

## Extension ideas - Dig up the dinosaur Become a fossil hunter and dig up a dinosaur

### ***From Jane Wynne, Canada***

This sounds like an easy and fun exercise. If you wanted to add the concepts of stratigraphy, correlation and that only certain layers are fossiliferous you could divide the sand into 3 buckets; mix cornmeal in with the sand in one, and flour in with the sand in another; then assemble a three layer stratigraphy, with the bones contained in one layer. Ask the students at the end of the excavation to predict where it would be best to look for more fossils at a second site.

### ***From Peter Kennett of Earthlearningidea team***

Jane's idea sounds great and would literally add another dimension to this activity. Our experience at "Geology Fairs" is that children queue up to have a go, and so the sand tray has to be tipped out and then reassembled very rapidly, so Jane's adaptation would not suit this kind of venue. It would however, be very useful in a class situation and I look forward to setting it up at a future event.

### ***From Chris King of Earthlearningidea team***

Why not try burying something unexpected with your 'dinosaur' bones - like the skull of a baby dinosaur - to extend the 'detective story'. The baby might have died with the adult, or maybe was unborn, or might even be a completely different species ....

### ***From Pete Loader, UK***

Further to Chris King's comment, it might also be interesting to leave out one (or more) essential "bones". This would give a more realistic idea of fossil preservation and collection and lead on to questions about reconstructing the morphology of an extinct animal from incomplete data.

### ***From Choutzuyu, Taiwan***

I think that your activity is very interesting. Pupils can learn many skills from this activity. However, I recommend that you might need to elaborate on this activity in order to make it more meaningful for the students to learn a various skills in this activity. I suggest to incorporate the 5E learning cycle into this activity. This 5E learning cycle was proposed by Biological Science Curriculum Study (BSCS) in 1988 (Bybee, 1988; Bybee & Landes, 1988). 5E learning cycle include five steps: Engagement, Exploration, Explanation. Elaboration and Evaluation. In this learning model, pupils can develop their own methods for digging fossils, and they can consider why scientists use the grid system to ensure that they won't lose some important messages in digging fossils.

By the way, I still have a question to ask. I don't know why you have to tell children the story that the rivals universities smashed up their rivals' fossil bones. I think that story might not be an appropriate example for the pupils' pure mind. At this age, pupils should learn how to fairly compete with their rivals but not to destroy their rivals. I suggest that you can change a story that will tell children how scientist cooperate with each others in a positive way, instead of negative situation.

Over and above are my suggestions. Because I am a Taiwanese, I can't write English very well. I hope I haven't offended you in words. Thank for your activity which is very nice and interesting. It aroused me with many more ideas in earth science teaching.

### ***From Peter Kennett of Earthlearningidea team***

This is a response to the previous comment. It is good to see that our subscribers are making links between the activities and their own country's educational programmes, such as the 5E learning cycle in Taiwan.

Modern pupils are rightly horrified at some of the misdemeanours of past scientists, such as the rival dinosaur "hunters" or the person who carried out the Piltdown Skull "missing link" forgery. We hope that the pupils of today will determine never to do the same.