

Lacock School C of E Primary School

Medium Term Planning for Science - Beech Class Spring Term 2 2022-2023

Topic / key question	Living things and their habitats – A world of living things			
Lesson 1	Learning Intent: To know that plants and animals are categorised as living things, that something were once alive and others have never been alive.	Learning ladder success criteria: <ul style="list-style-type: none">I can learn about the 7 life processes that characterise living things.I can make a double page of life-up flaps with one flap for each life process.I can match the name of each life process to a description of it.	Starter Introduce the lesson, LI and the Success ladder. Main teaching activity <ul style="list-style-type: none">We all love wildlife and nature so everyone will be excited to hear that our next science topic is called A World of Living Things. But it gets even better than that because we are all going to make our very own amazing pop-up non-fiction book that will show the incredible range of living things that inhabit Planet Earth!Let's take a look at some interactive books to get an idea of the sort of thing we will be making.Briefly show your selection of books, drawing attention to flaps, turning wheels, popups, pockets etc. Pass them around for a few minutes so the chn can take a closer look.Right let's begin by thinking about the question "What makes a living thing?" Write the question on the flip chart. Jot down their ideas.Show the weblink. Did you spot them all? There are actually seven characteristics of living things and these letters can help us remember them all.Write MRS NERG vertically down one side of board. You can pronounce NERG as energy (N-er-G) if you like! Remind children that these are the initial letters of the seven characteristics.Move through the slides of the PowerPoint. Go back to your notes on the flip chart – which of the 7 life processes did we think of?Devise a sentence that explains each word. NB Respiration is not breathing, but the use of oxygen from the air to help turn food into energy. Breathing is the process of taking air (containing oxygen) into and expelling (containing waste carbon dioxide) from the lungs. Excretion in animals means getting rid	Notes:

			<p>of waste: carbon dioxide when breathing out and various waste products in urine (wee).</p> <ul style="list-style-type: none"> • In plants both carbon dioxide and oxygen are excreted (and also used in different processes) & deciduous trees and other plants get rid of waste products when their leaves fall in Autumn. Plants also excrete wastewater through small holes in the underside of their leaves. • It's time for you to begin on the 1st page of your book! Show the Task PowerPoint. Provide an A4 sheet of white card per child and a copy of the Task Sheet (see session resource). <p>Independent work (HA / MA /LA or consideration for differing year groups) Year 2 and 3: Make the first page of their book using the prompt sheet sentences (see session resource). Match each description to the correct life process and stick it under the right flap. Year 4: Make the first page of their book as shown on the PowerPoint. Write their own short sentence on each life process under the flap. Teacher to support as needed</p> <p>Plenary Play the plenary game Alive-Alive-Oh! (see session resource). This active team game will help reinforce the vocabulary and scientific concepts introduced this session.</p>	
<h2>Lesson 2</h2>	<p>Learning Intent:</p> <p>To know living things can be grouped in different ways according to their features.</p>	<p>Learning ladder success criteria:</p> <ul style="list-style-type: none"> • I know that living things can be grouped in different ways according to their features. • I can create my own pop-up tree and garden. • I can research plants using non-fiction books and the internet. 	<p>Starter Introduce the lesson, LI and the success ladder.</p> <p>Main teaching activity</p> <ul style="list-style-type: none"> • Today we shall each be working on the next page of our interactive book. Remember the book is called "A World of Living Things" so what should the next section be on? Take a few suggestions. Great ideas. • Living Things is such a broad topic isn't it? Did you know there are around 9 million different types of living things on the planet! Can anyone write that number on the board? Invite a child to do this. Wow! • That's such a lot of different living things - it isn't exact though because new types of plants and animals are being discovered all the time. • Some living things are quite similar to each other, for example leopards and cheetahs are quite similar. Can you think of any more examples? But some things are really different like jelly fish and polar bears or oak trees and seaweed. Take suggestions of living things that are very different. • To help us organise living things into groups, scientists look closely at their similarities and differences. Let's have a go at it ourselves. • Give out a copy of 28 Living Things to each table (session resource). Challenge the chn to cut them out and divide them into groups according to their similarities and differences. 	<p>Notes:</p>

