



# Science Knowledge Progression Map



## Curriculum Requirements

### **EYFS Prior Knowledge before starting KS1:**

- Plants – To know that plants are living things that grow.
- Materials – To be introduced to different materials and their purposes
- Animals – To name different animals and know where they live.
- Humans – To know some parts of the human body.
- Seasons – To know that the seasons change.
- Working Scientifically – To be curious about the world.

### **EYFS Prior Skills before starting KS1:**

- To group objects.
- Talk about photographs and make observations.
- To start using scientific equipment and to measure.

### **Autumn**

**Humans and their habitat-** where we live.  
External parts of the human body  
Internal parts of the body

**Seasons**  
To begin to understand what seasons are and the changes that happen.  
What are the seasons? How do they affect us?

**Animals and habitats**  
All living creatures have different homes and safe places  
Name and group different animals  
Name different places that animals live

**Materials**  
Exploring a range of natural materials  
Exploring materials with similar/different properties

### **Spring**

**Seasons**  
To begin to understand what seasons are and the changes that happen.  
Observe changes into spring- visiting class tree.

**Animals**  
To begin looking at animals and sort them into groups  
Explore animal habitats  
The life cycle of an animal  
Butterfly – hungry caterpillar story

**Plants**  
To know that plants are living things that grow  
To explore plants that can be eaten  
To explore the life cycle of a plant  
To notice when food grows on a plant

### **Summer**

**Human Bodies**  
To begin to learn what bodies need  
Parts of the body- senses

**Healthy**  
Water- where is it from and why do we need it?

**Living Things**  
Explore marine habitats such as rock pools and coral reefs  
Introduce mini-beasts  
To begin to classify animals

**Materials**  
To know different materials and sort them  
To know what some materials are used for

**Working Scientifically**  
Explore how things work  
(water, mixing colours, rainbows refraction, floating and sinking, testing materials)

**Ks1 Curriculum coverage**

| Autumn                               | Spring                         | Summer                           |
|--------------------------------------|--------------------------------|----------------------------------|
| Outside and Inside<br>Waste Warriors | Globetrotters<br>Nature Lovers | Health Heroes<br>Water Wizards   |
| Everyday Materials<br>Plants         | Animals/Habitats<br>Seasons    | Humans<br>Working scientifically |
| ← Working Scientifically →           |                                |                                  |

**Ks1 Science National Curriculum Strands**

| Year 1  |                    |        |                    |                        |
|---|--------------------|--------|--------------------|------------------------|
| Seasonal Change   | Animals inc Humans | Plants | Everyday Materials | Working Scientifically |
| Year 2  |                    |        |                    |                        |
| Living things & their habitats  | Animals inc Humans | Plants | Everyday Materials | Working Scientifically |
| Each strand (key knowledge and skill) of the FHIS Science curriculum is colour coded to show progression within and across year groups. Key Knowledge and Skills are shown down the side and experiences at the bottom of the page. |                    |        |                    |                        |

