

BILSTON CHURCH OF ENGLAND PRIMARY



MEDIUM TERM PLANNING

Subject	Topic/Key Question	Year Group	Term	Time Allocation
Science	Everything Changes	6	Spring 1	12 hours +

Lesson Sequence	Time Allocation	Key Question/WALT	Teaching Activities	Resources
Lesson 1	2 hours	<p>To understand animals and humans</p> <p>To identify ways in which living things of the same kind vary and to begin to think about why these variations exist</p>	<p>When thinking scientifically what do you think 'inherited' and 'environmental' mean when we are talking about personal characteristics? Devise a statement as a class taking ideas from each table that defines this.</p> <p>Project images of different humans. What is different/similar about each one?</p> <p><u>Children measure variation among humans</u></p> <p>Ask the children to select a number of characteristics that they think vary in humans, for example, height, weight, arm span, shoe size, eye colour and hair colour. Ask them to conduct a survey of their class, taking measurements where appropriate, in order to show the variation in these characteristics that occurs among their classmates. The children should record their results in a table and present them as histograms</p>	<p>Collins Connect Snap Science Lesson 1 Why do living things vary?</p> <div style="border: 1px solid black; padding: 5px;"> <p>Key information: Most characteristics of living things are inherited, such as eye colour, natural hair colour, or the shape of the face, but some characteristics are influenced by the environment, for example, for humans the language we speak or whether we have scars. Inherited characteristics are passed on from parents to offspring by genes, while those caused by the environment during their life cannot be passed on. The relative impact of inheritance and the environment is still an area of scientific debate for many characteristics, as some, for example, behaviour, intelligence, body mass and height, are caused by a combination of inherited and environmental variables.</p> </div>

			<p>or graphs. Explain to them that how they present their findings graphically depends on which characteristics they chose. Some, for example eye colour or shoe size, are discrete variations with a limited number of possibilities and the children record how many individuals have a particular eye colour or a particular shoe size, for example. Other variations, for example height or arm length, are continuous and could be any value for an individual. Remind the children to consider which characteristics are inherited, which are environmental and which are a combination of both.</p>	
Lesson 2	2 hours	<p>To understand animals and humans To identify ways in which living things of the same kind vary and to begin to think about why these variations exist</p>	<p>Recap on the lesson from last week. Work through the Apple Breeding chart together.</p> <p>Show slideshow 1 and 2 from Lesson 2. Discuss each slide.</p> <p>Organise children into pairs for a structured discussion. Display slide 1 of the Dogs slideshow (Slideshow 1), which shows a picture of a golden retriever and a dalmatian. Ask pairs of children to identify the similarities and differences between the two dogs by completing the Dogs compare and contrast grid (Resource sheet 1). Children may find it hard to comment on some of the variables for comparison (for example, diet, running speed) and therefore access to research materials such as the internet and textbooks should be provided to support this.</p>	<p>Collins Connect Snap Science Lesson 1 Why do living things vary.</p> <p>Compare and contrast grid: Dogs</p> <p>Lesson 2: Apple Breeding Chart</p> <p>Requirement for dogs task sheet</p>

			<p><i>Ask: Why do you think these animals look like they do? How are they similar and how are they different?</i></p> <p>Discuss reasons for the similarities and differences. Collect children’s ideas on sticky notes, encouraging suggestions such as ‘because of their parents’, ‘because of how much they eat’, ‘because of the way the owner looks after them’ (for example, brushing the coat), ‘because of how much exercise they get’.</p> <p>To complete the Explore activity, ask children to add a key to their compare and contrast grid and to use different colours to show which characteristics of the two dogs are inherited, environmental or both. Children should be reminded that although there are many differences between the dalmation and the golden retriever, they are both still dogs.</p> <p>The children will then complete a ‘requirements for dogs’ task where they will choose two dogs to breed to produce the ideal family pet. This is called selective breeding.</p>	
Lesson 3	1 hour	To understand living things and humans.	What is selective breeding? How could it be useful? Are there any drawbacks? Work through slideshow 1 and then watch the short video clip.	Collins Connect Snap Science Lesson 3 Character debate cards.

