

Year 12 A2A Science - Living Things and their Habitats 2017 Plants

Year 1/2 Key Skills to be covered, taken from Lancashire Key Learning Document – pitching at the correct year group and differentiation within plan for different groups

Be specific in the key skills, and make them more understandable for children. Consider what it is YOU feel the children should learn as well as the National Curriculum:

Pupils will 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 micro-habitats.
- There are different kinds of habitat near school which need to be cared for
- Habitats provide the preferred conditions for the animals/plants that live there (compare local habitats and less familiar examples).
- Different kinds of plants and animals live in different kinds of places.

Possible Cross-curricular links, especially opportunities for English, Mathematics and Computing within teaching:

English links	<ul style="list-style-type: none"> • Writing an advert
Mathematics links	<ul style="list-style-type: none"> • Tally charts and Bar Charts (Minibeast Safari) • Comparing data (Work Charming)
Computing links	<ul style="list-style-type: none"> • Internet Research - animals which live in habitats
Other links	<p>Geography</p> <ul style="list-style-type: none"> • Finding the global location of habitats on a map

Possible Experiences including visits/visitors/other:

Consider what could augment your planning to really enthuse the children in your class:

- Minibeast Safari in the local area - Hedgerows down to the beach.

Display/Resources ideas:

Consider what resources could be brought into the classroom and what display work could be completed either before/during or after topic is taught:

After Lesson 3

- Create a large display of the local environment and a 'lift the flap' display of micro-habitats, using photos from the school safari where applicable. Children can contribute individual minibeast artwork and cover these with a flap to camouflage them, e.g. draw a woodlouse with the flap disguised as leaf litter or a stone. On the reverse of the flap, children write the name of the creature. Continue to add animals and plants to the display as the unit progresses.

After Lesson 4

- Add a pond habitat to your habitats display and label the plants and animals found there.

Session	Key Objective from skills listed above (What is it that you want the children to learn?)	Possible Activities including use of Computing and other technologies, and showing at least 3 differentiations	Outcomes/Evidence of what they have learnt	Possible extension into homework if appropriate to enhance and deepen learning
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			(Where will this be found? Will it be in a book? Topic book? Display? Photographic evidence?)	
1	<p>Children will have recognised and described different habitats.</p> <p><u>National Curriculum Objective Knowledge</u> <i>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</i></p>	<p>Activity: Advertising a habitat</p> <ul style="list-style-type: none"> • <i>Where do you live?</i> Discuss how people live in all sorts of different places, e.g. a flat, house, caravan, in the country or in a town. • <i>What other types of places might people live?</i> Show Unusual homes (Y2 H ITR 1) and discuss different types of homes in other cultures. <i>What do these homes have in common?</i> (E.g. shelter, warmth, a feeling of safety, etc.) <i>What sorts of things do we do at home?</i> (E.g. eat, sleep, grow, feel safe, etc.) • Explain that the scientific word for a home is a 'habitat'. <i>What types of homes might animals have?</i> Show Screen 1 of Habitats (Y2 H ITR 2). Discuss the different things that plants and animals need to survive. Show Screen 2 of Habitats (Y2 H ITR 2) and watch the video. Show Screen 3 of Habitats (Y2 H ITR 2) and discuss any new habitats or vocabulary from the video. Children think of a wild animal and draw what they think would be a suitable habitat for that animal. Encourage them to include the things that the animal would need to live. • Share children's drawings and use them to create a list of different habitats for future reference. • Show Who lives here? (Y2 H ITR 3). Invite children to drag the appropriate animal or plant into the correct habitat. Discuss the key characteristics of each habitat and what features of the animals/plants make them suited to living there, e.g. fish have gills and their streamlined shape makes them suited to swimming underwater in a marine habitat. • Read pages 27-29 of the pupil book (Who lives where?) together on types of habitats. Explain that children are going to be working in an 'animal or plant estate agency' and will be writing an advert for an ideal habitat for an animal of their choice. • Circulate examples of local estate agent's adverts. Show Screen 1 of The perfect home (Y2 H ITR 4) and introduce the Quest: <i>Can you make an advert for a habitat for an animal or plant?</i> Show Screen 2 of The perfect home (Y2 H ITR 4). • Discuss ideas for a blackbird's perfect habitat. <i>What might the blackbird need?</i> (E.g. nest, trees, close to a food supply, safety and warmth, etc.) <i>What features of a habitat would be unsuitable for a blackbird?</i> (E.g. damp or waterlogged, no plants, underground, etc.) 	<ul style="list-style-type: none"> • Children's drawings of wild animal habitats • Notes about suitable and unsuitable features of a habitat for a blackbird. • Drawings of ideal home (Homework) 	<p>Homework</p> <ul style="list-style-type: none"> • Children draw their ideal home. <i>What things do you need to survive? How could your ideal home give you what you need?</i>

