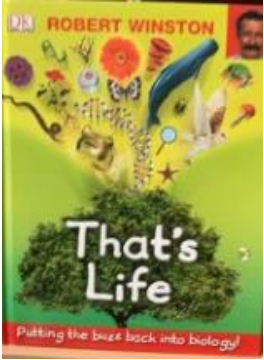


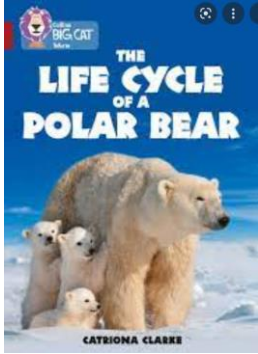
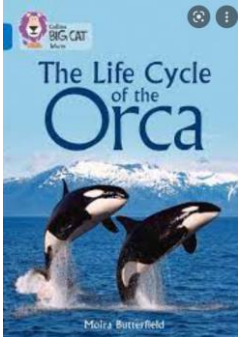


BILSTON CHURCH OF ENGLAND PRIMARY



MEDIUM TERM PLANNING

Subject	Topic/Key Question	Year Group	Term	Time Allocation
Science	Life Cycles Reproduction in plants and animals (lessons 4&5)	5	Spring 2	hours
 <p>Library</p>	 <p>Library</p>	 <p>Reading scheme</p>	 <p>Reading scheme</p>	 <p>Reading scheme</p>
End of upper Key stage 2 Outcomes	<p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Using test results to make predictions to set up further comparative and fair tests.</p>			

	<p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments.</p>
End of Unit Outcomes	<p>I can describe the changes as humans develop to old age</p> <p>I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>I can describe the life process of reproduction in some plants and animals.</p>
Vocabulary	<p>Human development, baby-toddler-child-teenager-adult, puberty, gestation, length, mass, grows, grow, growing. Life process of reproduction, plants, animals, life cycle, mammal, amphibian, insect, bird, prehistoric, similarities, differences.</p>

Lesson Sequence	Time Allocation	Key Question/WALT	Teaching Activities	Resources
Lesson 1 What is a life cycle?	2 hours	<p>WALT: understand animals and humans.</p> <p>Success Criteria</p> <ul style="list-style-type: none"> • I can define the main stages of an animal life cycle. • I can identify similarities and 	<p><u>Working Scientifically Link:</u></p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>Ask the children what they know about Life Cycles (this topic will have been previously covered in KS1)</p>	<p>Collins Snap Science Lesson 1</p> <p>Information of identified animals and plants regarding life cycles.</p> <p>Mini whiteboards, sticky notes, secondary sources for research,</p>

		<p>differences between the life cycles of an elephant, a toad, a bumblebee and a blue tit.</p> <ul style="list-style-type: none"> • I can describe how the length of life cycle of these animals varies. 	<p>Show children a set of Plant life cycle sequence cards (Resource sheet 1), one at a time and in no particular order. The cards fit together to make up the life cycle of a runner bean.</p> <p><i>Ask: What do these pictures show? What is each stage called?</i></p> <p>Next, show children the series of images in the Life cycle slideshow (Slideshow 1), which illustrates an animal life cycle.</p> <p><i>Ask: What is a life cycle? What stages is it made up of? Can you come up with a sentence that describes what a life cycle is?</i></p> <p>Ask children to work with a partner to record their ideas on a mini whiteboard. After a few minutes, take feedback and note children’s responses on the interactive whiteboard (or on a flip chart). Summarise their ideas as you talk with them and ensure that a clear, common sequence is identified: birth, growth, reproduction, aging and death.</p> <p>ENQUIRE:</p> <p>Explain that today’s lesson focuses on the life cycles of some important types of animals. Check that they are clear about the meaning of the term ‘animal’.</p> <p>During this lesson children compare the life cycles of an elephant, a toad, a bumblebee and a blue tit,</p>	<p>including quality non-fiction books, web-based resources, educational CDs, smartphone and tablet Apps, identification guides and leaflets</p>
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			<p>and identify common features and noticeable differences</p> <p>Children will then record the life cycle of the plant, also one of the others from the slide show. It can be used as display work (see ideas on Pintrest)</p>	
<p>Lesson 2</p> <p>What do we know about the life cycle of mammals?</p>	2 hour	<p>WALT: understand animals and humans.</p> <p><u>Success Criteria</u></p> <ul style="list-style-type: none"> • I can define what a mammal is. • I can describe the common characteristics of different types of mammal. • I can sequence the life cycle stages of a hedgehog, a bat, a polar bear or a mountain gorilla. • I can ask questions to find out more about mammals and identify how to answer these questions. 	<p><u>Working Scientifically Link:</u></p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>Display the first part of Different life cycles? (Interactive 1). Show children the images of the four animals that they learned about during the last lesson: toad, bumblebee, blue tit and elephant. Check whether children can remember the name and type of each animal by looking at and discussing them in sequence and then matching them to their correct type on screen. Ensure that children understand how to classify animals.</p> <p>An additional lesson could be to create a sorting diagram on 2simple for classification of animals.</p> <p>Ask: <i>What is this animal called? Which type of animal is it? What did you learn about its life cycle during the last lesson?</i></p> <p>Then move on to the second part of Interactive 1.</p>	<p>Collins nap Science</p> <p>Twinkle Power point on Life Cycle of Amphibians, Mammals and reptiles</p> <p>Twinkle Differentiated life cycle information</p> <p>Twinkle life cycle templates</p> <p>Mini whiteboards, secondary sources for research, including quality non-fiction books, web-based resources, educational CDs, smartphome and tablet Apps, identification guides and leaflets</p>

