

Objectives	Eventual Evolution	Extra Information
<p><b>L.O:</b></p> <p>To Understand What Natural Selection Is.</p>	<p><b>STARTING ACTIVITY – (10 minutes)</b>  <b>GROUP DISCUSSION</b> – Ask the class if they've heard of Evolution or Natural Selection, and if so what they think they are.</p> <p>Explain to the class that <b>Evolution</b> is the process by which living <b>Organisms</b> are believed to have developed from earlier forms over time.</p> <p>Tell the class that it is generally accepted that through the process called <b>Natural Selection</b>, animals with advantageous <b>Traits</b> or <b>Features</b> are more likely to pass on their <b>Genes</b> through reproduction.</p> <p>For example: an early <b>Ancestor</b> of the Blue Whale was smaller but their larger <b>Ancestors</b> were more likely to survive into adulthood, perhaps because their size meant they were more protected, meaning they were more likely to have offspring with the same trait of being larger. Over many generations Blue Whales got larger and larger until they've become what they are today, the largest animals that have ever lived.</p> <p><b>MAIN TEACHING – Eventual Evolution (35 minutes)</b>  <b>GROUP DISCUSSION</b> – Ask the class why they think Tyrannosaurus Rex had such small arms, ask whether they think it would be more advantageous for it to have had larger arms.</p> <p>Tell the class that <b>Evolution</b> by <b>Natural Selection</b> can be very slow and is also not an intelligent process, meaning that it doesn't decide what might be useful in the future. So whilst we might think a T. Rex with large powerful arms may have been better, there was seemingly no <b>Advantage</b> at the time. In fact based on the size of its arms, we can assume that the opposite was true.</p> <p><b>GROUP DISCUSSION</b> – Ask the class to think of reasons why having small arms might have been an <b>Advantage</b> for T. Rex.</p> <p>Explain that we can't know for sure but there are many theories, one being that longer arms would have been easier for other large dinosaurs or even competing T.Rexes to bite, potentially fatally wounding T. Rexes with large arms, making them less likely to survive and pass on their "long arm" <b>Genes</b>.</p> <p><b>GUIDANCE</b> – The following exercise can be done individually or in small groups. Depending on how much time is left of this lesson, you could include decorations and crafts in the design element of the lesson.</p>	<p><b>Materials Required:</b></p> <ul style="list-style-type: none"> <li>▶ Pen</li> <li>▶ Paper</li> <li>▶ (Optional) Colouring Pens</li> <li>▶ (Optional) Additional Craft Materials</li> </ul> <p><b>Key Words:</b></p> <ul style="list-style-type: none"> <li>▶ Evolution</li> <li>▶ Natural Selection</li> <li>▶ Organism</li> <li>▶ Traits/Features</li> <li>▶ Genes</li> <li>▶ Advantage</li> <li>▶ Dinosaur</li> <li>▶ Paleontologist</li> </ul> <p><b>Success Criteria:</b></p> <ul style="list-style-type: none"> <li>▶ I understand that there is a process called evolution.</li> <li>▶ I understand that evolution may be influenced by natural selection.</li> <li>▶ I understand that natural selection is the process of advantageous traits/features being passed on genetically.</li> </ul>

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	<p>Tell the class to design their own <b>Dinosaur</b>. Tell them that it can look however they want it to but that whilst designing it they should be thinking about what <b>Traits/Features</b> it has and why. For example does it have long legs? If so, why? Does it need to run very fast, does it run fast to get away from predators or does it hunt other fast dinosaurs?</p> <p>Once everyone has designed their <b>Dinosaur</b>, ask for volunteers to display their design. As a class, discuss the different features of the <b>Dinosaur</b> and try to work out what advantages they had before letting the student describe their own design and justifications for its features.</p> <p>Repeat this process several times with other volunteers and see how accurate the class is each time.</p> <p>Explain that this process is similar to how <b>Paleontologists</b> work out how <b>Dinosaurs</b> may have behaved and the environment they lived in. First they create a design of the <b>Dinosaur</b> based on fossils and then they compare their features with animals that are alive today and can make educated guesses about the <b>Dinosaur</b>, even though the <b>Dinosaur</b> has been dead for over 65million years. But it is impossible to know for sure that they're correct and <b>Paleontologists</b> don't always agree.</p> <p><b>PLENARY – (10 minutes)</b> Tell the class that almost all animals have <b>Vestigial Features</b>. These are <b>Features</b> that are no longer of use to the animal, but remain because a distant <b>Ancestor</b> had use for them. Most of the time these features become smaller and smaller but don't always disappear completely.</p> <p><b>GROUP DISCUSSION – Ask the class if they can think of any Vestigial Features on humans.</b></p> <p>Tell the class that some people can move their ears because there are actually small muscles in the ear. It's thought that a distant <b>Ancestor</b> of ours may have used those muscles to alter the direction its ears point, similar to how dogs can raise their ears to the direction of a sound. There are also many other examples such as our tailbone (or coccyx) which is actually the <b>Vestigial</b> remains of a tail our <b>Ancestors</b> had.</p>	