

# Science - Living Things and Their Habitats

## NC Targets to be covered:

- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- give reasons for classifying plants and animals based on specific characteristics

## Learning Ladders:

I can give reasons why living things can be classified into different groups

I can describe the main features of particular groups such as vertebrates and invertebrates

I can use my research of animals unknown to me in order to classify them

## Working Scientifically

- I can use appropriate scientific language to explain, evaluate and communicate my methods and findings.
- I can report and present my findings in oral and written forms such as displays and other presentations.
- I can recognise scientific evidence that can be used to support or refute ideas and arguments.

| Week | Order of Study - Main plots and Subplots                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| 1    | <p><b><u>LI- I can describe the main features of particular groups, such as vertebrates and invertebrates.</u></b></p> <p><b>What are some of the key characteristics of organisms?</b></p> <p>Stick in and complete the first two sections of the KWL grid, and then stick in knowledge organiser. Ask chn to write the name of their favourite animal on a whiteboard. Put the whiteboards in the middle of their table. Can you sort these animals into groups? What criteria did you use for sorting the groups? What does classify mean? Watch the BBC bitesize clip. Introduce the 5 different groups we can classify animals into. Can you name some animals from each group?</p> <p>What do all fish have in common? Turn to your partner - can you name any other type of fish? Take feedback from the class. Repeat this for mammals, amphibians, reptiles and birds. Thinking time - ask chn to look at the animals they wrote on their whiteboards at the beginning of the lesson. Can they now sort the animals on their tables in a different way?</p> <p>What does the word nutrition mean? Where do animals get nutrition from? Explain to chn, that some animals just eat meat, some just eat plants and some animals eat a mixture of both. Remind chn of the term herbivore. Ask chn to name some animals that are herbivores then discuss types of carnivores and omnivores. Ask chn to look at the animals they wrote on their whiteboards at the beginning of the lesson again and sort them in a different way?</p> <p>Thinking time - what is a skeleton? What function/job does it do? Look at the two different skeletons and discuss similarities and differences. Ask chn - why do different animals have different sized /shaped skeletons? Introduce the term vertebrate and invertebrate (discuss the prefix 'in-' and how it changes the meaning of the word). Then introduce the term exoskeleton. Ask chn - why are all animals that have an exoskeleton invertebrates? Do all animals have a skeleton or an exoskeleton? Can you think of any animals that don't have either? Ask the children to divide their whiteboards in two halves and, using the criteria vertebrates and invertebrates, sort the animals listed on PPT. Review their answers.</p> <p>Chn to complete sorting task. Criteria provided for lower ability. Then chn to review learning by explaining the features (like a glossary) of mammals, reptiles, amphibians, birds, fish, vertebrates, invertebrates, herbivores, carnivores, omnivores. (Could be matching activity for lower ability).</p> <p>Share your sorting groups with the other children on your table. Did any of you sort the animals into the same groups? Did you sort them into different groups?</p> <p><b>Self assessment.</b> Answer the key question: <b>What are some of the key characteristics of animals?</b></p> <p><b>Resources needed:</b> PPT slides, <a href="https://www.bbc.co.uk/bitesize/topics/z6wwxnb/articles/zyq9r2p">https://www.bbc.co.uk/bitesize/topics/z6wwxnb/articles/zyq9r2p</a> , worksheets, challenge, features matching activity</p> <p><b>Key terminology</b> - classify, organism, mammals, reptiles, amphibians, birds, fish, skeleton, exoskeleton, vertebrate, invertebrate, herbivore, carnivore, omnivore.</p> |
| 2    | <p><b><u>LI- I can give reasons why animals can be classified into different groups.</u></b></p> <p><b>What is a classification key?</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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|   | <p>Review- what can the chn remember about key characteristics of animals? Can they use the correct vocabulary?</p> <p>Thinking time - Imagine you are on a walk through the park and you come across an animal or an insect that you have never seen before. How can you find out the name of this unknown living thing? Discuss in pairs before taking feedback from the class.</p> <p>Review what the word classify means? (group). Explain what a classification key is. Show the chn the key on PPT. In pairs, give them a few minutes to read and discuss how the key might work. Where would you start? Why do you have just yes/no answers? Using the key on PPT, model how you would use the key to classify the woodlouse. Ask the chn to classify the other two minibeasts. Review their answers - was the key easy to follow? Discuss any problems or misconceptions.</p> <p>Look at the liquorice Allsort classification key on PPT. Ensure the chn know the blue boxes are for the questions and the pink boxes are the answers. Model the activity to the class using PPT. Cut out 4 of the Allsorts and stick them at the top of the key. What question could I ask that would split the 4 Allsorts into 2 groups? Write the question and split the pictures of the Allsorts down the Key. What question would split these two Allsorts? Repeat with the Allsorts on the other branch of the Key. Finally, place the Allsorts in the correct pick box at the end of the key. Discuss what yes/no questions the chn could use based on the characteristics of the sweets (shape, texture, colour). Could we ask - What shape is the sweet? Why not? Discuss in pairs.</p> <p>In pairs, ask the children to create an animal classification Key (easy/medium). If the children are completing the medium activity, they will need to select 6 animals from the picture sheet. Remind them to use some of the characteristics we discussed last lesson.</p> <p>Challenge- Provide chn with 2 questions. Chn to explain which would be better for the classification key.</p> <p>As a class, discuss what went well and what mistakes they can learn from. Did all the keys work? If not, why did they not work? Did you see any good questions? Did you see any questions that didn't work? Ask the children to turn to a partner and answer the key lesson question - What is a classification key? Chn to answer the question in their books.</p> <p><b>Teacher mark. Marking task-</b> chn to identify animal using classification key provided (easy), match missing questions from classification key (medium) or suggest missing questions (hard).</p> <p><b>Resources needed:</b> PPT, animal pictures, easy/medium blank classification key, challenge sheet, easy/medium/hard marking task</p> <p><b>Key terminology-</b> classify, organism, mammals, reptiles, amphibians, birds, fish, skeleton, exoskeleton, vertebrate, invertebrate, herbivore, carnivore, omnivore, classification key, species, characteristics, feature.</p> |