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		<ul style="list-style-type: none"> Note these down and then click to reveal the advert and compare their ideas with what has been included. Discuss the key features of an advert. <p>Homework</p> <ul style="list-style-type: none"> Children draw their ideal home. <i>What things do you need to survive? How could your ideal home give you what you need?</i> Share drawings as a class. <p>Watch out for</p> <ul style="list-style-type: none"> Children may think that animals ‘choose’ a place to live rather than understanding that animals survive in a place because they have the right characteristics and conditions for survival. 		
2	<p>Children will have investigated contrasting world habitats.</p> <p><i><u>National Curriculum Objective Knowledge</u></i> <i>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</i></p>	<p>Activity: Exploring contrasting habitats</p> <ul style="list-style-type: none"> Recap the Quest: <i>Can you make an advert for a habitat for an animal or plant?</i> Remind children that a habitat is an animal or plant’s ‘home’. Briefly discuss the habitats that children have encountered so far and the types of plants and animals that are suited to them. <i>How many different habitats can you name?</i> Explain that a habitat can mean a very large area dependent on climate and vegetation, e.g. a rainforest or a desert which we often call an ‘environment’. It can also mean a much smaller area within the environment, e.g. under a log on a woodland floor or in a hole under a rock in a desert. We call these micro-habitats. Show Water habitats (Y2 H ITR 5) and work through the screens. Discuss how all of the animals and plants within a particular habitat are only found in that type of place in nature, e.g. arctic seals cannot survive in a rainforest (even in a river) as they are not suited to the conditions there. Similarly, rainforest monkeys would not be able to survive in an African Savannah because the food that grows there is not suitable for them. Remind children of what a habitat must provide (e.g. shelter, food and water, safety, etc). Note these down on a IWB. Explain that each habitat provides different sorts of shelter/food and so will suit different plants and animals. In groups, children use Comparing habitats (Y2 H PCM 1) to explore two different types of habitats, e.g. ocean, polar, rainforest, desert, temperate woodland, grassland, etc. Help them 	<ul style="list-style-type: none"> List of habitats the children can name Posters showing idea’s about which animals live in their chosen habitat Animal in habitat picture 	

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		<p>to find out about the global location of each habitat by finding them on a globe or map. Discuss whether the habitats are wet or dry, warm or cold, many or few plants, etc.</p> <ul style="list-style-type: none"> • In groups, children look at the information about climate and conditions on Comparing habitats (Y2 H PCM 1). Each group chooses a habitat card, cuts it out and sticks it onto a large sheet of paper. • They then record their initial ideas about which plants and animals they think live in their chosen habitats. Allow access to IT or reference materials so that children can research further. They can add to their lists in a different coloured pen to show learning. • Groups present their findings to the class. Help children to understand how animals and plants in any habitat are suited to living together and that they depend on one another, e.g. for food or for shelter. <p>Homework if no time in lesson</p> <ul style="list-style-type: none"> • Children select their favourite animal (from any habitat) and draw or print an image of it to stick in the centre of a piece of paper. • They ‘complete the picture’ by drawing in the surrounding plants or landscape to show the key elements of the animal’s habitat. <p>Differentiation</p> <p>Support</p> <ul style="list-style-type: none"> • Children use familiar habitats, e.g. pond, woodland, sea, etc. <p>Extend</p> <ul style="list-style-type: none"> • Children identify whether there could be any changes in their selected habitat which might affect their animal, e.g. deforestation • in rainforests. 		
3	<p>Children will have investigated minibeasts and other animals in the local environment.</p> <p><u><i>National Curriculum Objective Knowledge</i></u> <i>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</i></p>	<p>Activity: Going on a minibeast safari</p> <ul style="list-style-type: none"> • Recap learning so far by playing a game using Water or land? (Y2 H ITR 6). Ask children to quickly make the action for ‘water’ (e.g. breast stroke swimming action) or ‘land’ (e.g. marching action) to show in which habitat the animal lives. Alert children that some of the pictures are not animals – when these are shown they should sit down. • Play the game at a fast pace and observe children’s responses, indicating their understanding. 	<ul style="list-style-type: none"> • Photographs of minibeast safari. • Record of minibeasts found and how many of each • Class table of results and Bar Charts 	

