Video question script, KS2: Circus activity 8: Blow up your own volcano

Question/Activity	Likely response	Rationale
When teaching about the Earth we often use practical activities to explore Earth processes. This example shows the importance of gas in volcanic eruptions		
What is this? (*Lava fountain, Kilauea USGS.gov)*	Photo of a volcano erupting.	Concrete preparation = asking them to describe the item
We shall investigate what causes a volcano to erupt lava using some models, so what have we here for our first activity – the soapsud volcano?	a plastic drinks bottle, with coloured soapy water; a bottle top which has small holes drilled into it; drinking straws; sealant; safety spectacles	Concrete preparation = asking them to describe the item
How could we make some bubbles in the water to see if we can produce a frothy water 'eruption' from the top of the bottle? What might make the water froth up and come out of the bottle?	Blow down the straw into the bottle. The person's breath ('gas') made bubbles which forced their way up and out of the top.	Construction in developing a technique. The reasoning required to explain the frothing is metacognition. Applying this reasoning to a real volcano is an exercise in bridging.
Now we'll try a different method. What can you see here?	500ml bottle of fizzy drink (Pepsi-cola); sugar cube; cardboard cone with a hole at the top	Concrete preparation = asking them to describe the item
How could we use the cone to represent a volcano? What will happen when we drop the sugar cube into the Pepsi bottle?	The cone can be placed over the bottle to represent the slopes of a volcano. The sugar cube might make the Pepsi froth up and overflow the bottle.	Construction in developing a technique.
What do you think was forcing the Pepsi out of the bottle?	The sugar cube was making the Pepsi release the gas which was dissolved into it at the factory, and the gas forced the liquid to froth up and overflow. The gas is carbon dioxide.	The reasoning required to explain the frothing is metacognition.
This represents a very runny lava spurting out of a volcano and running down the sides of the volcano. *Photo Steph Flude*	Photo of runny lava.	An exercise in bridging.
We are going to see if we can model an eruption with a much more sticky lava (called viscous lava). What shall we use?	500ml bottle of Pepsi-cola; cardboard cone with a hole at the top; packet of wallpaper paste	Concrete preparation = asking them to describe the item
What do you think will happen if we stir in some of the wallpaper paste granules, put the top back on and shake the bottle to disperse the granules and then take off the top of the bottle later?	The bottle will 'erupt' more slowly and will produce a thicker flow of fluid.	The reasoning required to explain the frothing is metacognition.
Why did the eruption happen?	This is difficult to explain but chemicals in the wallpaper paste made it easier for the dissolved carbon dioxide in the Pepsi to bubble out and to carry the thick fluid with it.	The reasoning required to explain the frothing is metacognition.
This represents a very vis-	Photo of a pyroclastic flow	An exercise in bridging.

cous lava which may even blow up into tiny fragments forming a suffocating cloud rushing down the sides of the volcano. (*Photo of a pyroclastic flow Mayon, Philippines, USGS.gov*)		
Here are two lavas which came from the eruption of two different volcanoes. One is called 'ropey lava' and the other is pumice. Which lava came from a runny eruption like the first Pepsi bottle with the sugar cube, and which came from a more viscous eruption like the second one with the wallpaper paste?	The 'ropey' lava came from a runny lava eruption on the island of Hawaii and the pumice came from a viscous lava eruption at a volcano in Italy.	The reasoning behind the matching up is metacognition and bridging is involved in relating the lavas to real volcanoes.