			<ul style="list-style-type: none"> • Ask chn to share their grouping features with the class, e.g. legs/no legs, lives in water/lives on land, can fly/can't fly, plants/animals. Write these on the flip chart under the heading "Grouping living things." • Praise the chn and explain that all these features are important to scientists when they are classifying (grouping) living things. If we had to split all these living things into just 2 groups what would you choose? Probably plants and animals. These 2 big groups are called kingdoms. • Today we are going to think about the plant kingdom. Show the 1st slide of the Teaching PowerPoint. Give a copy of the Similarities & Differences sheet (session resource) to groups of 3 chn. Allow 10 minutes to explore different plants. Gather back together. Share ideas. Continue through the PowerPoint. Divide the class in half and explain that they will rotate between the 2 tasks. <p>Independent work (HA / MA / LA)</p> <p>Task 1 - Making Pop-up Trees and Bushes - All chn in rotation</p> <p>Chn should cut out and colour in their tree and bushes. Encourage individuality, e.g. some chn may want trees with blossoms or fruits. They could even design their own tree by changing its shape (try to keep the overall height the same) Teacher to support as chn become ready to assemble their pop-ups --see Teachers' Notes</p> <p>Task 2 - Researching plant facts using secondary sources</p> <p>Using the task sheet (session resource) to help, chn should research interesting plant facts using non-fiction books and/or the internet. They should select facts to write, one per box (use spare sheets of boxes to provide extras as needed). Yr3s should write at least 3 facts and Yr4s 5 facts. Chn should write a title and stick their fact boxes below the V line.</p> <p>Plenary</p> <p>Gather the chn back together with their pop-up pages. Sit in a circle and ask everyone to demonstrate their pop-up plant page. Praise their creativity. Ask chn to share some of their fascinating plant facts. Plants really are amazing living things aren't they?</p>	
<p>Lesson 3</p>	<p>Learning Intent:</p> <p>To collect, observe and draw a range of invertebrate creatures from the local environment. To use an invertebrate key to identify the group and type of creature found.</p>	<p>Learning ladder success criteria:</p> <ul style="list-style-type: none"> • I can hunt for invertebrates in their local environment and bring specimens back to the classroom. • I can use an invertebrate key to identify the 	<p>Starter</p> <p>Introduce lesson, LI and success ladders.</p> <p>Main teaching activity</p> <ul style="list-style-type: none"> • Tell the chn that today we will be making the 3rd page of our interactive book. What was the page we made last session? Yes it was all about the plant kingdom. • What other kingdom is there? Yes the animal kingdom. Scientists study animals and group them according to their similarities and their differences. This grouping is called classification. They begin by splitting the whole animal kingdom into 2 huge groups which you may have learnt about before. • One of these groups is animals with a backbone. Does anyone know what we call this group? Yes, vertebrates. What is the other group? Yes, animals without a backbone which we call invertebrates. 	<p>Notes:</p>