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<p><i>kinds of animals and plants, and how they depend on each other</i></p> <p><u>Working Scientifically</u> <i>Identifying and classifying</i></p> <p><i>Gathering and recording data to help in answering questions.</i></p>		<ul style="list-style-type: none"> • Remind children of the Quest: <i>Can you make an advert for a habitat for an animal or plant?</i> Recap the learning children did in Lesson 2 on environments which include large scale features such as climate. Explain that today they will be finding out about local habitats that are smaller in scale. • Discuss examples of micro-habitats (e.g. on a tree, in the ground, on a log, etc). • <i>What type of micro-habitats might you find in the immediate school environment? What kinds of animals would live in these habitats?</i> • Explain that ‘minibeasts’ are very small animals such as worms, spiders, insects, butterflies and bees, etc. Show Minibeasts (Y2 H ITR 7) and invite children to explore the ‘hotspots’ where minibeasts live. In groups, children discuss and name some minibeasts that they think they might find around school. • Collect ideas and write a list on IWB paper for future reference. • Read pages 30-31 of the pupil book (Minibeast mission) together on minibeasts. • Explain to children that they are going to go outside on a school safari looking for animals and the homes in which they live. They might see evidence of larger animals’ homes (e.g. burrows or nests), but they should also look for evidence of minibeasts’ homes (e.g. spider webs, holes in mortar on walls). • Go outside and explore. Help children to identify micro-habitats to look for minibeasts, e.g. by lifting logs (replace them afterwards) or stones. Record the number and type of minibeasts found in each location. Take photos of the habitat and its location and, if possible, of the animals found there. • Back in the classroom, discuss which minibeasts children found. Add these to the list on the IWB paper. <i>Did we see any other animals or animal habitats?</i> • As a class, collate all evidence from the school safari and use the data to create a table of results. • Ask children to use this to complete a bar chart or graph with minibeast names on the x axis and numbers on the y axis. • Help children to answer questions using the graph, e.g. <i>What minibeast did we find most/least of? How many beetles did we find? How many more spiders than beetles were there? What was the total number of minibeasts we found?</i> 		
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		<p>Differentiation</p> <p>Support</p> <ul style="list-style-type: none"> Children use Minibeast bar chart (Y2 H PCM 2) to record their findings from the school safari. <p>Extend</p> <ul style="list-style-type: none"> Children make up their own questions to go with their graph. They swap with another child to see if they can answer the questions using their graph. <p>Watch out for</p> <ul style="list-style-type: none"> Each school will have different surroundings but even in the most urban areas minibeasts can be found under stones and plant pots, under the eaves of buildings and in the corners of windows. These examples will still give the idea that most animals have homes offering shelter and protection/security. Remind children not to disturb the animals they find or to damage any plants. Always wash hands after handling plants, animals or soil. 		
4	<p>Children will have investigated a pond habitat.</p> <p><i><u>National Curriculum Objective Knowledge</u></i> <i>Identify and name a variety of plants and animals in their habitats, including micro-habitats</i></p> <p><i><u>Working Scientifically</u></i> <i>Observing closely, using simple equipment</i></p> <p><i>Identifying and classifying</i></p>	<p>Activity: Looking at a pond habitat</p> <ul style="list-style-type: none"> Show Land habitats (Y2 H ITR 8) and work through the screens. Discuss any new habitats or vocabulary that children may not have encountered before. Remind children of the Quest: <i>Can you make an advert for a habitat for an animal or plant? Will your habitat be a water habitat? What kind of animals live in these types of habitat?</i> Investigate the school pond. Show children how to pond dip. Alternatively, complete the activity on Pond dipping (Y2 H ITR 9) for a virtual pond dipping experience. Remind children of the diversity of animals and plants to be found in different habitats. <i>What animals and plants would you find in a pond?</i> Collect and share ideas (e.g. diving beetles, water boatmen, dragonflies, frogs, caddis fly, water snails, herons, ducks, water voles, rushes, pond weed, yellow flag, mud sedge, etc.). <i>Would the animals and plants we expect to find in the pond be the same or similar to the ones we found around the school? Why might they be different? (Elicit the response that animals are suited to the conditions in their habitat.)</i> Explain that ponds and 	<ul style="list-style-type: none"> Class list of animals and plant they think will be found in a pond Photos of pond dipping Sketches / photos of animals the children find 	

