

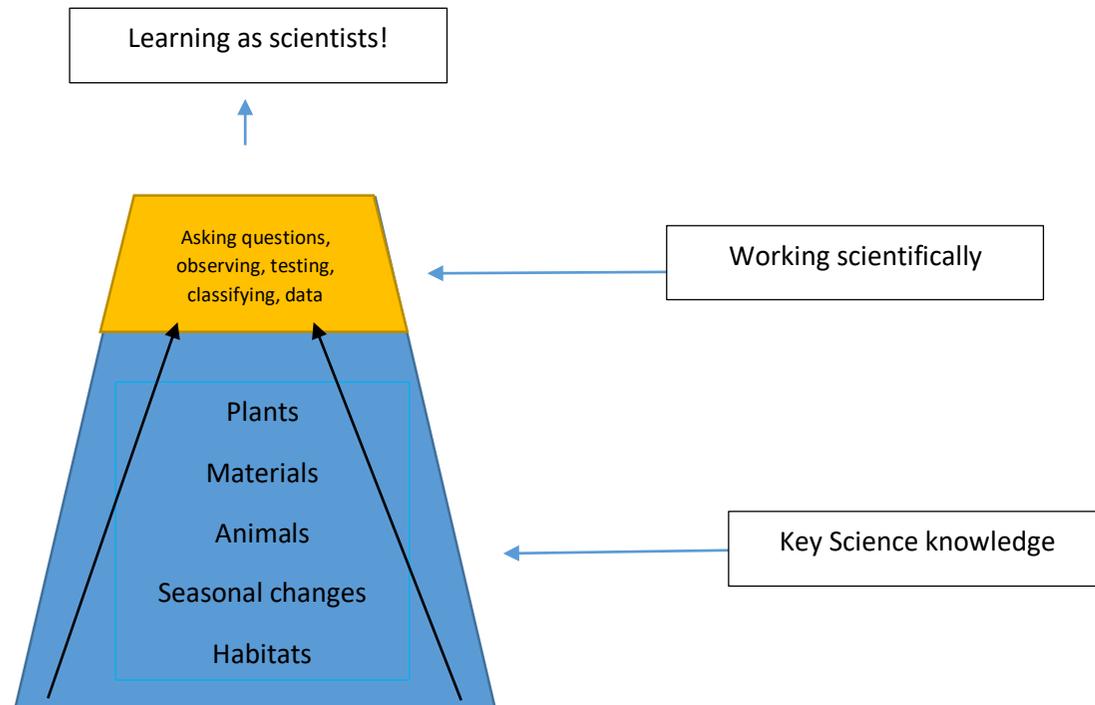


# Science

## *To experience, observe and explore the world around us.*

*In the Oaks Federation, within the science, children are encouraged to be curious and to ask questions about what they notice in the world around them. They are helped to develop their scientific knowledge through biology, chemistry and physics. They develop an understanding of scientific ideas by using different types of scientific enquiry. They are encouraged to ask and to answer questions, observe changes over a period of time, notice patterns, group and classifying things, carry out simple comparative tests, and find things out using secondary sources of information. They also begin to use simple scientific language to talk about what they have found out. Key scientific knowledge will always be taught through the application of working scientifically. Most of the learning takes place through first-hand practical experiences within a thematic approach.*

*Within each science lesson, key concepts will be taught through a filtered approach, where knowledge is sieved through the skills of working scientifically*



## The Early Years Foundation Stage – Year R

In EYFS, Science is taught through the area 'Understanding the world'. Each objective is taught in a 3 stage cycle:  
1. Directed teaching. 2. Enhanced learning opportunity. 3. Continuous provision opportunities.

The Natural World ELG Children at the expected level of development will:

- Explore the natural world around them, making observations and drawing pictures of animals and plants;
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Autumn 1:

Longitudinal Study – each class will have an ongoing longitudinal study throughout the year. This will link to the geography and look at the seasons, weather and the affect it has on us. This will involve explorer sessions looking for signs of various seasons throughout the year.

Autumn 2:

Comparing trees and plants and looking at the change in season. Comparing how we look with our peers and the things we can do. Looking at what's around in the environment. Weather permitting - ice melting and freezing.

Spring 1:

New life and how things have changed. Leaves on the trees, plants and animal changes.

Spring 2:

Looking at new life and studying and researching eggs and animals that lay eggs.

Summer 1:

Links to the human impact on the environment and on animals.

Summer 2:

Links to recycling and plastic waste.

## Key Stage 1: Cycle A

Longitudinal Study – each class will have an ongoing longitudinal study throughout the year. This will link to the geography and look at the seasons, weather and the affect it has on us. This will be captured as part of an ongoing working wall.

Key Objective: Seasonal Changes:

- observe changes across the four seasons
- observe and describe weather associated with the seasons and how day length varies.

Working Scientifically the children will be:

- using their observations and ideas to suggest the answers to questions.
- gathering and recording data to help in answering questions.

Autumn 1: (Introduce Longitudinal Study.) Describing materials

Key Objectives:

- 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
- Compare and group together a variety of everyday materials on the basis of their simple physical properties.