		<p>group/type of creatures found.</p> <ul style="list-style-type: none"> I can create a turning wheel that reveals invertebrates drawn from life and information about the features of that group. I can illustrate the page with drawings and invertebrate facts. 	<ul style="list-style-type: none"> Let's find out a bit more about it. Show the Teaching PowerPoint. Divide the chn into 2s or 3s to hunt and talk through expectations. Give out equipment and set off. On your return to the classroom encourage the chn to spend a few minutes looking closely at the range of invertebrate creatures the class has found. Use magnifiers. Encourage discussion on similarities and differences, e.g. presence of wings, numbers of legs, presence of a shell or casing, ways of moving etc. Remind the chn that scientists classify (group) creatures according to their characteristics. Let's try to work out which scientific groups our creatures belong to by using an invertebrate key. Give out copies of the key (session resource) and put a slow moving creature under the visualiser so everyone can see it on the screen. Teach the chn how to use the key by going through the questions. Identify the creature. Ask the groups to work together to identify their creatures. They could write the group name, e.g. mollusc and the creature's name, e.g. slug beside the pot. Now it's time to make the next page of our interactive book. Show the Task PowerPoint. <p>Independent work (HA / MA /LA)</p> <p>Year 2 and 3 - Using the turning wheel template chn should draw an example of each group in the lower triangle and try to write a couple of invertebrate facts for their page (session resource). Teacher to support as needed</p> <p>Year 4 - Using the turning wheel template chn should draw an example of each group in the upper section and write some of the features of the group in the lower triangle. They should try to write 3 or 4 invertebrate facts for their page (session resource).</p> <p>Plenary</p> <p>Praise the chn for the quality of their observations and their fantastic Invertebrate pages. The creatures we found have taught us such a lot about the amazing world of invertebrates haven't they? But they are a long way from home! What do we need to do now? Yes, take them back to where they live. Remember each type of invertebrate is exactly adapted (suited) to its own habitat. Ask each group to return their creatures to the exact same place where they were found them. Praise them for their care and respect for living things.</p>	
Lesson 4	<p>Learning Intent:</p> <p>To make a classification key for living things using group labels and drinking straws. To discover the features of different groups of</p>	<p>Learning ladder success criteria:</p> <ul style="list-style-type: none"> I can make a classification key for living things using group labels and drinking straws. 	<p>Starter</p> <p>Introduce lesson, LI and success ladder.</p> <p>Main teaching activity</p> <ul style="list-style-type: none"> Let's begin today by taking a look at all the interactive pages we have made for our book so far. Each child should have 3: 1 on Life processes, 1 on Plants and 1 on Invertebrates. Make sure each child has their pages in the right order and the right way up. We are going to glue them together to make the start of our book, so the pages turn like a single sheet. Either demonstrate this or use the 	Notes:

vertebrates,
researching fish and
amphibians in more
detail

- I can research key facts about amphibians and fish.
- I can design and make a pop up pond showing fish and amphibians to display my facts.

Book Making PowerPoint. Once they have finished, put the books away safely to dry.

- We know a lot about living things now and how they are classified. Let's do a Classification Challenge. Divide the class into groups of about 4 children. Give each group a sheet of classification labels (session resource), a handful of drinking straws and some scissors. Your challenge is to cut out the labels set them out with the straws to make a branching classification tree that shows how living things are grouped.
- Start with the label that says *Living Things*. Encourage children to work as a team. Suggest that some of the straws are cut in half to make it easier to fit everything in. If some groups finish quickly, give them some small sticky notes and get them to write the names of some examples of the groups, e.g. scorpions and spiders for arachnids. Wow! What a lot you have all learnt about how living things are classified! Take photos as a record of the finished trees or keep the pieces for a display.
- We haven't got any branches yet for the vertebrate section. Can anyone think which groups of animals are in this section? Take a few suggestions. Let's watch a film clip that helps us to understand a bit more about them. Click on the weblink. What were the 5 groups of animals shown in the film? Fish, reptiles, amphibians, birds and mammals. All of these groups are types of vertebrate. Why? Yes, because they all have a backbone.
- Today our interactive page will be on amphibians and fish. What do we know about these groups? Recap on the features they have. Remind the children that cold blooded means that they only get heat from their surroundings and are not able to make heat inside their bodies like we are.
- Establish that whilst fish live in water, amphibians can live on land and in water. Now we are going to make the next amazing page in our interactive book. Show the 1st slide of the Task PowerPoint. We need to make the pop-ups and to research fascinating facts. Divide the class between the 2 tasks. They will swap round later.

