




# Mendell Primary School

Aspire Challenge Achieve

## Medium Term Plan Science



<b>Year Group:</b> 4	<b>Term:</b> Summer 1	<b>Teacher:</b> Miss Jones	<b>Subject lead:</b> Sarah Bride	<b>Overview:</b> Living Things and their Habitats	<b>Key End Points:</b> By the end of this unit children will be able to:	
<b>Common Misconceptions:</b> <ul style="list-style-type: none"> <li>the death of one of the parts of a food chain or web has no or limited consequences on the rest of the chain</li> <li>there is always plenty of food for wild animals</li> <li>animals are only land-living creatures</li> <li>animals and plants can adapt to their habitats, however they change</li> <li>all changes to habitats are negative.</li> </ul>		<b>Unit key Vocabulary:</b> Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate		<ul style="list-style-type: none"> <li>recognise that living things can be grouped in a variety of ways</li> <li>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul> <div data-bbox="1122 651 1509 762" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>Research</b> Using secondary sources of information to answer scientific questions.</p> <p><b>Identifying, grouping and classifying</b> Making observations to name, sort and organise items.</p> </div>	<ul style="list-style-type: none"> <li>Talk about and describe range of habitats and their plants &amp; animals (building on from Y2 work)</li> <li>Compare animals and plants</li> <li>Ask and answer yes/no questions</li> <li>Identify plants and animals using a classification key</li> <li>Group animals &amp; plants in a variety of ways and give reasons</li> <li>Construct classification keys to help others to identify animals &amp; plants</li> <li>construct and interpret a variety of food chains, identifying producers, predators and prey</li> <li>Give examples of how an environment has changed due to human impact or natural phenomena</li> <li>Talk about actions they could take to protect our planet</li> </ul>	
<b>Links to other learning:</b>	<b>Prior Learning:</b> <ul style="list-style-type: none"> <li>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. <b>(Y1 - Plants)</b></li> <li>Identify and describe the basic structure of a variety of common flowering plants, including trees. <b>(Y1 - Plants)</b></li> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. <b>(Y1 - Animals including humans)</b></li> <li>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). <b>(Y1 - Animals, including humans)</b></li> <li>Identify and name a variety of plants and animals in their habitats, including microhabitats. <b>(Y2 - Living things and their habitats)</b></li> </ul>	<b>Future Learning:</b> <ul style="list-style-type: none"> <li>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. <b>(Y5 - Living things and their habitats)</b></li> <li>Describe the life process of reproduction in some plants and animals. <b>(Y5 Living things and their habitats)</b></li> <li>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. <b>(Y6 - Living things and their habitats)</b></li> <li>Give reasons for classifying plants and animals based on specific characteristics. <b>(Y6 - Living things and their habitats)</b></li> </ul>	<b>High Quality Text:</b> Wolves by Emily Gravett The Vanishing Rainforest. <b>Scientist to study:</b> Cindy Looy (Environmental Change and Extinction)	<b>Risk Assessment/Healthy and safety</b>  Handling plants.	<b>Teacher CPD:</b>  PLAN ASE Chaya Unit of work.  Reach Out CPD - <a href="https://www.reachoutcpd.com/">https://www.reachoutcpd.com/</a> sign up for free.	
<a href="#">Learning Intention</a>	<a href="#">Lesson Outline (Key Questions in colour)</a>			<a href="#">Resources</a>	<a href="#">Vocabulary</a>	<a href="#">Lowest 20% Adaptations</a>