Ask: Are their young born live? How do they change as they grow? Which of the animals changes the most during its life cycle? How do they reproduce when they become adults? How long do they live?

Drag and drop answers into the boxes on screen. Ensure that children are beginning to build up a clearer picture of the differences between the life cycles of the different types of animals. This understanding will develop further and become more detailed over the course of the next four lessons, as children explore the four types of animals more closely.

ENQUIRE:

Explain to children that during this lesson they are going to learn about the life cycle of some mammals in much greater detail.

Show children Marvellous mammals (Video 1), which features the four mammals that they are going to find out about during the lesson: hedgehog, bat, polar bear and mountain gorilla .May want to incorporate the PP from Twinkle.

Ask children whether they know the names of any or all of the four animals. Stick Mug shots (use Set 1 from Resource sheet 1) of each of the mammals, and their names, where children can see them.

Independently children can start with Resource 4 to compare and contrast. Next, provide children with

			the resources to create a life cycle of one of the animals discussed.	
Lesson 3 What do we know about the life cycle of amphibians?	2 hour	<p>WALT: understand animals and humans.</p> <p><u>Success Criteria</u></p> <ul style="list-style-type: none"> • I can define what an amphibian is. • I can describe the common characteristics of different types of amphibian. • I can sequence the life cycle stages of a toad, newt, salamander or tree frog. • I can decide what information sources to use to find out about amphibians. • I can explain what is different about the life cycle of an 	<p><u>Working Scientifically Link:</u></p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</p> <p>What is an amphibian? How do we use classification to identify amphibians?</p> <p>Show children Hedgehog and garden frog (Video 1) and then use the Compare and contrast grid (Resource sheet 1) to compare the lives and life cycles of these two types of animals.</p> <p>Through discussion, help children to recognise information about the two animals that is directly relevant to the life cycles of each. Some of the facts they may suggest, while interesting, may not be of direct relevance to life cycles.</p> <p>Ask: <i>Where do hedgehogs live? Do they live in the same place for all the seasons of the year? Where do hedgehogs build their nests and give birth to their young? Is this information important to the hedgehog's life cycle?</i></p> <p>Children might argue that the home and habitat of the hedgehog is relevant, as the animal will fail to</p>	<p>Collins snap science lesson 3</p> <p>Twinkle resources as above.</p> <p>Poster Packs from Twinkle.</p> <p>Mini whiteboards, secondary sources for research, such as quality non-fiction books, web-based resources, educational CDs, smartphone and table Apps, identification guides and leaflets</p>