Independent work (HA / MA / LA)

Task 1 - Making a Box Fold Pop-up Pond (All children in rotation)

Give each child a pop-up task sheet (session resource) printed on white card, a sheet of blue A4 card and a green strip. Go through the 10 stages on the Task PowerPoint as a workshop together. Show the last 2 slides and set the children off to complete this independently. Swap the groups around. **Teacher to lead**

Task 2 - Researching facts about fish and amphibians (All children in rotation)

Give each child a research task sheet (session resource) and access to books and the internet. Year 4s should complete 5-6 fact boxes/bubbles and Year 3s 3-4 boxes/bubbles.

Independent

Plenary

			<p>All sit in a circle holding their pop-up page. Take it in turns to open the page and say one fact from memory about either fish or amphibians. Try to say something that no one else has said already!</p>	
<p>Lesson 5</p>	<p>Learning Intent:</p> <p>To set up a fair test to investigate whether features can keep you warm. To take accurate measurements of temperature over time and display data as a graph.</p>	<p>Learning ladder success criteria:</p> <ul style="list-style-type: none"> • I can make a pop up interactive sorting page on the features of birds and reptiles. • I can design a fair test to investigate the insulation properties of features. • I can take accurate temperature readings over time and compare data from a bottle covered in feathers to one without features. • I can display data on a graph. 	<p>Starter Introduce lesson, LI and success ladder.</p> <p>Main teaching activity</p> <ul style="list-style-type: none"> • Last session we looked at 2 types of vertebrate, can you remember which? Yes, fish and amphibians. What does vertebrate mean? That’s right, it’s animals that have a backbone. Can you think of any other groups of vertebrates? Yes, the best known of the other groups are birds, reptiles and mammals. • Today we are going to think about birds and reptiles. Let’s share ideas on what we know about them. Draw a line down the flip chart with Reptiles on one side and Birds on the other. • To remind the chn of some of the variety, show the 1st slide of the Task PowerPoint. Hopefully the chn will be able to give a list of features of each, e.g. for birds: wings, feathers, beaks, most can fly, 2 legs, lay eggs, warm blooded, ear holes etc. for reptiles: dry scaly skin, ear holes, 4 legs or no legs, cold blooded, lay eggs (mostly) etc. If the chn do not remember the majority of these (particularly warm/cold blooded) show the beginning of the film clip from last session again (see weblink). • What does warm blooded mean? Warm blooded animals can make their own heat from burning food inside their bodies. They can keep their bodies warm even on a cold day. Cold blooded creatures can’t, they change temperature with their environment. • Each bird and reptile is perfectly adapted (suited) to its own habitat. Why does the crocodile have sharp teeth? Yes, to catch and eat its prey. Let’s think about the features of birds. Look back at your list of features. Birds are the only group that have feathers. Why? Take some ideas. • Let’s look closely at some feathers. Give each table a selection to examine and some magnifiers. Share ideas and write down words, e.g. warm, fluffy, light, colourful, etc. Can anyone think of any reasons why feathers need to be light? Yes, because most birds fly. They need to be light to fly - in fact their bones are hollow which makes their skeletons very light but still strong! Why are some feathers colourful? Yes, to attract a mate. Feathers are soft and fluffy to touch but how does this help a bird? Hopefully someone will suggest that feathers may keep it warm. • Show the 2nd slide of the Task PowerPoint and discuss. Set up a class investigation using the equipment shown (or similar) —see Teachers’ Notes for advice. Show the rest of the Task PowerPoint. <p>Independent work (HA / MA /LA)</p> <p>Task 1 - Investigation-Can feathers keep you warm? (All chn in rotation) Call chn in pairs to take the temperature in the 2 bottles or check on the readings from data loggers. If using thermometers, check stop clock and add data to the correct time window of the Results Sheet (session resource). Display this on the screen so all chn can keep a check on them. It</p>	<p>Notes:</p>