1	<p>L.I. I can describe how some animals are adapted to live in an Arctic habitat or a hot desert habitat.</p> 	<p><b>This is a Science lesson. In Science, we study of nature and the behaviour of natural things. The skill we will be using this lesson is asking questions and communicating information.</b></p> <p><b>Pre assessment:</b> Complete vocabulary check – repeat at the end of the unit.</p> <p>Prior learning/pre assessment thought shower children will add to this at the end of the unit – <b>what do you already know about living things and their habitats?</b></p> <p><b>What is a habitat?</b>  <b>What living things can you name? What animal groups can you name?</b>  <b>What is a microhabitat?</b></p> <p><b>Word of the week: adapt</b>  <b>Big Question: How are animals adapted to their habitat?</b></p> <p><b>What is a habitat?</b> - A habitat is a place where an animal lives, providing it with water, food and shelter. Many animals have special features or skills to help them survive in their habitat. They are adapted to live there. Watch this BBC clip: <a href="https://www.bbc.co.uk/teach/class-clips-video/science-ks1-ks2-wonders-of-nature-polar-bears-in-their-habitat/z73yqwx">https://www.bbc.co.uk/teach/class-clips-video/science-ks1-ks2-wonders-of-nature-polar-bears-in-their-habitat/z73yqwx</a></p> <ul style="list-style-type: none"> <li>• <b>Where is a polar bear's den?</b></li> <li>• <b>In which habitat do polar bears live?</b></li> <li>• <b>How are they adapted to live in their habitat?</b></li> </ul> <p>Watch this clip about different types of owls. Try to jot down the habitats they live in and think about how each owl is adapted to their habitats. <a href="https://www.bbc.co.uk/bitesize/clips/zv7w2hv">https://www.bbc.co.uk/bitesize/clips/zv7w2hv</a></p> <p>Children may notice:</p> <p><b>Snowy owls</b> live <i>in the Arctic</i> and have mostly white feathers as camouflage, so their colour blends in with the snow.  <b>Great grey owls</b> live <i>in pine forests</i> and have very thick feathers to keep warm.  <b>Elf owls</b> live <i>in the hot desert</i> and find holes in cactus plants. They hunt insects at night when it is cooler.  <b>Flammulated owls</b> live <i>in mountain forests</i> and have feathers which match the pattern of bark on trees for camouflage.</p> <p>Explain that many animals have special features or skills so that they are suited to their habitat. These are called adaptations. For example, the Arctic fox and the desert fox are different from the foxes we see in the UK. <b>How do you think they are different?</b></p> <p>Watch <i>the first 2 ½ minutes</i> of this BBC clip: <a href="https://www.bbc.co.uk/teach/class-clips-video/science-ks2-ks3-how-animals-have-adapted/z4y76v4">https://www.bbc.co.uk/teach/class-clips-video/science-ks2-ks3-how-animals-have-adapted/z4y76v4</a></p> <ul style="list-style-type: none"> <li>• <b>What special features, or adaptations, does the Arctic fox have?</b></li> <li>• <b>What adaptations does the desert fox have?</b></li> </ul> <p><b>Task:</b> ask the children to create a fact file showing the adaptations of animals in a hot desert environment compared to artic environment. Lower ability children can create a fact file about the Arctic fox, the snowy owl, the desert fox and the elf owl. They can use what you have learnt, the word bank and the pictures to help them. The other children can use iPad and the websites on the PowerPoint resource to research different animals and how they adapt to the artic and desert habitats.</p> <p><b>Example:</b></p>	<p>Ipads, PowerPoint.</p>	<p><b>Environment, adapt, adaptation, conditions, habitat, camouflage, migrate, hibernate.</b></p>
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The **Arctic fox** has thick fur. Its coat changes from white in winter to brown-grey in summer so it is camouflaged in both seasons. It has small ears so it does not lose warmth.

The round body shape and thick long feathers help the **snowy owl** to stay warm. The feathers also extend over its feet and beak. It nests on the ground and the chicks huddle together for warmth.

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**Possible learning outcome for reviewing your work.**

I can describe how some animals are adapted to live in an Arctic or a hot desert habitat

an Arctic habitat

The Arctic fox has thick fur for warmth.



The fur is white in the winter for camouflage against the snow. It has small ears.

The snowy owl has a large round body and long thick feathers for



warmth. It has mostly white feathers for camouflage. It nests on the ground.

a hot desert habitat

The desert fox has sandy coloured fur and large ears to help it stay cool.