		<p>amphibian compared with that of a mammal.</p>	<p>reproduce if it cannot access an appropriate territory with the right sort of food and cover.</p> <p><i>Ask: What does a frog eat? Is this relevant to our work on the life cycles of amphibians?</i></p> <p>Again, children might argue that food supply is important to the life cycle of the frog. It is unlikely that frogs will lay eggs in a pond or water course where food for tadpoles is limited.</p> <p>Explain to children that during this lesson they are going to learn more about the life cycle of an amphibian. Look again at the frog's life cycle in Video 1. Ask them to work in pairs to summarise the frog's life cycle in a description or diagram, using their mini whiteboards to record their ideas.</p> <p>Provide children with secondary resource to record a life cycle of an amphibian.</p>	
<p>Lesson 4</p> <p>What do we know about the life cycle of an insect?</p>	<p>2 hour</p>	<p>WALT: investigate living things.</p> <p><u>Success Criteria</u></p> <ul style="list-style-type: none"> • I can define insects. • I can describe the common characteristics of different types of insect. • I can sequence the life cycle 	<p><u>Working Scientifically Link:</u></p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p><i>Ask: What is an insect?</i></p> <p>Ask children (give them 2 minutes) to draw a sketch and label an insect of their choice, which shows in as much detail as possible what they already know. After the 2 minutes have passed, allow them to</p>	<p>Collins snap science Lesson 4</p> <p>Twinkle resources as above.</p> <p>Secondary sources for research, including quality non-fiction books, web-based resources, CDs, smartphone and tablet Apps, identification guides and leaflets</p>

		<p>stages of an insect.</p> <ul style="list-style-type: none"> • I can present my findings in a poster. • I can describe the differences and similarities between metamorphosis in insect life cycles and an amphibian life cycle. 	<p>look at other children’s drawings and give them another 2 minutes to ‘magpie’ any good ideas that they see.</p> <p>Show children Insects galore! (Video 1), reminding them to watch carefully and to remember any additional information that they could add later to their insect sketch.</p> <p><i>Ask: What did you learn that you didn’t know already? What additional information do you need to add to your insect sketch? Do we know enough now to come up with a definition of an insect?</i></p> <p>Encourage children to talk to a partner before collecting their ideas. Ensure that they pick up on the key points and agree a definition.</p> <p>Remind children that in Lesson 3 they learned about a process that amphibians go through as they change from egg to adult.</p> <p><i>Ask: What is this process called?</i></p> <p>Explain that they are going to spend some time during this lesson finding out about some more ‘masters of metamorphosis’ but this time they will be learning about insects.</p> <p>Children work in groups, using secondary resources to research an insect and create a poster explaining its life cycle. Children then decide which of the insects goes through the most amazing example of metamorphosis during its life cycle.</p>	
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			<p>The challenges are differentiated according to the amount of support that is provided to children to present their findings and through the nature of the task.</p> <p>Bees, ants, butterflies, ladybirds, beetles, moths, houseflies, wasps, caddisflies and mosquitoes are examples of insects that go through complete metamorphosis. Damselflies, dragonflies, crickets, stick insects, water boatman, cockroaches, mayflies and locusts are examples of insects that go through incomplete metamorphosis, which involves a series of nymphal stages, either in water or on land</p> <p>Use the templates and provide children with resources to create a life cycle of an insect.</p>	
<p>Lesson 5</p> <p>What do we know about the life cycle of birds?</p>	1 hour	<p>WALT: understand animals and humans.</p> <p><u>Success Criteria</u></p> <ul style="list-style-type: none"> • I can define a bird. • I can describe the common characteristics of different types of birds. • I can sequence the life cycle stages of a bird. 	<p><u>Working Scientifically Link:</u></p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>Show children the Birds as animals video (Video 1). There are around 10 000 different species of birds in the world and almost 600 in Great Britain, but what do we know about them? Ask children to work with a partner to agree a definition of a bird. Remind them to include key characteristics.</p> <p>Use Things that fly (Resource sheet 1) to challenge children’s thinking. Ask them to consider how to</p>	<p>Collins snap science lesson 5</p> <p>Twinkle resources as above.</p> <p>Secondary sources for research, including quality non-fiction books, web-based resources, CDs, smartphone and tablet Apps, identification guides and leaflets</p>