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		<p>fields/woods are different types of habitat containing different living things.</p> <ul style="list-style-type: none"> • Before visiting the pond, explain that to keep safe we must behave in particular ways around water (e.g. stand sideways to the edge, do not lean over the edge of the pond, do not push anyone, etc.) Many locations that cater for school visits have purpose built pond dipping platforms. • During the pond dipping visit encourage children to take photos and make field sketches of the creatures they find. Make sure they record the plants in the pond and around the margins. • Back in the classroom, share the photographs children have taken. Look at field guides showing pond life and help groups of children to use these to identify the animals and plants in the pond. <p>Differentiation Support</p> <ul style="list-style-type: none"> • Children use Pond field guide (Y2 H PCM 3) to help them identify the plants and animals they have found. 		
5	<p>Children will have investigated where worms live.</p> <p><u>National Curriculum Objective Knowledge</u> <i>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</i></p> <p><u>Working Scientifically</u> <i>Asking simple questions and recognising that they can be answered in different ways</i></p>	<p>Activity: Hunting for worms</p> <ul style="list-style-type: none"> • Before the lesson, mark out 1 metre squared plots of ground around the school – enough for one per group. Each plot should have different conditions, e.g. in a shady place, near a path, in a flowerbed, in a damp place, in bright sunlight, etc. Assign a number to each plot. • Remind children of the key terms ‘environment’ (everything around us; all of the conditions, influences and physical landscape surrounding a living thing) and ‘habitat’ (a particular place a plant or animal lives within an environment). • Show Screen 1 of Earthworms (Y2 H ITR 10). <i>What is this animal? Where might it live?</i> (soil) Reveal Screen 2 of Earthworms (Y2 H ITR 10) showing the earthworm in its natural habitat. • In groups, children discuss which places around the school grounds they might be able to find worms. <i>Where do you think you might find the most/least worms? Why? How might you discover where most worms live?</i> • Note down their ideas (or mark them on the map mentioned below) and reasons why they think they will be found there. • Explain that children are going to go on a worm hunt! In groups, children will investigate one of the plots that you’ve already identified around the school. Show children a map of the school 	<ul style="list-style-type: none"> • Class list of ideas and reasons for where worms may be found • Photographs of worm charming • Map showing results from work charming - 1 for the whole class 	

