To identify and name a variety of materials – wood, metal, plastic **Animals Including Humans:** To know the names of animals that hibernate in the winter (hedgehog, tortoise, hamster, bats) **Investigations** To plan an investigation and make a prediction To be able to plan, obtain evidence and evaluate their findings. **Skills taught for year 1:** To be able to ask simple questions and recognising that they can be answered in different ways To develop their observation skills To be able to use simple equipment and perform simple tests (waterproof/not waterproof, measuring jugs)	**Investigations:** To find out about, and describe the movement of, familiar things [for example, cars going faster, slowing down, changing direction] To find out about the human senses **Animals Including Humans:** To know the parts of the body of animals eg fish, frogs, birds and snakes **The human body** To name and draw different parts of the human body To label the body – link to ICT **Plants** To know the names of common plants including: crocus, daffodil, tulip, bluebells, lily of the valley, daisy, roses To name the different parts of a plant – leaves, flowers, blossom, stem, bulb, roots, fruit, seed, trunk, branches To know what a plant needs to grow	To know how to safely carry out an experiment, changes of the trees/leaves on trees **Plants:** To know the names of common trees (ash, elm, oak, birch, fir and maple) To know the difference between deciduous and evergreen trees To label the parts of a tree (leaves, flowers, blossom, roots, fruit, seed, trunk, branches etc) **Investigation** To know what a prediction is To be able to talk about what has happened To observe closely To ask simple questions **Animals including Humans** To know the four senses and carry out investigations about these To identify the senses. To group animals according to their similarities. To recognise and compare main external parts of bodies and other animals To be able to gather and record data to help in answering questions

<table>
<tr><td></td><td></td><td></td><td>To be able to use their observations and ideas to suggest answers to questions</td></tr>
<tr><td rowspan="2">Year 2</td><td colspan="3">In Year 2 the children will be taught:</td></tr>
<tr><td>Living things and their habitats
To explore and compare the differences between things that are living, dead, and things that have never been alive
To 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
To identify and name a variety of plants and animals in their habitats, including micro-habitats
To 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.</td><td>Plants
To observe and describe how seeds and bulbs grow into mature plants
To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</td><td>Animals Including Humans
To notice that animals, including humans, have offspring which grow into adults
To find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</td><td>Use of Everyday Materials
To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</td></tr>
<tr><td></td><td>Use of everyday Materials
To identify and compare the suitability</td><td>Animals including Humans –</td><td>Animals including humans:
To know about different food groups.</td></tr>
</table>

	of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching and a change of temperature. Find out the names of people who invented special materials eg rubber, plastic, waterproof materials such as wellies **Living things and their habitats:** Compare living, non living and things that have never been alive **Electricity** – (optional if time) To identify electrical appliance. That everyday appliances are connected to the mains and that they must be used safely. To make simple circuits using batteries, wires and bulbs. To make a simple switch. Which materials conduct electricity Symbols for electrical components.	To learn to share / find out facts about owls / foxes / badgers / hedgehogs. To know about food chains. To know that animals, including humans, have offspring that grow into adults **Living Things and their Habitats:** We are learning how to find out about different animals in the local environment. (insects, worms, ants, underground, overground, birds, nests) To know and compare the life cycle of the hen, frog, ladybird, caterpillar To find out about different plants and their local environment. To identify and name a variety of plants and animals in their habitats, including micro-habitats We are learning to compare between night and day animals (about nocturnal animals.) **Plants** To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. To know what is needed for bulbs to grow (hyacinth bulbs) **Investigation Skills:**	To know how the food we eat affects our bodies. To know how our pulse changes when we exercise and how our heart works. To describe the effects of exercise and to make comparisons and observations between when we are resting and exercising. **Living Things and their Habitats:** To know the basic needs of animals (including humans) and what they need for survival To know what habitats need and how they depend on each other (eg: humans, cows, bees/honey, rabbits, woodlice, birds, ants, spiders, bats) To identify and name different food sources To be able to describe a simple food chain (grass, cow, humans) **Plants:** To plant seeds and investigate what they need to grow (light, dark, water, sun, soil etc) Compare seeds and bulbs Investigate what a plant needs to be healthy **Investigation Skills:**

	Investigation Skills: To be able to ask simple questions and recognising that they can be answered in different ways To be use observation skills To be able to use simple equipment and perform simple tests To be able to use their observations and ideas to suggest answers to questions To be able to gather and record data to help in answering questions.	To use their observations and ideas to suggest answers to questions To gather and record data to help in answering questions.	To be able to ask simple questions and recognising that they can be answered in different ways To be use observation skills To develop the skills of identifying and classifying To be able to use simple equipment and perform simple tests To be able to use their observations and ideas to suggest answers to questions To be able to gather and record data to help in answering questions.