It hunts for insects at night when it is cooler. It has sensitive hearing to detect insects underground.

The elf owl has a small body with grey-brown feathers. It nests in holes



in cactus plants for shade and protection. It hunts for insects at night when it is cooler.

The sandy coloured fur of the **desert fox** reflects heat during the day and its large ears help it to keep cool. It hunts at night when it is cooler, listening for underground insects with its sensitive hearing.

The **elf owl** has a small body and grey-brown feathers. It can fit into holes in cactus plants to find shade and a safe nesting place. It hunts at night when it is cool and usually eats insects.

2. L.I. I can describe the conditions in some micro-habitats. I can identify some of the living things found in a garden or woodland habitat.

**This is a Science lesson. In Science, we study of nature and the behaviour of natural things. The skill we will be using this lesson is making observations and recording information.**

**Prior learning: What do you already know about woodland or garden habitats?**

Think or talk about a garden, park or woodland near your home or the school field.

- **What kind of animals, plants and other living things do you know that live there?**

**Word of the week: microhabitat**

**Big Question: What kind of micro-habitats are found in woodland or gardens?**

Watch this clip about earthworms. <https://www.nhm.ac.uk/discover/earthworm-heroes.html> Talk about two reasons why earthworms are important in a garden or wood. **Can you think of any other animals that break down leaves?** Watch this clip to find more: <https://www.bbc.co.uk/teach/class-clips-video/science-ks1-ks2-fallen-leaves-fungi-slime-molds/z7cb47h>

**What animals, plants and fungi do you think grow in the woods or garden?** There are a huge variety of animals, plants and fungi in woods and gardens.

- Some animals live, feed and move around in the habitat, such as birds and rabbits.
- Other animals live all their time in a small place or micro-habitat.

**What kind of animals do you think you might find in these micro-habitats?**

Animal identification help sheet in PowerPoint resource. School field.

**Environment, habitat, condition, microhabitat, identification key, survey.**



Pile of leaf litter



Tree



Patch of long grass

**What kind of animals might move around to feed in a whole garden habitat?**

Jot down your ideas. *Watch these clips for clues.*

<https://www.bbc.co.uk/programmes/p003lc9k>

<https://www.bbc.co.uk/programmes/p003kmh2>

**Task:** Observing a habitat and micro-habitats by conducting a survey

Conduct a survey of the habitat. You can also find animals or plants in micro-habitats by looking under logs, stones, bushes or loose soil. Use the **identification key** to help you and note down the number of animals and where you find them.

**Health and safety:** *Take care with the plants and animals you find. Avoid touching them, especially those which might bite or sting. Remember to leave the plants and animals in their habitat.*

Back in class, make a mind map or poster of two or three different micro-habitats you found.

Describe the conditions in each micro-habitat.

- Dry, damp or wet?
- Light, dim or dark?
- Warm or cool?

Add the names of some living things you found.

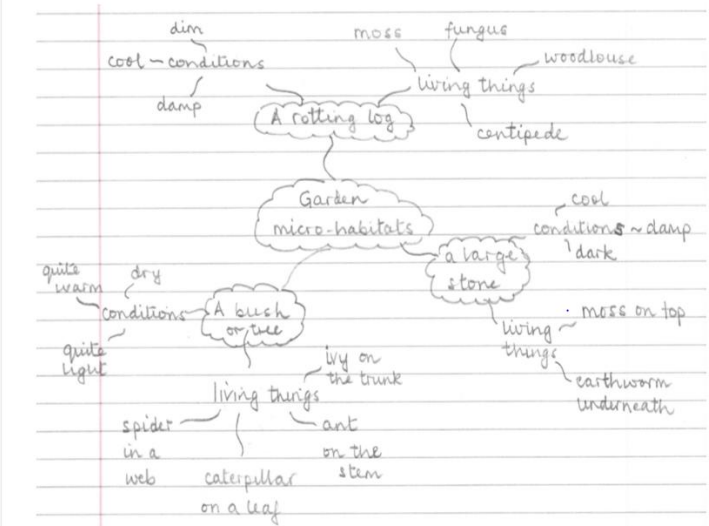
**Example:**

A rotting log can provide food and shelter for woodland mushrooms and other fungi as well as small animals like woodlice and centipedes. The conditions are usually damp and cool.

