

## Progression in Science at Thurnham CE Infant School through an Empowering Curriculum

*"At Thurnham our Empowering Curriculum will give pupils the key skills that they need to flourish; Brain Power, Resilience, Independence, Investigating and Creativity"*

While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Insecure, superficial understanding will not allow genuine progression.

EYFS	YEAR 1	YEAR 2
<p>N.B. Aspects of Science are found within the 'The World' which is one of the seventeen areas of learning in the Early Years Foundation Stage. It can be found within the 'Understanding the World' strand.</p> <p><b>'Children know about similarities and differences in relation to...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.'</b></p> <p>Some children may <b>exceed</b> the Early Learning Goal; these children will work towards exceeding the ELG. In this case the objectives are:</p> <p><b>'Children know that the environment and living things are influenced by human activity. They can describe some actions which people in their own community do that help to maintain the area they live in. They know the properties of some materials and can suggest some of the purposes they are used for. They are familiar with basic scientific concepts such as floating, sinking, experimentation.'</b></p>	<p><b>Plants:</b></p> <p><b>'Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.'</b></p> <ul style="list-style-type: none"> <li>• I can name a variety of wild plants</li> <li>• I can name a variety of garden plants</li> <li>• I know the difference between deciduous and evergreen trees, and can name some</li> </ul> <p><b>'Identify and describe the basic structure of a variety of common flowering plants, including trees.'</b></p> <ul style="list-style-type: none"> <li>• I can identify and describe the basic structure of a variety of common flowering plants</li> <li>• I can identify and describe the basic structure of a variety of common flowering trees</li> </ul> <p><b>Working scientifically</b></p> <p>Observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees. Pupils</p>	<p><b>Plants:</b></p> <p><b>'Observe and describe how seeds and bulbs grow into mature plants'</b></p> <ul style="list-style-type: none"> <li>• I can talk about how seeds and bulbs grow into plants, and the changes that happen</li> </ul> <p><b>'Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy'</b></p> <ul style="list-style-type: none"> <li>• I can find out why plants need water, light and a suitable temperature and how this affects how they grow.</li> <li>• I can talk about why plants need water, light and a suitable temperature and how this affects how they grow.</li> </ul> <p><b>Working scientifically</b></p> <p>Pupils might work scientifically by observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light</p>

**Working scientifically**

Making observations, explaining why things occur, talking about changes.

These will include the characteristics of effective learning;  
Making links, choosing ways of doing things, keeping trying, having their own ideas, finding new ways, using what they already know to learn new things.

might keep records of how plants have changed over time, for example, the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants.

**Animals (Including Humans):**

**'Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals'**

- I can identify and name common fish e.g. eel, bass and haddock
- I can identify and name some amphibians e.g. frogs, toads and newts
- I can identify and name some reptiles e.g. alligators, crocodiles and snakes
- I can identify and name some common birds e.g. pigeons, robins and starlings
- I can identify and name some common mammals e.g. elephants, tigers and pandas

**'Identify and name a variety of common animals that are carnivores, herbivores and omnivores'**

- I know the difference between a carnivore, herbivore and omnivore
- I can identify some carnivores e.g. lions
- I can identify some herbivores e.g. cows
- I can identify some omnivores e.g. hedgehogs

**'Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)'**

- I can describe the structure of a variety of animals

and water to stay healthy.

**Animals including humans:**

**'Notice that animals, including humans, have offspring which grow into adults'**

- I can name offspring and the animal which it will grow into
- I know that babies grow into humans

**'Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)'**

- I can say what the basic needs of animals are
- I can say what living things need to survive

**'Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.'**

- I can say why exercise is important
- I can talk about the importance of eating healthily and the things which contribute to this
- I can talk about the importance of good hygiene and can say what this involves e.g. washing, brushing teeth etc.

**Working scientifically**

Pupils might work scientifically by: observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their

	<ul style="list-style-type: none"> <li>• I can compare the structure of fish, amphibians, reptiles, birds and mammals</li> </ul> <p><b>'Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.'</b></p> <ul style="list-style-type: none"> <li>• I can identify / name / draw / label basic parts of the human body</li> <li>• I can name the senses</li> <li>• I can say which part of the body is used for which sense e.g, eyes for seeing, ears for hearing</li> </ul> <p><b>Working scientifically</b></p> <p>Pupils might work scientifically by using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.</p>	<p>questions.</p> <hr/> <p><b>Living things and their habitats:</b></p> <p><b>'Explore and compare the differences between things that are living, dead, and things that have never been alive.'</b></p> <ul style="list-style-type: none"> <li>• I can identify the difference between things that are and not alive</li> </ul> <p><b>'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'</b></p> <ul style="list-style-type: none"> <li>• I can say what a habitat is</li> <li>• I can talk about how animals are suited to their</li> </ul>
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habitats

- I can talk about how plants are suited to their habitats
- I can talk about what habitats provide from animals and plants

**'Identify and name a variety of plants and animals in their habitats, including microhabitats'**

- I can name some animals and plants in their habitats
- I can say what a microhabitat is e.g. a rotting log or a pond

**'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'**

- I can say what a food chain is
- I can identify the producer, consumers etc.
- I can describe how animals get their foods from plants

### **Working scientifically**

Pupils might work scientifically by: sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts. They should describe how they decided where to place things, exploring questions like: 'Is a flame alive? Is a deciduous tree dead in winter?' and talk about ways of answering their questions. They could construct a simple food chain that includes humans (eg, grass, cow, human). They could describe the conditions in different habitats and microhabitats (under log, on stony path, under bushes); and find out how the conditions affect the number and type(s) of plants and animals that live there.

