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| Session leaders:Contact number:Date:  |
| Session theme: | Evolution and Inheritance |
| Session objectives: | Recognise that scientific ideas develop over time based on new evidence. Identify scientific evidence which can be used to support ideas. |
| Careers links: | Evolutionary biologist, palaeontologist. |
| Starter questions:  | Open with clips of T-Rex and Velociraptors from Jurassic Park. Discuss how we now know they had feathers and the evidence which supports this. |
| **Activities**  | **Notes**  | **Materials** |
| *Context:* The science of palaeontology has adapted a lot over the past 100 years based on new evidence. Examples include Iguanodon’s thumb spike (which we used to think was on its nose) and more recently the discovery that theropods such as Velociraptor and T-Rex had feathers like modern day birds.*Description:*We will explore how new evidence has changed the way we think about dinosaurs.The task will allow the children to build their own dinosaurs based on limited information. They will be provided with paper bones, play dough, feathers, and an information sheet about the dinosaur’s habitat and whether it was a predator or prey.Step 1: arrange the paper bones into how they think the skeleton was likely to be arranged, using knowledge of skeletons in other animals, including humans.Step 2: begin to create a 3D model of their dinosaur using play dough, based off the skeleton which they have already created and thinking about the habitat and diet of the dinosaur (use similar modern day animals for a comparison). Feathers can be used for decoration, with justification. Think about patterns and colours (e.g. for camouflage or mating).Step 3: imprint the skeleton onto the side of the dinosaur, to show how all the bones fit within it. Think about whether there are fatty areas on your dinosaur which would not contain bone (such as trunks, humps, etc.).Step 4: talk within your tables on what dinosaur you have created and why. Explain how it walks, what it eats, etc. What scientific evidence can you use to support your design (*why* does your dinosaur look like it does)?*Reflective questions:* What were the challenges of this task? What scientific evidence could come in the future which could change the view of your dinosaur? Compare your design: who in the group got closest to their real dinosaur, and how/why? | Iguanodon was one of the first dinosaurs ever discovered (1825), but impartial skeletons led us to think that it was a four-legged creature with a spike on its nose. The discovery of complete skeletons led to the modern interpretation that it walked on two legs and had spikes on its thumbs. We still don’t know what the spikes were used for.As recently as 1996, palaeontologists discovered evidence of feathers on many dinosaurs, specifically the theropods (or meat-eating dinosaurs) such as T-Rex, Velociraptor and Deinonychus. This led to the development of the currently accepted theory that (spoiler alert – save this for the end of the session!) birds are descended directly from dinosaurs.Some other dinosaurs, such as Brachiosaurus, were not direct descendants of birds. Brachiosaurus was not a theropod but a sauropod, which is a different group of dinosaurs. Iguanodon was also not a direct descendant of birds. | Session leaders to provide:* Paper bones, already cut out (four different dinosaurs, one of which is a modern-day bird)
* Play dough
* Craft feathers
* Information sheets about the dinosaurs (four different dinosaurs)
* Sandwich bags to contain all of the above – one set for each child
* PowerPoint (including clips of T-Rex/Velociraptors for opening, and pictures of skeletons and corresponding dinosaurs to use in Step 4).
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