Stones sometimes have moss growing on top. It is dark underneath the stone and earthworms often lurk there.

**Possible learning outcome for reviewing your work.**

I can describe the conditions in some micro-habitats. I can name some living things in a garden or woodland habitat.



A tree or bush can be a habitat for many living things. Fungi, moss or ivy can be growing on the trunk of a tree. Spiders often make webs in the branches. In the spring and summer months, caterpillars can be found eating the leaves. Ants can sometimes be seen running along the stems.

3 L.I. I can make a branching key to classify a group of objects. I can identify woodland invertebrates using a branching key.

**This is a Science lesson. In Science, we study of nature and the behaviour of natural things. The skill we will be using this lesson is asking questions and making observations.**

- Prior learning;**  
**What is a habitat? What animals live there?**  
**What is a micro habitat? Can you name examples?**  
**What animals live in a log micro habitat?**

**Word of the week: branching key** - A branching key can be used to classify a group of items. It uses questions. The answer is 'yes' for some items and 'no' for the others.

**Big Question: how can we classify invertebrates using their features?**




- Investigate...**  
 Spread out about 10 different liquorice allsorts (or cut out / draw images from page 9). Talk about their features:
- **Round or square?**
  - **Number of different colours?**
  - **Smooth or rough surface?**

Select 8-10 different sweets and try writing down some questions which will give the answer 'yes' for some sweets and the answer 'no' for the rest: For example: Is it round? Is it pink? Is it smooth? Test each question by sorting the sweets into two piles: For example: Is it a square shape?

Liquorice allsorts, PowerPoint and branching key resources.

**Classify, branching key, feature, invertebrate.**



		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Yes</p>  </div> <div style="text-align: center;"> <p>No</p>  </div> </div> <p>In groups, Making a branching key for 4 items. Select two different square shaped sweets and two round shaped sweets. Make your first question 'Is it a square shape? Think of different questions to sort  (a) the square shapes.  (b) the round shapes.  See example on PowerPoint.</p> <p>Odd one out: slug, beetle, worm</p> <ul style="list-style-type: none"> <li>Which one do you think is the odd one out?</li> </ul> <p>Think about the animal features to help you. You may have chosen body colour, body shape, number of legs or another feature to describe the odd one out. <b>Can these features help you make branching key questions?</b> E.g. Is it a brown colour?  Does it have a long thin body? Does it have any legs?</p> <p><b>Task:</b>  Create branching keys using a choice of four invertebrates – see PowerPoint resource for pictures – MA can use some of the pre prepared support slips. LA use the prepared template to fill in the missing invertebrates.</p>			
4	<p>L.I. I can draw food chains for woodland plants and animals. Describe the relationship between predators and their prey.</p> 	<p><b>This is a Science lesson. In Science, we study of nature and the behaviour of natural things. The skill we will be using this lesson is making observations and recording information.</b></p> <p><b>Prior learning:</b>  <b>What do you call trees that lose their leaves?</b>  <b>What do you call plants and trees that keep their green leaves all year?</b>  <b>What is an invertebrate?</b>  <b>What do you already know about how animals feed?</b></p> <p><b>Big Question: what is a food chain?</b></p> <p>Discuss the final question together. What do the children recall about their work in year 1 about what animals eat and how we can classify animals by what they eat? Discuss: All animals need to eat food to survive.</p> <ul style="list-style-type: none"> <li><b>What is the name of an animal that only eats plants?</b></li> <li><b>What is the name of an animal that only eats other animals?</b></li> <li><b>What is the name of an animal that eats both plants and other animals?</b></li> </ul> <p>Watch this clip describing a food chain. <a href="https://www.bbc.co.uk/bitesize/clips/zjshfg8">https://www.bbc.co.uk/bitesize/clips/zjshfg8</a> Think about these questions as you watch</p> <ul style="list-style-type: none"> <li><b>Where does a food chain start?</b></li> <li><b>Which animals are herbivores?</b></li> <li><b>Which animals are carnivores?</b></li> </ul>	<p>IPad, PowerPoint, woodland animal cards.</p>	<p><b>Carnivore, consumer, food chain, herbivore, omnivore, predator, prey, producer.</b></p>	