	<p><b><u>Everyday Materials</u></b></p> <p>'Distinguish between an object and the material from which it is made'</p> <ul style="list-style-type: none"> <li>• I can identify materials and say what they are made from</li> </ul> <p>'Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.'</p> <ul style="list-style-type: none"> <li>• I can name some everyday materials e.g. metal, glass and fabric</li> </ul> <p>'Describe the simple physical properties of a variety of everyday materials'</p> <ul style="list-style-type: none"> <li>• I understand what properties means</li> <li>• I can describe the properties of some materials</li> </ul> <p>'Compare and group together a variety of everyday materials on the basis of their simple physical properties.'</p> <ul style="list-style-type: none"> <li>• I can group together materials based on their properties</li> </ul> <p><b><u>Working scientifically</u></b></p> <p>Pupils might work scientifically by: performing simple tests to explore questions, for example: 'What is the best material for an umbrella? ... for lining a dog basket? ... for curtains? ... for a bookshelf? ... for a gymnast's leotard?'</p>	<p><b><u>Use of everyday materials:</u></b></p> <p>'Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.'</p> <ul style="list-style-type: none"> <li>• I can compare materials for everyday purposes e.g. what material might be best for rainy weather or what might be used to build a house and why.</li> </ul> <p>'Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.'</p> <p>I can discuss how the shape of a solid object might be changed and how.</p> <p><b><u>Working scientifically</u></b></p> <p>Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations.</p>
	<p><b><u>Seasonal Changes:</u></b></p> <p>'Observe changes across the four seasons'</p> <ul style="list-style-type: none"> <li>• I can identify Spring, Summer, Autumn and Winter</li> <li>• I can talk about the changes which happen in each of the seasons e.g. leaves</li> </ul>	

	<p>'Observe and describe weather associated with the seasons and how day length varies.'</p> <ul style="list-style-type: none"> <li>• I can say what weathers may usually occur during these seasons</li> <li>• I can talk about the changes which happen to the length of the day during the seasons</li> </ul> <p><b>Working scientifically</b></p> <p>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.</p>	
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**Progression in Working Scientifically at Thurnham CE Infant School through an Empowering Curriculum**  
***"At Thurnham our Empowering Curriculum will give pupils the key skills that they need to flourish; Brain Power, Resilience, Independence, Investigating and Creativity"***

The English Primary Curriculum for Science should enable pupils to develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them

EYFS	Year 1	Year 2
Show curiosity about objects, events and people Questions why things happen	Explore the world around them and, with support begin to raise their own questions.	Explore the world around them and raise their own questions.
Engage in open-ended activity	Experience different types of science enquires, including practical activities, provided by an adult.	Experience different types of science enquires, including practical activities, some that they have devised their selves.
Take a risk, engage in new experiences and learn by trial and error	Begin to recognise different ways in which they might answer scientific	Recognise different ways in which they might answer scientific questions.

	questions.	
Find ways to solve problems/find new ways to do things/test their ideas	With support, carry out simple tests.	Carry out simple tests, starting to think about the criteria for making a test fair.
Develop ideas of grouping, sequences, cause and effect Know about similarities and differences in relation to places, objects, materials and living things	Begin to use simple features to compare objects, materials and living things and with help, decide how to sort and group them	To be able to use simple features to compare objects, materials and living things and decide how to sort and group them
Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world	Ask people and begin to use simple secondary sources to find answers	Ask people and use simple secondary sources to find answers
Closely observes what animals, people and vehicles do Uses senses to explore the world around them	Observe closely using simple equipment with support and observe changes over time	Observe closely using simple equipment and observe changes over time
Make links and notice patterns in their experience	With help, begin to notice patterns and relationships	Begin to notice patterns and relationships
Choose the resources they need for their chosen activities Handle equipment and tools effectively	Use simple measurements and equipment to gather data with support	Use simple measurements and equipment to gather data
Create simple representations of events, people and objects	Record data with pictures or in simple tables provided by adults.	Record data in a variety of ways suited to the task.
Answer how and why questions about their experiences	With adult support, use their observations and ideas to suggest	Use their observations and ideas to suggest answers to questions

<p>Make observations of animals and plants and explain why some things occur, and talk about changes</p>	<p>answers to questions With scaffolding, talk about what they have found out and how they found it out</p>	<p>Talk about what they have found out and how they found it out</p>
<p>Develop their own narratives and explanations by connecting ideas or events Builds up vocabulary that reflects the breadth of their experience.</p>	<p>With help, begin to record and communicate their findings in a range of ways and begin to use simple scientific language.</p>	<p>Begin to record and communicate their findings in a range of ways and begin to use simple scientific language.</p>