		To know about the positive and negative effects of selective breeding	Have the character cards on each table. Read through them as a class. The children will then rate them to show whether they are demonstrating 'quite a good argument', 'a good argument' or 'a very good argument'. They will establish whether the selective breeding in each case is positive or negative and explain the point for each one.	
Lesson 4	2 hours	To understand living things and humans. To understand the terms 'Evolution', 'Adaptation' and 'Inheritance'.	<p>What is 'Evolution'?</p> <p>What is 'Adaptation'?</p> <p>What is 'Inheritance'?</p> <p>In table groups the children will come up with definitions. Share definitions and give the children chance to adapt theirs if necessary to ensure complete understanding of these terms.</p> <p>Work through the evolution and adaptation powerpoint stopping to discuss as necessary. Have images of animals on the board. How have they adapted to their surroundings in order to survive?</p> <p>The children will then create mini fact files for a number of species that have had to adapt in order to survive.</p> <p>Extension: To find out as much about Charles Darwin as possible in order to build upon information taught during the lesson.</p>	<p>Evolution and adaptation powerpoint - Twinkl</p> <p>Desert and Antarctic adaptation cards - Twinkl</p>
Lesson 5	2 hours +	To understand living things and humans.	<p>Where in the world are the Galapagos Islands?</p> <p>What did Charles Darwin discover in the Galapagos Islands?</p>	Evolution and adaptation powerpoint – Twinkl

		<p>To work scientifically</p>	<p>Children will share what they found out from their investigation into Charles Darwin during the last lesson. Add in key facts if necessary.</p> <p>Show images of Darwin’s finches – what do the children notice about the beaks? Why do they think this is?</p> <p>The children will then explain why adaptation occurred.</p> <p>Task 2:</p> <p>The children will have a range of different ‘beaks’ and a range of different foods which they will need to try and pick up with their beaks. In a timed session they will try to pick up as many seeds as possible with each beak and drop the seeds into their ‘tummy’ (plastic cup).</p> <p>Focus questions:</p> <ol style="list-style-type: none"> 1. <i>What did you notice about your feeding abilities? (What were you good at?)</i> 2. <i>What would happen if there was a drought and all the pearl barley died off? What would happen to the bird population?</i> 3. <i>What did you notice about your behaviour and the behaviour of others?</i> 	<p>Video clip of the Galapagos Islands.</p> <p>Link to Galapagos clip</p> <p><u>Resources needed for the practical experiment.</u></p> <p>Plastic cups Chopsticks, pegs, straws, tweezers and tongs. Split peas, Sunflower hearts, Nijer and Pearl barley. A timer/stopwatch</p>
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			<p>Analysis of results: The children will state which 'beak' was best and for which type of food. They will also consider the worst.</p> <p>This time all of the foods will be mixed together and just 1 beak chosen. The children will respond to a range of questions. They will then write up their experiment.</p> <p>Data will be presented in the form of a graph.</p>																																					
Lesson 6	1 hour	<p>To understand living things and humans.</p> <p>To understand why some species are endangered or have become extinct.</p>	<p>What does extinction mean?</p> <p>What could cause a species to become extinct?</p> <p>The children will come with ideas in a group.</p> <p>Have some images of different species on the board. The children will sort them into groups: extinct and living. Follow the web-link and look at the different species.</p> <p>Some animals are extinct, others are endangered, critically endangered and vulnerable. Work through examples.</p> <p>The children will create a non-chronological report on extinct species.</p>	<p>Images of extinct species.</p> <p>Link to website describing extinct species.</p> <p>https://a-z-animals.com/animals/dodo/</p> <table border="1"> <thead> <tr> <th>Species</th> <th>Habitat</th> <th>Reason(s) for why it is endangered/ extinct</th> <th>Details</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	Species	Habitat	Reason(s) for why it is endangered/ extinct	Details																																
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Lesson 7	2 hours	<p>To understand living things and humans.</p> <p>To know that living things changed over time,</p>	<p>EXPLORE:</p> <p>Ask: <i>What is a fossil?</i></p> <p>In table groups, provide each group with the Fossil formation cards (Resource sheet 1). Ask them to sort the cards into the right order.</p>	<p>Collins Connect Snap Science Lesson 9</p> <p>Resource sheet 1: Fossil formation cards</p> <p>Resource sheet 2: Fossil images</p>																																				