Working Scientifically the children will be:

- identifying and classifying.
- performing simple tests.
- gathering and recording data to help in answering questions (Simple tests with materials).

Autumn 2: Uses of everyday materials

Pupils should be taught to:

- observe and describe features of autumn.
- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
- Carry out a simple experiment to find out the suitability for materials.
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Working Scientifically the children will be:

- observing closely, using simple equipment.
- performing simple tests.
- using their observations and ideas to suggest answers to questions.
- gathering and recording data to help in answering questions.

<ul style="list-style-type: none"> <li>• using their observations and ideas to suggest answers to questions.</li> </ul>	
Spring 1: Plants	Spring 2: Making New Plants
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Identify what plants are and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>• Identify and describe the basic structure of a variety of common flowering plants including trees.</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Observe and describe how seeds and bulbs grow into mature plants.</li> <li>• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul>
<p>Working Scientifically the children will be:</p> <ul style="list-style-type: none"> <li>• observing closely, using simple equipment.</li> <li>• Identifying and classifying.</li> <li>• using their observations and ideas to suggest answers to questions.</li> </ul>	<p>Working Scientifically the children will be:</p> <ul style="list-style-type: none"> <li>• observing closely, using simple equipment.</li> <li>• using their observations and ideas to suggest answers to questions.</li> <li>• gathering and recording data to help in answering questions.</li> </ul>
Summer 1: Animals including humans	Summer 2: Seasons and review of the longitudinal study.
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</li> <li>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Review the changes across the four seasons</li> <li>• Observe and describe weather associated with the seasons and how the day length varies. Comparison with last year.</li> <li>• Look at and compare weather patterns through the seasons.</li> </ul>
<p>Working Scientifically the children will be:</p> <ul style="list-style-type: none"> <li>• identifying and classifying.</li> <li>• performing simple tests.</li> <li>• observing closely, using simple equipment</li> </ul>	<p>Working Scientifically the children will be:</p> <ul style="list-style-type: none"> <li>• observing closely, using simple equipment.</li> <li>• using their observations and ideas to suggest answers to questions.</li> <li>• gathering and recording data to help in answering questions</li> </ul>

## Key Stage 1: Cycle B

Longitudinal Study – each class will have an ongoing longitudinal study throughout the year. This will link to the geography and look at the seasons, weather and the affect it has on us. This will be captured as part of an ongoing working wall.

Key Objective: Seasonal Changes:

- observe changes across the four seasons
- observe and describe weather associated with the seasons and how day length varies.

Working Scientifically the children will be:

- using their observations and ideas to suggest the answers to questions.
- gathering and recording data to help in answering questions.

Autumn 1: (Introduce Longitudinal Study.) Animal survival

Autumn 2: Living things and their habitats

Key Objectives:

- 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
- 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

Pupils should be taught 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.
- \* identify and name a variety of plants and animals in their habitats, including microhabitats

Working Scientifically the children will be:

- Identifying and classifying.
- Observing closely using simple equipment.
- Gathering and recording data to answer simple questions.

Working Scientifically the children will be:

- \* identifying and classifying
- \* observing closely, using simple equipment
- \* Gathering and recording data to answer simple questions.

Spring 1: Animals, Living things and their habitats	Spring 2: Pushes and pulls
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> <li>* 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.</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Identify how things move.</li> <li>• Observe how forces change how an object moves.</li> <li>• Describe the effect on the motion if a force is made bigger.</li> <li>• Observe how forces can change the shape of objects.</li> </ul>
<p>Working Scientifically the children will be:</p> <ul style="list-style-type: none"> <li>• Identifying and classifying.</li> <li>• performing simple tests (senses)</li> <li>• using their observations and ideas to suggest answers to questions</li> <li>• gathering and recording data to help in answering questions</li> </ul>	<p>Working Scientifically the children will be:</p> <ul style="list-style-type: none"> <li>• Observing closely using simple equipment.</li> <li>• using their observations and ideas to suggest the answers to questions.</li> <li>• Asking simple questions and recognising they can be answered in different ways.</li> <li>• gathering and recording data to help in answering questions</li> </ul>
Summer 1: Living things and their habitats Lifecycles	Summer 2: Seasons and review of the longitudinal study.
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>• notice that animals, including humans, have offspring which grow into adults and how they change. Look at lifecycles of humans and animals.</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• Review the changes across the four seasons</li> <li>• Observe and describe weather associated with the seasons and how the day length varies. How did this compare to last year.</li> <li>• Look at and compare weather patterns through the seasons.</li> </ul>
<p>Working Scientifically the children will be:</p> <ul style="list-style-type: none"> <li>• Observing closely using simple equipment.</li> <li>• Identifying and classifying.</li> <li>• Identifying and classifying. gathering and recording data to help in answering questions</li> </ul>	<p>Working Scientifically the children will be:</p> <ul style="list-style-type: none"> <li>• observing closely, using simple equipment.</li> <li>• using their observations and ideas to suggest answers to questions.</li> <li>• gathering and recording data to help in answering questions</li> </ul>