**Year 1**

| Year 1 Knowledge end points  | Topic  | Autumn Term<br>Plants    Everyday Materials  | Spring Term<br>Animals    Seasons  | Summer Term<br>Working scientifically    Humans  |
|--|--|--|--|--|
| <ul style="list-style-type: none"> <li>Can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>Can identify and describe the basic structure of a plant/ tree</li> <li>Distinguish between an object and the material from which it is made</li> <li>Can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>Describe the simple physical properties of a variety of everyday materials</li> <li>Know how the properties of a material can make it useful for a range of different purposes</li> <li>Knows why and how the properties of materials make them particularly useful for specific purposes</li> <li>Knows that different materials can share the same properties</li> <li>Can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>To identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>Knows when each of the four seasons occurs</li> <li>Knows what the features of autumn are and what happens to trees in this season</li> <li>Knows that days are longer in summer (sunshine hours) than in winter</li> <li>Can identify and name the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul> | <p align="center"><b>Substantive Knowledge</b></p> | <ul style="list-style-type: none"> <li>Garden plants require human care, wild plants do not</li> <li>Deciduous trees lose leaves annually during Autumn.</li> <li>Evergreen trees keep their leaves all year around.</li> <li>A plant has a roots, a stem, leaves and a flower. Roots are used to anchor and feed the plant. A stem keeps the plant upright. Leaves help the plant to take in sunlight. The flower or fruit is produced.</li> <li>Plants change as they grow from a seed.</li> <li>Plants need suitable conditions to grow (water, light, warmth, space)</li> <li>Materials are what an object is made from.</li> <li>Hard things are not easily broken or bent.</li> <li>Soft things are easy to cut, fold or change the shape of.</li> <li>Stretchy things can be pulled longer or wider without breaking.</li> <li>Shiny things reflect light.</li> <li>Dull things don't look shiny.</li> <li>Rough things feel uneven and bumpy.</li> <li>Smooth things have no lumps or bumps.</li> <li>Waterproof things keep water out.</li> <li>Absorbent things soak up water.</li> <li>Transparent objects can be seen through.</li> <li>Opaque objects can't be seen through.</li> </ul>   | <ul style="list-style-type: none"> <li>Herbivores eat plants, carnivores eat meat and omnivores eat both plants and meat.</li> <li>Animals can be herbivores, omnivores or carnivores.</li> <li>Animals are split into different groups (fish, reptiles, amphibians, mammals and birds).</li> <li>Fish breathe in the water and lay eggs, reptiles have scales and lay eggs, amphibians are cold blooded and live on land and in water, mammals have fur and give birth to live young, birds have feathers and lay eggs, most can fly.</li> <li>Days are longer in Summer because the Earth tilts towards the sun compared to Winter when it tilts away from the sun.</li> <li>The four seasons are spread across the year</li> </ul>  | <ul style="list-style-type: none"> <li>That the human body is made up of different parts such as head, elbows and knees</li> <li>Humans have 5 senses and there are basic body parts associated with each one – sight (eye), hearing (ears), touch (skin), taste (tongue) and smell (nose)</li> </ul>            |
| <p><b>Ks1 Skills end point</b></p> <ul style="list-style-type: none"> <li>Asking simple questions</li> <li>Answering questions in different ways such as gathering and recording data to help in answering questions</li> <li>performing simple tests</li> <li>Observe closely using simple equipment</li> <li>using their observations and ideas to suggest answers to questions</li> <li>sorting and classifying</li> </ul>  | <p align="center"><b>Component Knowledge</b></p>   | <ul style="list-style-type: none"> <li>Can sort and group parts of plants using similarities and differences e.g. the shape of leaves, the colour of the flower/blossom.</li> <li>Can use simple charts and Venn diagrams etc. to identify and classify plants.</li> <li>Use photographs and their own observations to talk about how plants change over time (e.g. seed to sapling to tree) and over the year (deciduous and fruit bearing trees).</li> <li>Plant seeds and observe how they grow and change by making simple observations.</li> <li>Point to and name the parts of a plant, recognising that they are not always the same e.g. leaves and stems may not be green, the leaves are different shapes.</li> <li>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> <li>Classify objects made of one material in different ways e.g. a group of objects made of metal.</li> <li>Classify one type of object made from a range of materials e.g. a collection of spoons made of different materials.</li> <li>Chose an appropriate method for testing an object for a particular property. Use their test evidence to answer the questions about properties e.g. Which cloth is the most absorbent?</li> <li>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.</li> </ul> | <ul style="list-style-type: none"> <li>Make first hand close observations of animals from each of the groups (cityfarm)</li> <li>Compare the structure of two animals from the same or different group e.g. wings, feathers, vertebrates/invertebrates.</li> <li>Classify animals using a range of features e.g. lay eggs/give birth to live young, herbivore, omnivore (these terms do not have to be explicitly taught).</li> <li>Identify animals by matching statements to named images.</li> <li>Gather and record data about weather conditions in autumn, drawing on observation and using simple equipment (such as a container to measure rainfall) *.*</li> <li>Use data to create a pictogram and use this to describe changes in day length over the seasons.</li> <li>Use their evidence to describe some other features of the weather, surroundings, themselves, animals, and plants found in autumn.</li> <li>Demonstrate their knowledge in different ways e.g. creating seasonal artwork, creating a pictogram (and use this to ask and answer related questions)</li> </ul> | <ul style="list-style-type: none"> <li>Take measurements of parts of the body and present results in a table to interpret.</li> <li>Conduct simple sense experiments. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match?</li> </ul> |
| <p><b>Wow Moments/ SMART Days</b></p>  |  | <p>Visit to Daventry Country Park and/or visit to local allotments<br/>Growing plants in schools<br/>Exploring school grounds for trees/plants<br/>Recycling visitor to help sort materials and re use materials by junk modelling<br/>Three little pigs- blowing over houses we make</p>  | <p>Visit to Zoo/safari Park.<br/>Animal Smart Day<br/>Dave XRaptors visit to bring in variety of animals to classify.<br/>Daily Weather Watcher responsibilities across the school.<br/>Seasonal Changes walks around the school grounds / visits t class trees</p>  | <p>Mad Science' Visits]<br/>Think Tank trip</p>  |

