

Bishop's Waltham Junior School

Science medium term plan for Year 4 Summer Term

Topic: Living things and their habitats

National Curriculum Objectives:

(Statutory Requirements)

- a) recognise that living things can be grouped in a variety of ways
- b) explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- c) recognise that environments can change and that this can sometimes pose dangers to living things

Experimental and investigative work focuses on:

Planning an investigation:	Obtaining and evaluating evidence:
<ol style="list-style-type: none">1. Asking relevant questions and using different types of scientific enquiries to answer them.2. Setting up simple practical enquiries, comparative and fair tests.	<ol style="list-style-type: none">3. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment.4. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.5. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.6. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions7. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.8. Identifying differences, similarities or changes related to simple scientific ideas and processes.9. Using straightforward scientific evidence to answer questions or to support their findings.

Most children will:

- Sort living things into groups.
- Generate questions about animals.
- See similarities and differences between vertebrates.
- Identify vertebrate groups.
- Identify the characteristics of living things.
- Suggest how to have a positive effect on the local environment.
- Record observations on a map.
- Name some endangered species.

Some will progress less and will:

- Generate criteria to use to sort living things.
- Sort living things into a Venn diagram.
- Sort living things into a Carroll diagram.
- Use questions to sort animals using a key.
- Use a key to identify invertebrates by looking at their characteristics.
- Use the characteristics of living things to sort them using a classification key.
- Show the characteristics of living things in a table.
- Create a classification key.
- Identify dangers to wildlife in the local and wider environment.
- Record observations in a table.
- Write a report.

- Present findings to the class.
- **Others will progress further and will also:**
- Explain, using evidence, how they have identified invertebrates.
- Explain in more detail how changes to the environment have affected endangered species.

Key vocabulary:

Organism, sort, group, criteria, Venn diagram, Carroll diagram.

Session	Learning Objectives	Introduction	Main activity	Application and review	Resources
1	<p>To group living things in a range of ways. To use a range of methods to sort living things.</p> <p><i>Assessment: a</i></p>	<p>Life Processes: Give children the opportunity to suggest things that the animals on the flipchart have in common. Then revisit the characteristics that are shared by all living organisms. Remind children of the mnemonic ‘Mrs Gren’ and of how the seven life processes are manifested in plants and animals.</p> <p>Grouping Living Things: Using the flipchart, demonstrate that living things can be grouped together in a number of different ways based on their similarities and differences, and that we can organise them into diagrams to help us. Ask the questions on the slides to check understanding and address misconceptions.</p>	<p>Criteria: With a partner, children generate as many criteria for sorting animals as they can and feed these back to the class. Record these for the children to refer to during the next activity.</p> <p>Grouping Animals: Using the animal images on the Animal Pictures Sheet, children complete the differentiated Grouping Animals Activity Sheets by sorting animals into different diagrams using a range of criteria.</p> <p>Sorting into Three Groups: Show the children how a Venn diagram can be used to sort into three groups simultaneously. In mixed ability pairs, children complete the Grouping Animals Extension Activity to sort animals with given characteristics into three groups.</p> <p>Grouping Animals Quiz: In their mixed ability pairs, children join another pair to form a group of four. In this group, children complete the Grouping Animals Quiz Sheet, based on their completed Grouping Animals Extension Activity. Children peer mark their quiz sheets to find out their score.</p>	<p><i>I can sort living things into groups.</i></p> <p><i>I can generate criteria to sort living things.</i></p> <p><i>I can sort living things into a Venn diagram.</i></p> <p><i>I can sort living things into a Carroll diagram.</i></p>	<p>Animals Picture Sheet Grouping Animals Activity Sheets Grouping Animals Extension Activity Sheet Grouping Animals Quiz Sheet</p>
Session	Learning Objectives	Introduction	Main activity	Application and review	Resources
2	<p>To identify vertebrates by observing their similarities</p>	<p>Classification: Read the information on the flipchart to introduce children to the concept of classification, using the questions to prompt</p>	<p>Vertebrates Activity Sheet: Children complete the Vertebrates Activity Sheet by answering the ‘yes or no’ questions to sort the vertebrates into animal groups.</p> <p>Classification Keys: Introduce the idea of classification keys as a way of sorting animals into groups through a series of ‘yes or no’</p>	<p><i>I can generate questions about animals.</i></p> <p><i>I can use questions to sort</i></p>	<p>Vertebrates Photo Sorting Cards Vertebrates</p>

	<p>and differences.</p> <p>Assessment : a, b</p>	<p>children to share any prior knowledge</p> <p>Animal Groups: Introduce the classifications of vertebrate and invertebrate, asking children to give examples of each. Explain that vertebrates can be further split into five groups: amphibians, birds, fish, mammals and reptiles. Explain the broad characteristics of each, asking children to note their similarities and differences. Distribute the cards from the Vertebrates Photo Sorting Cards, one per child. As a class, sort the cards into animal groups. Photograph for books.</p>	<p>questions. Children complete the differentiated Key Questions Activity Sheet, generating questions to sort vertebrates using a simple branching key. Children generate four questions to sort vertebrates. Children generate three questions to sort vertebrates. Children generate two questions to sort vertebrates.</p> <p>Twenty Questions: Split the class into two teams and choose a volunteer from one team to come to the front of the class. The volunteer chooses an animal. The other team can ask the volunteer up to twenty questions about the animal but the volunteer can only answer with a 'yes or no'. If the other team are able to guess the animal within 20 questions, they win a point. If they cannot, the team of the volunteer win a point. The team with the most points after three rounds wins.</p>	<p>animals in a key.</p> <p>I can see similarities and differences between vertebrates.</p> <p>I can use these to identify vertebrate groups</p>	<p>Activity Sheet Key Questions Activity Sheet</p>
3	<p>I can identify different habitats in the school grounds</p>	<p>Recap what a habitat actually is (the natural environment of an animal, plant or living organism).</p> <p>Today, explain that the children are going to be Estate Agents and write a description of one of the habitats they find in the school grounds.</p>	<p>Working in pairs, they need to find a habitat of a creature that lives in the school grounds (this will probably be a mini-beast or insect!) Emphasise that this is the <u>natural environment</u> this creature is found in, so a domestic cat is not a creature we can discuss the habitat of!</p> <p>Children to have some time to find a habitat of a creature found in the school grounds. Take a picture (if possible) of this habitat for the children. Children need to be making bullet pointed notes of what the habitat is like e.g. dark, damp, soft, full of leaves, on a branch, made of twigs etc to help with their estate agent review!</p> <p>When you are back in the classroom, model write a short piece of writing in the role of an Estate Agent about one of the habitats in question. Explain that it is your job to sell the habitat to the other</p>	<p>Swap their books with someone who has a different habitat – children need to use purple pen to say whether they would like to live in this habitat and why.</p>	<p>Pictures of the habitats in the school grounds</p>

