

Video question script: Rock cycle review

Question/Activity	Likely response	Rationale
In teaching about the Earth we use practical activities to explore Earth processes. This example helps to consolidate understanding of the rock cycle through three Earthlearningideas		Preparation for bridging from the model to real Earth processes
The rock cycle in wax		
What is this? – and this?	A red candle, a grater, matches	Concrete preparation = introduction to the materials
Demonstrate the rock cycle processes – erosion, transportation, deposition, compaction, metamorphism, melting, crystallisation		Construction = reinforcing the rock cycle pattern
Ask which rock cycle processes this simple model can't demonstrate	Weathering, cementation, rising, extrusion, uplift	Cognitive conflict = which are missing?
A wax volcano in the lab		
We can model some of these 'missing' processes with this 'Wax volcano' We have here ...	A large beaker with a layer of solid red wax at the bottom, covered by around 1cm thickness of washed sand and covered by cold water. A gas burner, tripod, gauze, heat-proof mat and matches	Concrete preparation = introduction to the apparatus and materials
Heat the beaker As the wax begins to melt, ask what they expect to happen and why	Most will say the wax will melt and rise Some will say the wax will rise because it is hot; others will say that it will rise because it is naturally less dense than water; some will expect it to convect around the beaker	Cognitive conflict = thinking through what might happen
After the 'eruption', ask what the different aspects of the model represent	<ul style="list-style-type: none"> • a lava flow at the surface, • pipes (conduits or feeder dykes) leading to the surface • masses below the surface like granite intrusions • the area beneath of crust or mantle that partially melted • melting, rising, intrusion and extrusion 	Bridging = from the model to reality
Point out that the model represents the upper mantle and crust of the Earth – partial melting occurs in the upper mantle or lower crust. The magma that forms is less dense than the surrounding rocks and rises, forming first intrusions and then extrusions. So the water here represents the crust (NOT the ocean)		Bridging = from the model to reality
Note that one way in which the wax volcano model does not reflect reality is that in 'real world' circumstances, lava cools down faster than the intruded magma, here the opposite occurs		
The rock cycle at your fingertips		
In front of a rock cycle diagram, model the rock cycle processes with your fingers		Construction = consolidating the pattern by modelling with your fingers
Explain that they now have a model of the rock cycle that they carry with them everywhere		