| 3 | <p><b><u>LI- I can give reasons why plants can be classified into different groups.</u></b></p> <p><b>How can we classify plants?</b></p> <p>Review - Can you remember the 5 broad groups that we use to classify animals? How else can we classify animals into 2 groups? Hint - not all animals have a skeleton. Recap on the terms invertebrate and vertebrate. How else could we classify animals? Hint - think about an animal's diet. Recap on the terms omnivore, herbivore and carnivore. Can the children give you examples of each? Explain that today we will be thinking about how we can classify plants. Are plants living things? Recap on the 7 life processes (movement, reproduction, sensitivity, nutrition, excretion, respiration and growth). You may wish to use the acronym MRS NERG/MRS GREN</p> <p>Ask the chn to work in pairs or individually, to write down on their whiteboards, as many plants that they can in one minute. How could plants be sorted into groups or classified? Ask the chn to share with their table. How could they sort the plants they have named? Encourage the children to think about what they look like, where their seeds are, how they disperse their seed, their texture or colour. Discussion time - take feedback from the class. Establish that we can classify plants according to how they disperse their seeds and if they flower or not. Teach the chn the meaning of the words vascular and non-vascular. Can the chn use this criterion to classify the plants they have written on their whiteboards? Can you name a vascular plant? A non-vascular plant?</p> <p>Introduce the independent activity to research and classify a range of plants. Bronze- sort plants into flowering and non-flowering. Silver- sort plants depending on seed dispersal. Gold- sort plants depending on if they are vascular or non-vascular.</p> <p>Challenge- Chn are given a classification key and asked to check if it is correct? They can use information books or the internet to check any facts that they are unsure of.</p> <p>After the chn have completed the independent task - ask them the key lesson question - how can we classify plants? Chn to answer the question in their books.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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|                                                                       | <p>Peer assessment.</p> <p><b>Resources needed:</b> PPT, bronze/silver/gold sheets, ipads, various books about plants, challenge sheet</p> <p><b>Key terminology-</b> plants, seed dispersal, spores, flowering/non-flowering, vascular/non-vascular, classify, classification key.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 4                                                                     | <p><b>LI- I can give reasons why micro-organisms can be classified into different groups.</b></p> <p><b>Identifying and Classifying enquiry- Is yeast a living micro-organism?</b></p> <p>Review- Chn are presented with photos of four different species of seaweed and asked to use the key to classify and name each piece.</p> <p>Thinking time - explain to the chn that today they will be looking at another type of organism that isn't a plant or an animal; can they guess what it is using the clues on PPT? Ask the chn to work in pairs and discuss what it might be. Take feedback from the class and reveal the answers on PPT.</p> <p>Read the information on PPT and explain what a micro-organism is. Make links to the adjective micro meaning very small.</p> <p>Explain that there are five main groups of microorganisms. Introduce the names of the groups using PPT. Have the chn heard of any of these group names? Read the information about bacteria on PPT. Discuss ways in which bacteria is helpful e.g. eating live yogurt to improve gut health. Ask the chn if they have ever had antibiotics from the doctors. What do you think an antibiotic does? (Explain the prefix anti - meaning against). Read the information on virus. Ask the chn if they have ever had a virus? Explain that the common cold is often caused by a virus. Why wouldn't a doctor give antibiotics to a patient if they thought it was a virus causing the illness? Read through the information on fungi. Ensure the chn understand what a cell is. Explain that simple organisms like yeast are only one cell big but humans are complex and made from trillions of cells. Read through the information on algae. Talk about the prefix aqua meaning water and algae being aquatic thus living in water. Introduce the fifth group of organisms - protozoa, read the information on PPT. Chn to complete matching activity.</p> <p>Ask the chn to work in pairs to discuss whether micro-organisms are good or bad. Can they give reasons for their opinions? Take feedback and review using PPT. Ask the chn if they have ever had mouldy sandwiches or seen mould grow on food at home. Explain that mould is a type of microorganism, it is a living thing. Read the information about mould, dust mites and yeast on PPT.</p> <p>Class investigation - Is yeast a living micro-organism? What are the seven life processes that all living things do? Hint - remember MRS GREN! Go through the seven life processes on PPT. Which of the seven life processes could we use to test if yeast is a living thing? Remind the children that yeast consumes sugar and gives off carbon dioxide (a gas) and that this is respiration. How could we investigate if yeast respire?</p> <p>Ask the children to read the yeast investigation instructions in pairs. How will they know that a gas is being released? How will that prove that yeast does respire and is a living thing?</p> <p>As a class or in small groups, set up the investigation. Chn to write up a simple prediction, method, results and conclusion. What happened to the balloon? Why did it happen? How could we improve the investigation? Ensure they answer the key lesson question - Is yeast a living microorganism and how do we know?</p> <p>Self assessment.</p> <p><b>Resources needed:</b> PPT, matching activity, investigation instructions, yeast, small plastic bottles, sugar, balloons</p> <p><b>Key terminology-</b> micro-organism, microbe, microscope, fungi, algae, bacteria, protozoa, virus, yeast, mould, inflate, respiration.</p> |
| <b>Assessment time</b> - Complete the final column of their KWL grid. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |