

Video question script, Earth Science for Years 1 and 2. Circus activity 4. Rock builder

Question/Activity	Likely response	Rationale
Many rocks take millions of years to form. We haven't got that long, so we are going to see if we can imitate how it might happen.	Title page	Preparation for the activity. Construction = applying their previous experience
Here is a piece of rock called sandstone. How can I find out what it is made of? <i>Piece of sandstone</i>	Scrape it with a file. Show sand grains with a magnifier. So it is made from loose sand. Loose sand like this is called <u>sediment</u> .	As above
So our sandstone might have started off as a pile of loose sand, like this. What do you think I could do to turn it back to sandstone? <i>Loose sand</i>	Squeeze it hard. Demonstrate that this is impossible. What else do I need to do to stick the sand grains together to make a sandstone? <i>Add some 'glue'</i>	Discussion of the pupils' ideas involves metacognition
I'm going to use a plastic bottle and add some coloured sand with some filler powder added, which will make it go hard when it has set. If I want to make layers, like our sandstone, what must I do?	Demonstrate mixing of one batch and pour into the bottle. <i>Add 2 different lots of the coloured sand to make layers.</i>	A pattern can be seen in the formation of sedimentary rocks. Discussion of the pupils' predictions involves metacognition.
What if there was a shellfish that had been living in the sand and got buried for millions of years? <i>Cockle shell</i>	<i>The hard parts could get hardened with the sand and become a fossil.</i>	
I'm going to add a few more layers and shells now and leave it for an hour or so to set.	Demonstrate one more layer and then cut to the finished pile of sand layers.	.
Later. I'm going to cut away the sides of the bottle. Describe what has happened to the sand and the shells.	<i>The sand will have hardened into a lump with layers. The shell will still be there and may have left an imprint (a mould) in the hardened sand. This is one way in which fossils are formed</i>	Cognitive conflict is caused when pupils realise that the 'rock' they have just made actually takes millions of years to form in the real world.
Here are some real fossils, which are millions of years old. Why does one set of fossils look very much like the original shells while the other set looks flattened? <i>(Bivalve fossil in sandstone in good condition and flattened bivalves in shale)</i>	<i>The pressure of all the loose sediment on top of the shell was too much in the second case and the shells were crushed before they had time to harden.</i>	Relating the hardened results of the home-made 'fossiliferous rock' to real fossiliferous rock is a bridging skill.