### Key Stage 1: Scientific Investigation Skills

**Asking Questions**
- ask simple questions and recognise that they can be answered in different ways

**Measuring and Recording**
- observe closely, using simple equipment
- perform simple tests
- gather and record data to help in answering questions

**Concluding**
- identify and classify
- use their observations and ideas to suggest answers to questions

### Lower Key Stage 2: Scientific Investigation Skills

**Asking Questions**
- ask relevant questions and use different types of scientific enquiries to answer them
- set up simple practical enquiries, comparative and fair tests

**Measuring and Recording**
- make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- gather, record, classify and present data in a variety of ways to help in answering questions

**Concluding**
- identify differences, similarities or changes related to simple scientific ideas and processes
- report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- use straightforward scientific evidence to answer questions or to support their findings

### Upper Key Stage 2: Scientific Investigation Skills

**Asking Questions**
- plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary

**Measuring and Recording**
- take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs

**Concluding**
- identify scientific evidence that has been used to support or refute ideas or arguments
- report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results
- present results in oral and written forms such as displays and other presentations

**Evaluating**
- use test results to make predictions to set up further comparative and fair tests
<table>
<thead>
<tr>
<th>Topic</th>
<th>National Curriculum Objectives</th>
<th>Learning Questions</th>
<th>Knowledge Imparted</th>
<th>Questions to Assess Understanding and Long-term memory Retention</th>
<th>Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasonal Changes</td>
<td>This unit of work will be taught over the course of the year to allow the children to see first-hand the changes. Photographs to be taken at each stage for reference and to develop LTM retention. Knowledge of the seasons and assessment of children's initial understanding in week 1 out Autumn 1. Describe weather associated with the seasons and how day length varies.</td>
<td>Can I find out about different seasons and how to describe them? Can I find out about how animals are affected by the seasons? Can I find out how the day length is affected by the seasons? Can I use data to investigate the weather during the seasons?</td>
<td>Children will describe the weather they can directly observe and other types of weather they know of. They will describe what the weather is normally like during different seasons, and what people might wear in different weather conditions. (Spring) Children will study images, looking for clues as to which season it is - including weather conditions and plant growth. Children will consider ways in which the changing conditions of the seasons affect the lives of animals. For example: focusing on the behaviour of robins during each season. They may either undertake sequencing activities, or work in groups to learn about behaviours of other animals. Children will learn about how humans adapt their behaviour to survive during the changing seasons. They may then either explore in detail the ways in which clothing worn may change, or what food is available at different times of year. Children will learn how the length of day and night, and the times at which they occur, change throughout the year. They may either answer questions about given information, or sort activities into the seasons for which they are most appropriate. Children will complete given pictograms using sets of data to show changes in weather, or frequency of different types of clothes worn, during each season.</td>
<td>Can the children name the seasons? Do children know that weather changes for each season? Can the children identify the seasons? Can the children say how the seasons differ? Can children explain the terms 'adapt' and 'hibernate'? Can children explain how the seasons affect what we wear? Can the children explain how the seasons affect what we do? Do children understand that different food grows in different seasons? Can children identify which season has the shortest days? Can children identify which season has the longest days? Do the children know the sun rises in the morning and sets in the evening? Can children gather weather data over a period of time? Can children use data to create a pictogram? Can children answer questions about their data?</td>
<td>Seasons: summer, winter, autumn, spring Day, daytime Weather: wind, rain, snow, hail, sleet, fog, sun, hot, warm, cold</td>
</tr>
<tr>
<td>Topic</td>
<td>National Curriculum Objectives</td>
<td>Learning Questions</td>
<td>Knowledge Imparted</td>
<td>Questions to Assess Understanding and Long-term memory Retention</td>
<td>Vocabulary</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>---------------------------------------------------------------</td>
<td>------------</td>
</tr>
</tbody>
</table>
|       | Notice that animals, including humans, have offspring which grow into adults | Can I find out about the offspring of a variety of different animals? | Children will consider why animals have babies, then match parent animals to their offspring. | Do children know that all animals, including humans, have offspring that grow into adults?  
- Can children match a variety of adult animals to their offspring?  
- Do children know that growth from offspring to adult is a gradual process? | Offspring  
Grow  
Adults  
Reproduce |
|       | Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) | Can I find out about the different ways in which animals reproduce? | Children will begin to learn about how animals who give birth to live offspring, and those who lay eggs, reproduce. They will then match and sort animals according to various criteria. | Do children know that animals have offspring that grow into adults?  