Session	Learning Objectives	Introduction	creatures that may like to live here! Main activity	Application and review	Resources
4	I can identify a range of mini-beasts <i>Assessment: a, b, 3, 5</i>	Explain that today the children will be going out into the school grounds to find mini-beasts! What types of mini-beasts might they find? Make a list to help focus their work in the school grounds.	Working in pairs, children to go and find out what mini-beasts they can discover in the school grounds. Fill in the sheet (already prepared) to help with their research. Encourage to look closely at the colour, number of legs etc as this will help them with their lesson next week. Teacher to take pictures of the mini-beasts so children can stick these into their books too. Once in the classroom, children to take 2 or 3 mini-beasts and discuss their habitats which they were found in. Write some sentences to describe this (emerging to bullet point key ideas).	<i>Discuss the habitats these mini-beasts were found in. Redwood to share their work with Jackalberry.</i>	Mini-beast catchers Identification sheets
5	I can use a key to identify mini-beasts <i>Assessment: b, 3,4</i>	Look at a photograph of one of the mini-beasts from last week – describe the features you can see. Look at an example ‘key’ - explain that this is something that is used to help classify living organisms. Discuss how it works (questions which require a yes or no answer to work out the living organism in question).	Model how to create a ‘key’ using a mini-beast from the school grounds (spider and ant). There should be more than one question asked and there should be more than one outcome as to what the mini-beast might be. WORK BACKWARDS WHEN CREATING THE KEY AS THIS SEEMS TO BE EASIER WHEN ASKING AND ANSWERING THE QUESTIONS! Stick this into children’s book as an example whilst they create their own key for a mini-beast they found in the school grounds. Could also show the children how to create a key for a badger, fox, rabbit or mouse (link to Stubbington).	<i>Go into the school grounds and test their key out – find some mini-beasts and see whether they can answer the questions to work out what mini-beast is.</i>	Example of key Mini-beast photographs

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6	I can design a habitat for a mini-beast	Recap on what the children learnt last week – classifying mini-beasts using a key. Discuss that they have been looking closely at mini-beasts and their habitats and today, they are going to design a habitat for a mini-beast to live in!	<p>Children to choose a mini-beast they are going to design the habitat for – must be one they have studied at school. They are going to be an architect/interior designer, so their pictures must be detailed and annotated as to what each part of the habitat is and <i>why</i> they are choosing different features.</p> <p>Think about the needs of the mini-beast and draw upon previous lessons to help with the design process. Draw design onto plain paper and stick into Science book.</p> <p>Homework will be to make this habitat for real – give this as a project over several weeks and bring into school for display.</p>	In small groups (could do this across classes), children to present their habitat design. Children listening to give feedback based on what they have found out about habitats and whether they think their designs are suitable for these particular mini-beasts	Plain paper Pictures of mini-beasts to cut out and stick onto design
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7	I can understand the food chains of animals Assessment: Assessed in digestion unit	Ask children to try to explain what a food chain is. Watch the video http://www.bbc.co.uk/education/clips/z8hxp4 to refine/ adapt the class definition. Explain that all living creatures must eat to survive – this means that in the wild, certain animals have special names based on what they eat and how they find their food. Introduce the terms producer	Using their knowledge from Stubbington and of previous weeks work, children are to work in pairs to build their own food chains using the pictures of living organisms in front of them. They must be able to name the organisms by the terms producer, consumer, predator and prey. They should then be able to talk through their decisions for each food chain. Children to work in mixed ability pairs for this.	With another pair, explain the decisions made about their food chains.	Pictures of a variety of animals to build food chains Vocabulary list – producer, consumer, predator, prey

		<p>(usually plants that use the sun to produce their own food – start a food chain), consumer (every organism that eats another organism is called a consumer – primary consumer (an animal that feeds on plants - herbivores), secondary consumer (a carnivore that only feeds upon herbivores) and tertiary consumer (carnivore at the top of the food chain that only feeds on secondary consumers), predator (kill other animals for food – usually a secondary or tertiary consumer) & prey (animals that the predators eat). Give examples of animals for these terms by showing the children a simple food chain (how each living thing gets its food and how energy and nutrients are passed from creature to creature).</p>			
8	<p>I can describe environmental dangers to endangered species. Assessment: c</p>	<p>Explain to the children that humans are able to change environments sometimes for the good and sometimes for the bad. Sometimes the changes are natural and some are man-made.</p>	<p>Children to write a report about endangered animals in pairs (research using library and computers). LA have a worksheet to support their research.</p>	<p>With your partner present your findings to the class.</p>	<p>Presentation, research sheet for LA</p>