**Explain:** A food chain starts with energy from the Sun because plants need the Sun's light energy to make their own food in their leaves. Plants are eaten by animals. These animals are then food for other animals, creating a **food chain**.

Show the children a food chain (prepared on PowerPoint) **what do they arrows show?** - The arrows in the food chain show the flow of energy.

Share the vocab – prey, producer, consumer and predator – can they use they identify which words describes each part of the food chain – sunlight, leaves, caterpillar, magpie, cat. Share definitions.

Play this food chain game to identify some woodland producers and consumers.

<https://www.bbc.co.uk/bitesize/topics/zbnbn9q/articles/zsphrwx> Write down a list of predators and their prey from the food chain game.

**Task:** Provide the children with a selection of woodland animals and ask them to create 4 different food chains.

Label each living thing as producer or consumer. Write short sentences underneath to describe the predators and prey in the food chain.

**Example:**

In UK woodland, badgers and foxes are 'top carnivores' as they are not eaten by other animals.

Badgers and foxes are omnivores. They eat berries as well as small animals. A food chain can have just a producer and one consumer. In this case there is no predator or prey.

**Possible learning outcome for reviewing your work.**

I can draw and label food chains for woodland animals. I can describe the relationship between predators and their prey.

Berries → Hedgehog → Fox  
producer consumer consumer

The fox is the predator in this food chain and the hedgehog is its prey.

Leaves → Caterpillar → Shrew → Badger  
producer consumer consumer consumer

The shrew is a predator in this food chain and the caterpillar is its prey. The shrew is also prey for the badger. The badger is the top predator.

Berries → Badger  
producer consumer


There is no predator in this food chain. The badger is an omnivore and eats plants as well as other animals.

The arrows in a food chain show the flow of energy. (A food chain starts with energy from the Sun because plants need the Sun's light energy to make their own food in their leaves.)

Hedgehogs are omnivores. They eat berries, worms and insects.

