

Science (with cross-curricular links to History)

Year 3 and year 4 pupils, and teachers alike, will love this lesson all about dinosaurs. Cover national curriculum objectives in science and history and develop pupils' critical thinking skills as they become dinosaur detectives.

National curriculum learning objectives

- Science – to recognise that living things can be grouped in a variety of ways.
- Science – to recognise that environments can change and that this can sometimes pose dangers to living things.
- History – to frame historically-valid questions and construct informed responses, using relevant historical information.
- History – to understand how our knowledge of the past is constructed from a range of sources.

Skills development

- Critical thinking skills
- Vocabulary development

Resources needed

- A copy of the DK book **Does a Dinosaur Roar?** (or, if possible, one copy per group)
- **Dinosaurs Groups Sorting Cards**
- **The End of the Dinosaurs Quiz Questions** – one per pupil/pair/group, as required

Key vocabulary

Dinosaurs, theropods, marginocephalians, ornithopods, thyreophorans, pterosaurs, sauropodomorphs, cynodonts, ceratopsians, microraptors, plesiosaurs, marine reptiles, prehistoric, ancient, omnivore, carnivore, herbivore, extinction, predator, prey, survival, meteorite, asteroid, volcano, palaeontologist, anatomy, fossil, coprolites, lifespan, armoured, protection, Mesozoic Era, Triassic, Jurassic, Cretaceous period

Prior learning

Pupils may have some prior knowledge about dinosaurs and the extent of that knowledge may vary greatly between individuals. Take pupils' existing knowledge as a starting point but cover the basics for those without prior knowledge.

Time	Teacher Activity	Adaptations
10 mins	<p>Introduce the lesson and explain that historians, much like detectives, need to ask a lot of questions in order to gather evidence about the past. Scientists also have to ask a lot of questions to learn about the world around us.</p> <p>Ask pupils to work in pairs to jot down as many questions as they can in five minutes on the topic of dinosaurs. Share and discuss some of the questions.</p> <p>Introduce the DK book, Does a Dinosaur Roar? and look through the contents page together to see if some of the pupils' questions might be answered in this book.</p>	<p>For pupils who are unsure where to start, suggest some topics for questions, such as diet, place, appearance, size, behaviour, extinction, etc.</p> <p>Partner less confident writers with more confident writers to act as scribes.</p>
20 mins	<p>Explain that when learning about dinosaurs, experts have looked for ways to group them – just as we do with all living things, such as other animals and plants. Ask pupils if they know of any animal groups.</p> <p>Hand out a set of Dinosaur Groups Sorting Cards to each group and introduce the vocabulary for the five main groups of dinosaurs: theropods, marginocephalians, sauropodomorphs, ornithopods and thyreophorans.</p> <p>Pupils read the definitions and work together to sort the dinosaurs into the five groups, according to their characteristics.</p> <p>Discuss their decisions and refer to the groups on pages 16 and 17 of the Does a Dinosaur Roar? book. Did pupils find it easy to be dinosaur detectives or was it difficult to group dinosaurs?</p> <p>Ask pupils to share what information they had and whether they felt they needed more information about some of the dinosaurs. Ask them how they would go about learning more about certain dinosaurs. What sources of information would they use and how would they cross-check facts</p>	<p>Support with reading the descriptions, as needed.</p> <p>Pupils could be encouraged to highlight the keywords and phrases in the descriptions that will aid their detective skills.</p> <p>Explain that pterosaurs (flying reptiles) and plesiosaurs (marine reptiles) were not actually dinosaurs. This is because they didn't have a hole in their hip socket which meant their legs were positioned directly under their bodies.</p>

<p>25 mins</p>	<p>Ask pupils if they know why dinosaurs became extinct. Hand out the Quiz Questions to pupils. They can complete these individually, in pairs, or in groups.</p> <p>As a class, look at pages 98 to 105 of the Does a Dinosaur Roar? book, reading and discussing the information. The End of the Dinosaurs Quiz Questions sheet links to these pages in the book. Encourage pupils to answer the questions in their own words from the information they have just gained.</p> <p>Share and discuss pupils' responses.</p>	<p>Clarify any queries. Record questions you can't answer to research and address later.</p> <p>Support pupils in answering the questions by repeating or simplifying information from the book, as required.</p>
<p>5 mins</p>	<p>Recap the learning objectives with the class and review the learning that has taken place.</p> <p>You may wish to end the lesson by answering the question 'Does a dinosaur roar?' which can be found on pages 66 and 67.</p>	<p>Acknowledge further questions pupils may have and aim to follow these up in a later session.</p>

<p>Preparation for the next lesson</p>	
<p>What learning took place?</p>	
<p>Which aspects of this lesson went well?</p>	
<p>Which aspects could be improved upon?</p>	
<p>Actions for the future</p>	

Assessment opportunities

- Can pupils group dinosaurs according to their characteristics, providing suitable reasons for their decisions?
- Can pupils suggest ways in which environmental changes can pose dangers to living things?
- Can pupils ask and answer questions about the past, using the historical information provided?
- Can pupils show an understanding of how historians and scientists have learnt about the Mesozoic Era from a range of sources?

Further learning opportunities

- Pupils could learn lots more about fossils and the work of palaeontologists. The chapter in the book, 'Dinosaur Discovery' contains plenty of information. Pupils might like to do further research on fossils and even create their own using salt dough.
- In Design and Technology, pupils could create flying dinosaurs, maybe with moving parts. These could be hung up in the classroom or corridors.
- Pupils could use the **Dinosaur Name Cards** to sort them alphabetically. They could also use the names to play the word game where smaller words are found using letters from a longer word.
- Pupils may be interested to learn more about environmental changes and how species rely on environmental stability. They could learn about climate change, pollution and deforestation, and how living things are impacted by these changes.

Home learning opportunities

- Pupils could create a fact sheet about one particular dinosaur. This could be done by hand or on the computer.
- There are various dinosaur museum virtual tours online that pupils may enjoy watching at home with a family member to supervise.