

THE WINTERTON FEDERATION MEDIUM TERM PLAN SCIENCE Autumn YEAR 6

We're Evolving	Learning Objective	Activity – Switched On Science	STEM Activities	Success Criteria
Session 1	<p>To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p>	<p>Quick fire round the room – ‘Give me one difference between you and the person on your left/sitting next to you’. Start a tally chart on the board of the features they pick, i.e. write ‘eyes’; ‘nose’; ‘hair’, etc. on the board. Discuss the main differences we notice about each other.</p> <p>Play simple matching games of children to parents/animal offspring to their parents – how are they similar? Different? Horses work well for this as they have different white markings. Use www.bbc.co.uk/learningzone/clips/twins-similaritiesand-differences/2481.html to look at the similarities and differences between twins.</p> <p>Discuss some of the ways that we can look at differences between each other, that aren't to do with things we can change, such as hair length, or colour, or how fat or thin we are, or whether we wear glasses or not. Explain that these are called environmental features. We are looking for inherited features. What does inherited mean? (Dictionary work.)</p> <p>Give out photo of a family and ask the children to identify the inherited features from their parents.</p>		<p>I can observe differences in appearance.</p> <p>I can explain simply why we look like our parents, but are not identical to either one of them.</p>
Session 2	<p>Identify how animals and plants are adapted to suit their environment in different ways.</p> <p>To record data and results using tables.</p>	<p>Begin by asking the children to work in groups and make a list of the things they can remember about what plants need to survive. Discuss the teeth they studied in earlier years and which teeth did what. Draw their ideas including all the features they can think of. Brainstorm all the features of a desert – if necessary, show images to give ideas. Ask what problems there might be if they lived there. Think about when they are on the</p>		<p>I can observe differences in appearance.</p> <p>I can explain how animals are adapted to their habitats.</p>

		<p>beach. What is it like? How does the sand feel? What do they need to keep safe? How would an animal do this? Name some animals that live in the desert and consider their adaptations. Research some animals in the desert and then list their adaptations to living there. Label images of animals like camels, or meerkats. Next move to the polar regions and look at penguins. How have they changed from regular birds? Do they look like birds? How can you tell? What is different? How does this make them more suited to living in the icy conditions? www.arkive.org/royal-penguin/eudyptes-schlegeli/video-06b.html may help too.</p> <p>Now we need to consider plants – they have adapted to their environments too. Bring in a selection of plants, such as cacti and small trees, succulents, triffids and alpiners. Match them to the conditions they live in, e.g. desert, mountains, rainforest.</p>		
<p>Session 3</p>	<p>To identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution. To record results, report and present findings, including conclusions, causal relationships and explanations.</p>	<p>Present a range of different clothing – winter coat, hat, scarf, gloves, wellington boots, T-shirt, shorts, flip flops, summer hat. Ask what clothes they would choose for a winter walk in the woods, then a summer day at the seaside. Discuss and explain reasons for choices.</p> <p>Explain that we are lucky in that we can adapt our clothes to suit the conditions but animals can't do that – they became adapted for life in certain conditions over hundreds of thousands of years. Think about what an animal that lives in a cold place would look like. Think about how it might keep itself warm, move on the ice and hunt prey. Show video clip about polar bears and other animals who live in cold places: www.bbc.co.uk/learningzone/clips/adaptations-</p>		<p>I can record results, report and present findings, including conclusions, causal relationships and explanations.</p>

		<p>ofanimals-living-in-the-arctic/12669.html</p> <p>Think about a family of antelopes. Some would naturally be able to run faster than others. Discuss what would happen if they were chased by lions. Which would be more likely to survive? Explain that the antelopes that could run faster than the others would have babies that could run faster. Place a sheet of white paper on the table. Choose one person to be the predator. Have them close their eyes/turn their back. While the predator is not looking, spread 30 white squares and 30 newspaper squares over the paper. The 'predator' can open their eyes and must then use forceps to pick up as many of the squares as he can in 15 seconds. Count how many of each square they collected. Place the squares on a newspaper background and repeat the experiment. Record the results in a table. Swap places and repeat the two trials. This shows that the newsprint squares should be slightly camouflaged on newspaper, but easy to see on white paper. The white squares should be camouflaged on the white paper. This simulates different coloured moths resting on dark or light tree trunks and how easy they are to a predator. Look at the peppered moth story together (see Must-see topic websites).</p>		
<p>Session 4</p>	<p>To identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	<p>Show film 'We're evolving' and ask children for examples of animals they have known who have given birth and can compare the characteristics of the offspring with their parent. Explain that the chopsticks and tweezers represent different bird beaks. One bird with a long thin beak and one bird with a short beak. Bird's beaks have adapted to be best at eating particular types of food. In</p>		<p>I can record results, report and present findings, including conclusions, causal relationships and explanations.</p>

		<p>groups play the 'Beaks and seeds' game: Ask the children to see which 'beak' is best for eating seeds – the long thin chopsticks or short stubby tweezers. Starting with the chopsticks, the 'bird' has one minute to pick up as many sunflower seeds as it can and put them into the plastic cup (its stomach!). At the end of one minute, the counter can count up how many seeds have been collected. Repeat with the tweezers, then swap round so each child has a go. Which beak was the best for eating seeds? What kind of birds do they see in the garden that eat seeds? Do they have long or short beaks? Would there be certain types of food where a long beak might be better? Think of a bird like a heron with a long thin beak like chopsticks – how do they catch their food? (Spearing fish.) Explain Darwin's theory about finches, which we can apply to birds we know already. Can they explain how Darwin used this information to come up with his theory about the finches on the Galapagos Islands.</p>		
Session 5	To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.	<p>Look up the meanings of numbers, such as million, billion, etc. Look at numbers and keep adding more zeros. Ask the children if they can match the numbers to the names. Read the story: Dinosaurs and all that Rubbish by Michael Foreman. The children could write a story about what the world would be like if the dinosaurs had not become extinct. Children could also research animals and fossils of their own and produce information sheets about each one. Create their own fossils.</p>		<p>I can explain how fossils provide evidence of living things in the past. I can describe how things have changed over long periods of time. I am more aware of the timescale of evolution.</p>
Session 6	To recognise that living things have changed over time and that fossils provide information about living things that inhabited	<p>Begin by asking the class these questions and writing the children's responses on a chart: What do you know about dinosaurs? How do we know that dinosaurs lived long ago? Remind them what fossils are and where they</p>		<p>I can research famous people. I recognise the contribution made by people in finding out about the past. I can describe how things have</p>

	<p>the Earth millions of years ago.</p>	<p>are found. Get into groups: Assign the children to groups of two to four. Distribute one paper plate, one chocolate chip cookie, and one toothpick to each group. Hang up a chart that says the following: Each fossil: EARN £10 Broken fossil: PAY £8 Tool rental (the toothpick): PAY £3 Damage to the ground: PAY £6 Tell the children that they are going to try to remove the dinosaur fossils (chocolate chips) from the ground (the cookie) without breaking the fossil or the ground. Give them about 10 minutes to complete this activity. At the end of the lesson, tally each group's achievements: add up the profits and subtract the payments. Teacher's suggestion: Tally the finished 'fossil digs' on the board or on an overhead projector so that everyone can see the results. Pair up: Explain this is how real-life palaeontologists dig up dinosaurs. One of the most famous is Mary Anning. Until 200 years ago people had found fossils, but they didn't realise they were from creatures that had lived millions of years ago. The work of Mary Anning was important in changing this. Research and plan a presentation about Mary Anning, her life and discoveries.</p>		<p>changed over long periods of time.</p>
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