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		<p>(you will need to roughly draw this out) where you have marked out the numbered plots of ground. Place a token or ticket for each location in a 'hat'. Invite one child from each group to draw a number from the 'hat'. This will determine the group's area to investigate.</p> <ul style="list-style-type: none"> • Show Screen 3 of Earthworms (Y2 H ITR 10) and watch the video. Explain that children are going to 'charm' worms. This involves making noise and vibrations to entice the worms to the surface, e.g. put a garden fork in the ground and hit it to send vibrations through the soil, dance on the soil, play music, bounce balls on the ground, etc. • Go outside and allow children 20-30 minutes to explore their plot of ground and practise worm charming. To speed things along, use a watering can to wet the ground and entice the worms towards the surface of the soil. As the worms emerge, explain that children should carefully lift them out and place them in their worm box, e.g. a plastic container with soil in the bottom which they should keep damp (not wet) and out of direct sunlight. • Discuss why these conditions are needed in the worm box. Explain that the worms will become very uncomfortable if handled with hot human hands because they breathe through their skin. • Take photographs to record children exploring the worm habitats, which can be printed and annotated when back in the classroom. • Back in the classroom, mark the total number of worms found at each plot on the school map. • <i>Which place had the most/least worms? What were the conditions like at each location? What conclusions can you make about where worms like to live from our data? (Generally soft, damp ground with lots of vegetation and air spaces will be most attractive as a habitat for worms. Hard, dry ground or ground next to structures such as paths and walls are least likely to contain worms.)</i> • Before putting the worms back where they came from, write some awards on sticky notes and award these groups, e.g. most worms found, noisiest worm charming, heaviest worm, longest worm, thinnest worm, weirdest worm, etc. Try to give at least one award per group. • Return the worms back into their habitats. <p>Differentiation Extend</p> <ul style="list-style-type: none"> • Children find out about worm charming festivals 		
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		<p>Watch out for</p> <ul style="list-style-type: none"> • Make sure children wash their hands after handling animals and soil. 		
6	<p>Children will have planned a habitat for wildlife.</p> <p><i>National Curriculum Objective Knowledge</i> <i>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</i></p>	<p>Activity: Planning a habitat</p> <ul style="list-style-type: none"> • Look at all of the data you have collected so far on the animals and plants that you have living around your school. • Refer back to children's initial drawings and list of habitats from Lesson 1. <i>Have you now identified more habitats? What have you learnt about the things that local wildlife need from its habitat? What new plants or animals have you found out about?</i> • Update their initial ideas with new things learnt, using a different colour. • Children imagine what might happen if all of the trees, shrubs and lawns were dug up and concrete or tarmac was laid down to make a car park. <i>What might happen to all of the plants and animals? Would they still have food to eat/somewhere to shelter/a suitable habitat?</i> • In groups, children think about what would make an ideal habitat or series of habitats for wildlife in the school grounds. <i>What sorts of plants would you need to grow to support the widest variety of animals? (E.g. woods, wild flower meadows, etc.) What plants would attract the most minibeasts/birds? What would you need if you wanted to attract hedgehogs or newts and toads?</i> • Ask them to record their ideas on sticky notes, which they can later select from, when designing their wildlife habitats. • Encourage children to recognise that animals in particular habitats are interconnected and that they depend on each other, e.g. to attract hedgehogs we would need a ready supply of worms and slugs for them to feed on. To attract worms and slugs we need fertile soil with lots of plant life and leaf litter. • In small groups or pairs, children design an ideal wildlife habitat for their school. Use IT resources or reference materials to look for examples of how to create insect houses and hedgehog homes. • Encourage children to write a sentence for each feature of their habitat to explain why it is there and how it helps support wildlife, e.g. we have a log pile to make a home for beetles and woodlice; we left the patch of nettles for butterflies to lay eggs on, etc. 	<ul style="list-style-type: none"> • Sticky notes with habitat ideas for different animals e.g. pond for frogs, logs/stones for woodlice etc. • Advert Year 1 - 1 animal e.g. bird picture of a tree, nest, ground suitable for worms etc. Children label nest, tree, worms etc. Year 2 - make it more persuasive, E.g. Bird Bliss Spacious and comfy nest made from the best twigs. Lovely views in the highest tree for security. The biggest, tastiest worms in the damp soil. Fresh, clear water from the relaxing river. 	

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		<ul style="list-style-type: none">• Show Advert (Y2 H ITR 11) and recap the learning on land and water habitats. Remind children of the Quest: <i>Can you make an advert for a habitat for an animal or plant?</i> Show The perfect home (Y2 H ITR 4) and recap the features of a good advert.• In pairs, children choose a plant or animal and discuss what its perfect habitat might be like.• They then write an advert to describe this habitat to the plant or animal, including the key features and how these cater for the plant's or animal's needs.• Display the finished habitat designs and adverts around the school. <p>Differentiation Support</p> <ul style="list-style-type: none">• Children use Habitat advert (Y2 H PCM 4) to structure their habitat advert.		
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