

**Video question script, KS2: Plenary: Dinosaur footprints - the story from the evidence**

Question/Activity	Likely response	Rationale
When teaching about the Earth we often use practical activities to explore Earth processes. Here we are going to solve a detective puzzle around fossil dinosaur footprints		
Photo: Ask what is this? Tracks at Dinosaur Ridge, Morrison Fossil Area, Jefferson County, Colorado. <i>(Published by Footwarrior under the Creative Commons Attribution-Share Alike 3.0 Unported licence.)</i>	Photo of dinosaur footprints on an ancient hardened lake bed	
<b>MAP 1:</b> Ask what is this?	A sketch map showing a wall and two sets of shapes, which look like footprints. Explain that the buildings are being demolished to reveal more of the former lake bed.	Concrete preparation = asking them to describe the item
<b>MAP 1.</b> Explain the setting of 100 million years ago and ask pupils to imagine the scene.	-	Construction in developing a pattern in pupils' minds
<b>MAP 1.</b> Ask: What do the footprints shown in Map 1 tell you about the two dinosaurs?	<ol style="list-style-type: none"> <li>1. Both dinosaurs had three toes.</li> <li>2. One dinosaur was bigger than the other.</li> <li>3. There could have been two types of dinosaur or one could have been a juvenile. We can't tell whether they were both herbivores (plant-eaters) or both carnivores (meat-eaters) or if there was one of each.</li> <li>4. The map suggests that both dinosaurs were heading for a site which is currently under the old buildings.</li> <li>5. After about 6m of tracks, the large footprints are further apart showing that the large dinosaur may have started to run. It could have started to run because it had seen or smelled the small dinosaur about 6m away. However, the small dinosaur does not run away. Perhaps the large dinosaur wanted to reach the site under the old buildings before the small dinosaur?</li> </ol>	<p>Understanding of emerging pattern (construction)</p> <p>Different ideas, different sets of evidence (cognitive conflict)</p> <p>Reasoning behind the answers (metacognition)</p> <p>All fossils and their traces in rocks can be used to tell a scientific story (bridging).</p>
<b>MAP 1.</b> Ask what do you think happened to them where the ground is hidden by the buildings in the east?	<ol style="list-style-type: none"> <li>1. The large dinosaur caught the smaller one and ate it.</li> <li>2. The small dinosaur was joined by others in the pack and they all attacked the large dinosaur.</li> <li>3. Both dinosaurs were moving towards the same spot - maybe towards prey that they both wanted.</li> <li>4. This is the lake and they were going to drink.</li> <li>5. The baby dinosaur joined its mother.</li> <li>6. The large footprints cross over the smaller ones (or vice versa) so the dinosaurs did not walk here at the same time.</li> <li>7. Both dinosaurs were walking on the mudflats and were not interested in</li> </ol>	As above

	each other.	
<b>MAP 1.</b> Ask what evidence in support of your ideas would you expect to see when more of the footprints have been uncovered?	<ol style="list-style-type: none"> <li>1. Signs of a struggle in the mud with footprints overlapping and the mud disturbed.</li> <li>2. The same as the above but with extra small footprints coming in.</li> <li>3. If the prey was alive, then there would be signs of a struggle. If it were dead, then there would be fewer or no signs of a struggle. In both events there could be some remains of the prey – maybe fossil bones.</li> <li>4. Both sets of footprints stop as the dinosaurs reach the water. There are more footprints as they walk away.</li> <li>5. Both sets of footprints join and continue walking together.</li> <li>6. The larger footprints would cover the smaller footprints (or vice versa), and would have smudged them.</li> <li>7. The footprints continue towards the east and show no relationship to each other.</li> </ol>	As above
<b>MAP 2.</b> Show the pupils <b>Map 2</b> where the buildings have been cleared 10m further back. Ask the pupils: Which of your previous ideas best fits the new evidence?	Idea 3 best fits the new evidence as neither dinosaur ran away from the other.	As above
<b>MAP 2.</b> What do you think happened to the two dinosaurs in the ground which is still hidden by the old buildings in the east? Try to suggest three different ideas.	<ol style="list-style-type: none"> <li>1. The large dinosaur walked away having eaten the smaller one.</li> <li>2. More small dinosaurs joined the struggle and killed the large dinosaur.</li> <li>3. Both dinosaurs walked away.</li> <li>4. The fight continued to the east and both dinosaurs died in the fight leaving their remains.</li> <li>5. The fight attracted lots more dinosaurs.</li> </ol>	As above
What evidence in support of your ideas would you expect to see when more of the footprints have been uncovered?	<ol style="list-style-type: none"> <li>1. Only the large footprints would be seen and would be more closely spaced showing the dinosaur to be more sluggish than it was before.</li> <li>2. More small footprints would be seen coming to the site and only these would be seen leaving.</li> <li>3. The same two sets of footprints would be seen leaving. If they had fought, the animals may have been injured and there may be evidence for this in the footprints.</li> <li>4. There would be more signs of the struggle but fossil bones of the two animals would also be found (unless they were scavenged).</li> <li>5. There would be lots of different footprints.</li> </ol>	As above
Why do you think the dinosaurs came to this mudflat in the first place?	The carnivores came to drink at the lake and to search for prey. The herbivores came to drink and graze.	As above

<p><b>MAP 3:</b> Show pupils Map 3 and ask which of your previous ideas best fits the new evidence?</p>	<p>Idea 1 best fits the new evidence</p>	<p>As above</p>
<p><b>MAP 3:</b> Does this evidence change your ideas about why the dinosaurs came to the mudflat? If so, why?</p>	<p>Map 3 suggests that the dinosaurs did come to the mudflat to search for prey. There is no evidence that they came to drink as well but it is likely that they did.</p>	<p>As above</p>