| Year 2  |                         |  |   |   |
|---|-------------------------|--|---|---|
| Year 2 Knowledge end points   | Substantive Knowledge   | Plants<br>Use of everyday materials  | Animals<br>Living Things and their habitats   | Animals including humans<br>Working Scientifically  |
| <ul style="list-style-type: none"> <li>Knows that plants may grow from either seeds or bulbs.</li> <li>knows that seeds and bulbs can germinate and then grow into seedlings and then continue to grow into mature plants.</li> <li>Knows that mature plants may have flowers which then develop into seeds, berries and fruits etc.</li> <li>knows that seeds and bulbs need to be planted at particular times of the year and will germinate and grow at different rates.</li> <li>knows that some plants are better suited to growing in full sun and some grow better in partial and full shade.</li> <li>Knows that plants need water, light and a suitable temperature to grow and stay healthy</li> <li>Knows and can explain why some materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard are particularly suited to specific purposes</li> <li>Knows how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> <li>Knows the difference between materials that are transparent, translucent and opaque</li> <li>Can describe how animals including humans have offspring which grow into adults, using the appropriate names for the stages</li> <li>Knows that to survive animals need sunlight, water, air, food and a suitable habitat (including shelter for protection from predators and the environment.</li> <li>Knows and can explain the differences between things that are living, dead, and things that have never been alive</li> <li>Knows that most living things live in habitats to which they are suited</li> <li>Knows and can describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other</li> <li>Knows and can name a variety of plants and animals in their habitats, including micro-habitats</li> <li>Knows and can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and make the different sources of food.</li> <li>Knows that exercise is important to humans and can explain why.</li> <li>Knows the different food groups and the benefits of each as part of a healthy, balanced diet</li> <li>Knows which food groups common foods belong to.</li> <li>Knows about general hygiene and its importance and can state examples of hygienic practice.</li> </ul> |                         | <ul style="list-style-type: none"> <li>If they are given the right conditions, seeds and bulbs grow into mature plants.</li> <li>Seeds and bulbs have a store of food inside them.</li> <li>Seeds and bulbs need water to germinate.</li> <li>Most plants need light from the sun to grow well.</li> <li>Plants make their own food in their leaves using sunlight.</li> <li>Some plants like cooler temperatures and some like warmer temperatures.</li> <li>A food chain shows how animals depend on other plants and animals for their food and survival.</li> <li>In a food chain, there are some living things that produce energy (producers) and some that use the energy (consumers).</li> <li>Materials are chosen for objects because they have certain properties.</li> <li>Materials can be used for more than one thing and different materials can be used for the same thing.</li> <li>Wood is hard, stiff, strong and opaque. It can be carved into different shapes.</li> <li>Metal is strong and hard</li> <li>Glass is a hard, waterproof, transparent material that can be made in many shapes. It is often used to make windows and bottles.</li> <li>Plastic is used to make many of the things we use in everyday life. It is waterproof and strong. It can be made rough or smooth, flexible or rigid and can be made into different colours.</li> <li>Rock is a natural material. It is strong, hard and often used for building.</li> <li>Paper and cardboard is made from trees or by recycling. Paper is light and flexible but cardboard is strong and stiff.</li> <li>The shapes of some solid objects made from certain materials can be changed by squashing, bending, twisting and stretching.</li> </ul> | <ul style="list-style-type: none"> <li>All animals, including humans, have offspring which grow into adults.</li> <li>All animals, including humans, need food, water and air to stay alive.</li> <li>Some things are living, some things are dead and some things have never been alive.</li> <li>All living things move, respire (breathe), sense, grow, reproduce, excrete and feed (nutrition)</li> <li>A habitat is a place that an animal lives. It provides the animal with food, water and shelter.</li> <li>There are many different sorts of habitats and micro-habitats around the world from forests to grasslands and from mountain slopes to deserts.</li> <li>Most living things are suited to living in a habitat e.g. camels have long lashes to keep out sand.</li> <li>A food chain shows how each animal gets its food. Food chains are one of the ways that animals depend on each other to stay alive.</li> </ul>   | <ul style="list-style-type: none"> <li>All animals, including humans, have offspring which grow into adults.</li> <li>All animals, including humans, need food, water and air to stay alive.</li> <li>All foods contain nutrients which your body needs to stay active throughout the day.</li> <li>Everyone should have their '5 a day' – 5 portions of fruit and vegetables, to get the right amount of nutrients.</li> <li>It's important not to eat too much sugar and fat.</li> <li>Sugary foods are bad for your, teeth and can be fattening, and foods with lots of fat are bad for your heart.</li> <li>Keep your mouth healthy by brushing your teeth for two minutes twice a day.</li> <li>It's important to have 30-60 minutes of exercise every day, this can include running around and playing games with friends.</li> <li>To stop illness and infections spreading, we must be hygienic and keep ourselves clean.</li> </ul>  |