		<ul style="list-style-type: none"> • I can select and record key information gathered from secondary sources to help me answer questions about the breeding cycle of birds. 	<p>answer this: A bird is like an aeroplane because? Children hopefully identify similarities, for example, they can fly, they have wings, they have ‘landing gear’ to help them land, they need fuel to fly, and they travel long distances very quickly. Children should then discuss the question with each</p> <p>Explain to children that they are going to explore and answer questions about the life cycles of birds, working in groups to look at bird life cycles, and share their findings.</p> <p>All three challenges involve children using secondary sources of reference, with varying amounts of support, to answer key questions.</p> <p>The challenges are presented on the Challenge slides to be displayed on the board, or printed out and placed in the centre of the table.</p>	
Lesson 6 What makes a successful life cycle?	1 hour	<p>WALT: work scientifically.</p> <p><u>Success Criteria</u></p> <ul style="list-style-type: none"> • I can create a detailed life cycle for an imaginary animal. • I can identify ways in which my animal will be successful. 	<p><u>Working Scientifically Link:</u></p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Provide each child with a Life cycle sticker (printed from Resource sheet 1) describing a single stage of a life cycle. Ask them to look at their sticker in secret before sticking it onto another child’s back, without them seeing what it is. Each child then asks other children focused questions with ‘yes, no or don’t know’ type answers, for example: Is it part of</p>	<p>Collins snap science Lesson 6</p> <p>Twinkle resources</p> <p>Secondary sources for research, including quality non-fiction books, web-based resources, CDs, smartphone and tablet Apps, identification guides and leaflets.</p>

		<ul style="list-style-type: none"> • I can communicate my ideas creatively 	<p>the life cycle of a mammal? Is it a stage of metamorphosis?,</p> <p>As they attempt to discover what the word or statement is. Once they have correctly guessed what's on their own sticker they should look for classmates who have stickers that might form part of the same life cycle.</p> <p>Explain that during this lesson they are going to create an imaginary animal and plan its life cycle in detail. Explain that they can communicate their ideas in a variety of ways, perhaps creating animations or other multimedia forms of presentation to depict each stage in the life cycle of their imaginary animal.</p> <p>In Challenges 1 and 2 children are supported with a structured storyboard planner to use as they plan the stages of their imaginary animal's life cycle. Further prompting can help support children completing Challenge 1 as they decide how to communicate the stages of their animal's life cycle. In Challenges 2 and 3 teacher questioning explores children's understanding of the life cycles they are seeking to communicate and establishes whether children are able to justify the stages they have chosen to include.</p> <p>The challenges are presented on the Challenge slides to be displayed on the board, or printed out and placed in the centre of the table.</p>	
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<p>Lesson 7</p> <p>How are humans helping endangered animals to complete their life cycles?</p>	<p>2 hour</p>	<p>WALT: work scientifically.</p> <p><u>Success Criteria</u></p> <ul style="list-style-type: none"> • I can identify reasons why animals become endangered. • I can describe ways in which humans are using science to help threatened or endangered animals. • I can present evidence to support my ideas. 	<p><u>Working Scientifically Link:</u></p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Display the beginning of the Decision alley slideshow (Slideshow 1). Children are presented with an initial statement: It’s very important for humans to help animals that are endangered in the wild. Ensure that children understand the word ‘endangered’ and can relate this to their understanding of different types of animals and their life cycles.</p> <p>Continue through the slides, which include pictures of endangered animals. A number of points of view are offered: ‘The best way is to keep animals safe in zoos and help them breed there.’ ‘We should find ways of protecting their habitat, so that they have enough food to eat and can breed naturally.’ ‘If they die out, it’s a shame but it doesn’t really matter – it’s all part of evolution.’ ‘Some animals are killed for food or to make medicines for people – is that wrong?’ ‘Breeding programmes cost a lot of money, helping people is more important.’</p> <p>Ask: <i>What do you think?</i></p> <p>Encourage children to think, pair and share ideas with the rest of the class. Take feedback and note children’s responses and ideas, as these will be revisited at the end of the lesson.</p> <p>ENQUIRE:</p>	<p>Collins snap science lesson 7</p> <p>Secondary sources for research, including quality non-fiction books, web-based resources, CDs, smartphone and tablet Apps, identification guides and leaflets, www.konicaminolta.com/kids/endangered_animals</p>
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		<p><i>Ask: How do humans help endangered animals to reproduce, as part of their life cycle?</i></p> <p>Show children Endangered animals' stories (Video 1), which features the stories of two endangered mammals that British zoos are helping: the black rhino (breeding programme at Chester zoo) and the giant panda (breeding programme at Edinburgh zoo).</p> <p>Link: Panda is artificially inseminated at Edinburgh Zoo</p> <p>http://www.bbc.co.uk/news/uk-scotland-edinburgh-east-fife-22238457</p> <p>Link: Baby rhino at Chester Zoo – breeding programme provides rhino to re-populate Kenya's Tsavo reserve</p> <p>http://www.chesterzoo.org/must-sees/zoo-news/baby-rhino-embu</p> <p>Explain to children that a generous benefactor has some money that they wish to donate to help an endangered or threatened animal survive and increase in numbers. They have asked the class to help them make the difficult decision about which animal to help. Children will need to make the case for an animal of their choice, providing evidence that they find from secondary sources of information to support their argument and presenting their findings in a creative way to the</p>	
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			benefactor (or their representative) at the end of the lesson.	
Lesson 8 How do amphibians and insects reproduce?	2 hours	<p>WALT: investigate living things.</p> <p><u>Success Criteria</u></p> <ul style="list-style-type: none"> • I can describe how some amphibians and insects reproduce. • I can identify metamorphosis as a stage in the life process of reproduction that is specific to these two types of animals. • I can explain that amphibian and most insect reproduction is sexual reproduction, requiring two animals, one male and one female. 	<p><u>Working Scientifically Link:</u></p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>Group children in twos or threes. Give each group a collection of cards (Resource sheet 1) with key words they should recognise from lessons in Module 1, The Circle of Life, plus some blank cards.</p> <p>Ask them to organise the words on a large sheet of paper, joining the words with arrows and identifying linking phrases. If the children have not drawn a concept map before, or for a while, model a few linking examples to get them started, such as Eggs (are laid on) Plants, (they hatch into) Caterpillars, (change into) Butterflies (written on blank card). After an appropriate time, ask the children to take it in turns to describe the links they have made. Comment on any different, more creative links that have been made, and note any misconceptions children might have.</p> <p>Encourage children to think about how the life process of reproduction in amphibians and insects are similar and how they are different.</p>	<p>Collins snap science reproduction in plants and animals lesson 4.</p> <p>Snap Science resource sheets.</p> <p>Snap Science challenge slides.</p>