			<p>will not matter if some time windows are missed. Talk about any trend that is emerging in the results and why this might be. Teacher led</p> <p>Task 2 - Making a spring-out sorting page on Birds and Reptiles (All chn). Independent</p> <p>Plenary</p> <p>Look at the results. It is often easier to see trends if we display data as a graph. Give out the Yr3&4 graph sheets as appropriate. Support chn to decide which times to plot on the graph. The Yr4 graph contains more data points than the Yr3 version. Add axis labels, title, colour key for graph etc. Hopefully the feathered bottle will have kept warm for longer. What would this mean to a bird? Birds are warm blooded. They burn food to make heat. Without feathers to insulate (keep heat in), birds would need more food. When food is scarce in the winter, warm feathers (that can be fluffed up to trap warm air) make the difference between life and death!</p>	
<p>Lesson 6</p>	<p>Learning Intent:</p> <p>To review and assess knowledge on the classification of living things. To research the features of mammals and how they are adapted to their environment.</p>	<p>Learning ladder success criteria:</p> <ul style="list-style-type: none"> I can do a quiz to assess knowledge and understanding on all the learning in this block. I can ask questions about mammals and research books and the internet to answer them. I can design an interactive page to display my information. 	<p>Starter</p> <p>Introduce lesson, LI and success ladder.</p> <p>Main teaching activity</p> <ul style="list-style-type: none"> Our interactive books on A World of Living Things are almost finished! Look through one or two of the chn's books - we've learned so much about living things and also how to make lift-up flaps, pop-ups, turning wheels, box folds, spring-outs and sorting pages! Wow! But there's one very important group of creatures that we haven't looked at yet. Can you think what that is? Yes, it's mammals! Today we are going to design and make the final page of our books all about mammals. But the difference is you are going to design it yourself including what information you will give and how you will display it. You could use any of the interactive features we've learnt so far or even a combination of them. It is entirely up to you! But first let's begin with a quiz to find out how just much we have learnt about Living Things. Give out the quiz sheets (session resource) either to groups or individuals - see Teachers' Notes. Show the Quiz PowerPoint. Either collect the sheets in after the quiz or show the Answers PowerPoint so that the chn can mark their sheets. Congratulate everyone on their expertise! It's amazing how much you've learnt! So let's think about mammals. Do we have any questions on mammals? Write the heading Mammals on the flip chart. Underneath list questions the chn suggest, e.g. What is special about mammals? What groups are there? Where do they live? How are they adapted (suited) to their environment? Underneath write a subheading <i>Features</i>. Let's make a list of all the features we can remember. Hopefully the chn will list a number of features, e.g. fur/hair, give birth to live young, warm blooded, produce milk to feed young. I have a couple of short film clips that might help us. Show the animation (see weblinks). Add any features the chn missed. The next clip shows mammals in a cold climate. Watch carefully and see if you can spot all the different ways they are adapted to cope. Watch out for a few creatures that aren't 	<p>Notes:</p>

mammals too! Show clip. How were the mammals adapted? Add this question to the flip chart if you do not already have it. List ideas, e.g. white/light fur to camouflage, wide paws to walk on snow, thick fur traps warm air, strong legs to leap through snow. Did you spot the steaming breath? Remember they are warm blooded. Their bodies stay warm despite the cold! Mammals are adapted to live in every habitat, e.g. deserts, forests, underground even in oceans! Remember humans are mammals too! What are their special adaptations? Walking on 2 legs which frees up the other 2 to become arms and hands that can build, make things, write etc. They have also developed a powerful brain!

Independent work (HA / MA / LA)

Create an informative interactive page on mammals Your task is to design an exciting interactive page on mammals using some of the techniques you have learnt in this block. Think about whether you will show one big mammal or several. Try to show how your mammals are adapted to their environment so think about where they live. Do some research using non-fiction books or the internet to find the answers to some of our questions. What facts will you include? It is suggested that Yr3 do 2-3 text boxes and Yr4 do 4-5. There is a Task Sheet to help (session resource). Look back at your book to help you decide what paper technology techniques you will use to make it interactive. **Teacher to support as needed**

Plenary

Take time to look at everyone's interactive page on mammals. Discuss the variety and their adaptations. Look at the range of interactive features. Praise the chn for their creativity. Show the Plenary PowerPoint.