			<p>Display the Fossilised fish photo (Slideshow 1) and ask children to draw a picture of what they think this animal looked like when it was alive. Remind children that fossils are a way of 'looking into the past' at living things that existed millions of years ago, most of which no longer exist.</p> <p>Review children's drawings of and answers about the fossilised fish, and ask them for suggestions about what type of environment this animal may have lived in.</p> <p style="text-align: center;"><i>Ask: How do we know this animal did not live on land? How much evidence do we have that this animal lived in a watery environment?</i></p> <p>Show children pictures of other Fossilised plants and animals (Slideshow 2).</p> <p style="text-align: center;"><i>Ask: What do these fossils look like? What kinds of environments do you think they lived in? What evidence do you get from looking at the fossil? What other evidence might you need to be more certain?</i></p> <p>ENQUIRE: Establish that fossils provide evidence of organisms that lived in the past, the types of</p>	<p>Slideshows 1 (Fossilised fish), Slideshow 2 (Fossilised plants and animals) and Slideshow 3 (Fossil evidence over time)</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: It is recommended that you print Resource sheet 2 out in colour from Collins Connect.</p> </div>
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			<p>environments that they lived in and how living things have changed over millions of years. Explain that in the challenges they are going to look at fossils from different times and prepare a presentation to describe what life was like millions of years ago.</p> <p>The challenges are differentiated according to the level of interpretation children are asked to give through the guided questions and the length of their presentation.</p> <p>Challenge 1: Children use secondary sources of information to find out more about a fossil, suggest when and where it may have lived, and prepare a powerpoint presentation</p> <p>Provide pairs of children with a named photograph of a trilobite (the first picture from Resource sheet 2).</p> <p>Prompt them to think about the animal, its possible environment and when it lived on Earth.</p> <p><i>Ask: When was this animal living on the Earth? What other types of living things were also on the Earth at the same time? What type of environment did it live in? Why did you give the answers you gave?</i></p>	
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Encourage the children to use secondary sources of information, including the internet, to find out how scientists might answer the questions.

Ask: How different were your answers from those of the scientists? Were you surprised? Why do you think scientists know so much about these animals?

Ask the children to prepare a powerpoint presentation of 2–3 slides about their fossil

Challenge 2. Children use secondary sources of information to find out more about a fossil, suggest when and where it may have lived and how it evolved, and prepare a powerpoint presentation

Provide pairs of children with a named photograph of an ammonite (from Resource sheet 2).

Ask: When was this animal living on the Earth? What other types of living thing were also on the Earth at the same time? What type of environment did it live in? Why did you give the answers you gave? How many years do you think ammonites

lived on Earth? Do you think these animals stayed the same all the time or do you think they changed in some way? Are there any animals living today that are related to ammonites?

Encourage the children to use secondary sources of information, including the internet, to find out how scientists might answer the questions.

Ask: How different were your answers from those of the scientists? Were you surprised? Why do you think scientists know so much about these animals?

Ask the children to prepare a powerpoint presentation of 3–5 slides about their fossil.

Challenge 3: Children use secondary sources of information to find out more about a fossil, suggest when and where it may have lived and how it evolved, and prepare a powerpoint presentation

Provide pairs of children with a picture of Archaeopteryx (from Resource sheet 2).

Ask: When was this animal living on the Earth? What other types of living thing were also on the Earth at the same time? What type of

			<p><i>environment did it live in? Why did you give the answers you gave? How many years do you think Archaeopteryx lived on Earth? Do you think these animals stayed the same all the time or do you think they changed in some way? Are there any animals living today that are related to Archaeopteryx? What seems to be different about this living thing, compared with the other fossils that you have looked at?</i></p> <p>Encourage the children to use secondary sources of information, including the internet, to find out how scientists might answer the questions.</p> <p><i>Ask: How different were your answers from those of the scientists? Were you surprised? Why do you think scientists know so much about these animals?</i></p> <p>Ask the children to prepare a powerpoint presentation of 5–7 slides about their fossil.</p>	
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