			<p>Ask: What is different about reproduction in amphibians and insects? Where do they each lay their eggs? When does metamorphosis take place? Have you noticed anything similar about how they reproduce? Does reproduction always involve a male and a female? Explain that this is known as sexual reproduction, because a female and a male are involved in the process.</p> <p>Ensure that they are clear that it is similar to sexual reproduction in plants, which they learned about during earlier lessons in this module (Lessons 1 and 2).</p>	
<p>Lesson 9</p> <p>How do mammals and birds reproduce?</p>	<p>2 hours</p>	<p>WALT: understand animals and humans.</p> <p><u>Success Criteria</u></p> <ul style="list-style-type: none"> • I can describe how some mammals and birds reproduce. • I can identify similarities and differences between the life process of reproduction in these two types of animals. 	<p><u>Working Scientifically Link:</u></p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>Show children Courtship rituals (Video 1), a video that includes examples of male and female mammals, male and female birds, and their courtship rituals.</p> <p>Ask: What do you notice about male and female birds? Which one is bigger? (This is often the female.) Which is the most brightly coloured? (The male often has colourful, exotic-looking plumage.) What do the males do to attract a mate? (They may prepare a nest site or perform a courtship dance of</p>	<p>Collins snap science reproduction in plants and animals lesson 5.</p> <p>Snap Science resource sheets.</p> <p>Snap Science Video 1.</p> <p>Snap Science Interactive 1.</p> <p>Challenge slides.</p>

		<ul style="list-style-type: none"> • I can explain that mammal and bird reproduction is a type of sexual reproduction, requiring two animals – one male and one female. 	<p>some kind.) How does a male mammal attract a mate? What is important for a male mammal to show? How do they demonstrate their fitness and strength? (Sometimes by displaying – like some birds – sometimes by fighting.) Establish that children recognise that female mammals and birds are looking for the best possible mate so that they will produce healthy young that stand a good chance of surviving and growing into adults.</p> <p>In Challenges 1 and 2 children use Venn diagrams to organise information about reproduction in mammals and birds. In Challenge 1 children are provided with statements to sort, while in Challenge 2 they generate, then sort, their own statements.</p> <p>In Challenge 3 children are asked to work collaboratively to identify evidence that helps them compare, contrast and rate the parenting skills of male mammals or birds. The challenges are presented on the Challenge slides to be displayed on the board, or printed out and placed in the centre of the table.</p>	
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