Can children describe some of the different ways animals have offspring?  
Do children know that not all animals reproduce in the same way? | Egg - Chick  
Egg - Caterpillar - Pupa - Butterfly (+ examples) |
|       | Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. | Can I explore how humans grow as they get older? | Children will learn about ways in which the body grows over time, then either describe some changes in their own words, or conduct a height investigation. | Do children know that humans grow as they get older?  
Do children know that body parts will grow in proportion?  
Can children describe the stages of human development? | Water  
Air  
Food |
|       | Notice that animals, including humans, have offspring which grow into adults | Can I find out what animals, including humans, need to survive? | Children will think about the basic needs of animals, such as eating, drinking and breathing. They will consider how these needs vary between species, then explain the needs of various animals in their own words. | Do children know that all animals, including humans, need food to survive?  
Do children know that all animals, including humans, need water to survive?  
Do children know that all animals, including humans, need air to survive? | Diet  
Nutrition  
Healthy |
|       | Notice that animals, including humans, have offspring which grow into adults | Can I explore the environment as a factor of survival for animals, including humans? | Children will learn about ways in which habitats provide some things that animals need, and how animals are best suited to specific environments. | Do children know that animals need air, water and food to survive?  
Do children know that an animal's survival often depends on its environment?  
Can children suggest reasons for why a species might become extinct? | Exercise  
Hygiene |
|       | Notice that animals, including humans, have offspring which grow into adults | Can I find out how to eat a healthy, balanced diet? | Children will learn about foods: which are more/less healthy, then either sort foods, or plan, prepare and describe some healthy foods. | Do children know why we eat and why it is important to eat a balanced diet?  
Do children know which foods we should eat most and least of?  
Can children suggest meals that would be good for them? | |
<table>
<thead>
<tr>
<th>Topic</th>
<th>National Curriculum Objectives</th>
<th>Learning Questions</th>
<th>Knowledge Imparted</th>
<th>Questions to Assess Understanding and Long-term memory Retention</th>
<th>Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identify and describe the basic structure of trees/plants</strong></td>
<td>Can I find out what a plant is?</td>
<td>Children will learn about what a plant is, then either go plant hunting, or plant seeds.</td>
<td>Can the children identify plants? Can the children describe the features of different plants? Can the children identify similarities and differences between plants?</td>
<td><strong>Knowledge Imparted</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Identify and name a variety of deciduous and evergreen trees</strong></td>
<td>Can I identify the different parts of a plant?</td>
<td>Children will identify the main parts of a variety of plants and describe their functions. They will then either examine plants (and identify features) or draw and label plant diagrams.</td>
<td>Can the children name the main parts of a plant? Do the children know parts of the plant have different functions? Can the children identify similarities and differences between the parts of different plants?</td>
<td><strong>Vocabulary</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Identify and name a variety of plants and animals in their habitats (micro habitats)</strong></td>
<td>Can I make observations of growing plants?</td>
<td>Children will identify ways in which plants change over time. They may either study and describe plants they have grown themselves, or identify ways in which plants around school have changed over time.</td>
<td>Do children know that plants grow? Can children name the main parts of a plant? Can children describe and make observations about how plants change?</td>
<td><strong>Knowledge Imparted</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Explore and compare the differences between things that are living, dead or have never been alive</strong></td>
<td>Can I identify and describe a range of trees?</td>
<td>Children will identify and name trees, then learn some differences between deciduous and evergreen trees. They may then either sort trees into groups or go tree hunting.</td>
<td>Can the children name some trees? Can the children describe the features of different trees? Can the children use the terms 'evergreen' and 'deciduous'?</td>
<td><strong>Knowledge Imparted</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can I identify and describe garden plants?</td>
<td>Children will learn about a variety of common garden plants, identify some of their features, and consider why they are appealing to people, e.g. easy to grow, or attracts insects.</td>
<td>Can the children name garden plants? Can the children describe the features of different garden plants? Can the children identify similarities and differences between plants?</td>
<td><strong>Vocabulary</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can I compare plants that are living, dying or dead?</td>
<td>Children will identify observable characteristics of living animals, going on to learn how they are present for all animals, even if it is difficult to observe them. They will then learn how plants have similar life processes, and why plants may die. After this children may either plant scraps and cuttings which re-grow, or identify dead and dying plants.</td>
<td>Can children identify some observable life processes of animals and plants? Can children consider when, and why, plants start to die once harvested? Can children identify ways in which harvested plants can be kept alive, or helped to reproduce, by humans?</td>
<td><strong>Knowledge Imparted</strong></td>
<td></td>
</tr>
</tbody>
</table>