| <p><b>Ks1 Skills end point</b></p> <ul style="list-style-type: none"> <li>Asking simple questions</li> <li>Answering questions in different ways such as gathering and recording data to help in answering questions</li> <li>performing simple tests</li> <li>Observe closely using simple equipment</li> <li>using their observations and ideas to suggest answers to questions</li> <li>sorting and classifying</li> <li>Make comparisons</li> </ul>   | Key Component Knowledge | <ul style="list-style-type: none"> <li>Make close observations of seeds and bulbs</li> <li>Classify seeds and bulbs</li> <li>Research and plan when and how to plant a range of seeds and bulbs</li> <li>Look after the plants as they grow – weeding, thinning, watering etc.</li> <li>Make close observations and measurements of their plants growing from seeds and bulbs</li> <li>Make comparisons between plants as they grow</li> <li>Can spot similarities and difference between bulbs and seeds</li> <li>Classify and sort materials by their properties e.g. manmade, natural</li> <li>Investigate and observe what happens to different materials during testing and use this to inform explanation of their properties</li> <li>Investigate which materials are fit for a purpose e.g. What is the best material for an umbrella?</li> <li>Explain from their observations how materials change when a force is exerted on them by squashing, bending, twisting and stretching.</li> <li>Investigate the transparency of objects, recording class data in a table and drawing simple conclusions from the findings.</li> <li>Ask and answer questions about everyday materials</li> </ul>   | <ul style="list-style-type: none"> <li>Ask questions and use secondary sources to find out about the life cycles of some animals</li> <li>Observe animals growing over a period of time e.g. chicks, caterpillars, ababy</li> <li>Ask questions of a parent about how they look after their baby/ pet owners questions about how they look after their pet</li> <li>Explore the outside environment regularly to find objects that are living, dead and have never lived</li> <li>Classify objects found in the local environment</li> <li>Observe animals and plants carefully, drawing and labelling diagrams</li> <li>Create simple food chains for a familiar local habitat from first hand observation and research</li> <li>Create simple food chains from information given e.g. in picture books (Gruffalo etc.)</li> <li>Can sort into living, dead and never lived</li> <li>Can give key features that mean the animal or plant is suited to its micro-habitat</li> <li>Using a food chain can explain what animals eat</li> <li>Can explain in simple terms why an animal or plant is suited to a habitat</li> </ul> | <ul style="list-style-type: none"> <li>Investigate the effect of exercise on their bodies</li> <li>Classify food in a range of ways, including using the Eatwell guide</li> <li>Investigate washing hands, using glitter gel</li> <li>Describe, 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</li> <li>Measure/observe how animals, including humans, grow.</li> <li>Collate what they know about looking after a baby/animal by creating a parenting/pet owners' guide</li> <li>Explain how development and health might be affected by differing conditions and needs being met/not met</li> <li>Has experienced and observed phenomena, having looked more closely at the natural and humanly-constructed world around them.</li> <li>Shows curiosity, asking questions about what they have noticed.</li> <li>Has developed understanding of scientific ideas through the use of different types of scientific enquiry to answer own questions, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and finding things out using secondary sources of information.</li> <li>Beginning to use simple scientific language to discuss what they have found out and communicate their ideas to a range of audiences in a variety of ways.</li> </ul> |

**Wow Moments/ SMART Days**

Visit to Daventry Country Park and/or visit to local allotments  
Growing bulbs in school  
Exploring school grounds for trees/plants  
Recycling visitor to help sort materials and re use materials by  
junk modelling  
Uganda Enterprise Day

Visit to Zoo/safari Park.  
Animal Smart Day  
Dave XRaptors visit to bring in variety of animals to classify.  
Daily Weather Watcher responsibilities across the school.

Mad Science' Visits  
Think Tank trip