**Extension task:** Explore the relationship between ants, tiger beetles and parasitic wasps

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5	<p>L.I. I can describe how hedgehogs change their behaviour in different seasons. I can make a campaign poster for helping to protect hedgehogs and their habitats.</p> 	<p><b>This is a Science lesson. In Science, we study of nature and the behaviour of natural things. The skill we will be using this lesson is asking questions and communicating information.</b></p> <p><b>Prior learning:</b>  <b>What is a micro habitat? Can you name examples?</b>  <b>What are the four seasons?</b>  <b>What are the main animal types?</b>  <b>What name is given to animals that hunt at night?</b></p> <p><b>Big Question: How do humans impact wildlife?</b></p> <p><b>What do you already know about hedgehogs?</b> The hedgehog is one of the animals featured in the ‘food chain game’ you played last lesson. <b>Can you remember some of the food hedgehogs like to eat?</b></p> <p>Hedgehogs are omnivores, although they prefer minibeasts such as insects, slugs, snails and worms to berries! <b>Do you think they eat the same food all year round?</b> Talk about how the changing seasons might affect hedgehogs. Watch this clip about a hedgehog throughout the year. Try to jot down notes about their behaviour and what they find to eat.  <a href="https://www.bbc.co.uk/bitesize/clips/z284d2p">https://www.bbc.co.uk/bitesize/clips/z284d2p</a></p> <p><i>Children may notice:</i> Hedgehogs are active at night and have a good sense of smell to find food. They eat slugs, snails and worms. In summer, hedgehogs give birth and feed their hoglets on milk. After three weeks, a mother hedgehog will show her hoglets where to find food. Hedgehogs may eat berries or fruit in summer and autumn. In the autumn, hedgehogs eat as much as they can to build up body fat. In winter, hedgehogs hibernate. They fall into a deep sleep and do not eat.</p> <p>Explain it is estimated there were 30 million hedgehogs in the UK in the 1950s. A recent survey suggests there are now between 1 and 1.5 million hedgehogs. <b>Can you think of reasons why hedgehog numbers have fallen?</b></p> <p><b>Task:</b> Design a campaign poster to support making gardens more ‘hedgehog friendly’.  Children can research organisations such as People’s Trust for Endangered Species (PTES) and the British Hedgehog Preservation Society campaign for the protection of hedgehogs and their habitats. Find out about their work:  <a href="https://ptes.org/campaigns/hedgehogs/">https://ptes.org/campaigns/hedgehogs/</a>  <a href="https://www.britishhedgehogs.org.uk/">https://www.britishhedgehogs.org.uk/</a>  Choose the issues you think are most important.  <i>For example:</i></p> <ul style="list-style-type: none"> <li>• Close-panel fences and garden walls can stop hedgehogs moving to find food and a mate.</li> <li>• Garden chemicals can kill animals which hedgehogs like to eat, like slugs and snails.</li> <li>• Pond edges can be too steep for hedgehogs to climb.</li> <li>• Hedgehogs prefer rough areas or bonfire piles for hiding or hibernation - but take care when burning or strimming!</li> <li>• Loose netting and litter can catch round a hedgehog.</li> </ul>	PowerPoint, iPad.	<b>Environment, habitat, hibernate, human impact, season. Positive, negative.</b>
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Possible learning outcome for reviewing your work.

Garden chemicals reduce the number of slugs, snails and other insects which means there is less available for hedgehogs to eat.

Rough areas and bonfires make good places for hedgehogs to hibernate or hid during the day.

Always check a bonfire before burning. Long grass also needs checking before using a strimmer or mower.

The poster is a hand-drawn grid with four quadrants, each containing text and a small illustration. In the center, there is a box that says 'Help protect hedgehogs!'.  
Top-left quadrant: 'AVOID USING GARDEN CHEMICALS.' with a bullet point: 'Using slug pellets kills the minibeasts that hedgehogs eat.' Below is a drawing of a 'SLUG PELLETS' jar with a red 'X' over it.  
Top-right quadrant: 'MAKE A RAMP FOR YOUR GARDEN POND.' with a bullet point: 'Hedgehogs can swim but they can't climb out from steep sides.' Below is a drawing of a pond with a ramp leading to it.  
Bottom-left quadrant: 'LEAVE SOME ROUGH PATCHES IN YOUR GARDEN.' with two bullet points: 'Hedgehogs hibernate or hid under leaves, piles of wood or long grass.' and 'Check before you strim!'. Below is a drawing of a pile of wood and long grass.  
Bottom-right quadrant: 'MAKE A SMALL OPENING IN YOUR FENCE.' with a bullet point: 'Hedgehogs need to move between gardens to feed.' Below is a drawing of a fence with a small gap at the bottom.

Garden ponds with steep sides are dangerous for hedgehogs. They can swim but cannot climb out if the sides are steep and slippery. Add a small ramp so they can climb out safely.

Hedgehogs can travel over a mile in a night looking for food. A small opening in the bottom of a fence or garden wall means they can move between gardens as they search for prey.

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**Extensions task:** find out more about other habitats in the UK which have been threatened by human activity. For example, the water vole habitat: <https://www.bbc.co.uk/bitesize/clips/z2ynvcw>

Add to pre assessment thought shower and repeat vocabulary check.

