

Video question script: Sand ripple marks in a washbowl

Question/Activity	Likely response	Rationale
When teaching about the Earth we often use practical activities to explore Earth processes. This example uses the Earthlearningideas: 'Sand ripple marks in a washbowl'		Preparation for bridging from the model to real Earth processes
What is this? – and this?	A plastic bowl, a plastic beaker, Blu Tac™, water, a spoon – all making a circular channel + some sand	Concrete preparation = asking them to describe the apparatus
Ask: What will happen if we stir the water at moderate speeds, without letting the spoon touch the bottom? Discuss/ write down your ideas before answering – explain your reasoning	Some will say that the sand will be moved towards the middle	Construction = applying any previous knowledge that flowing water moves sand, to this new situation
Demonstrate the formation of asymmetrical ripples	The flow forms a spiral galaxy-like or saw-blade-like pattern, the water develops ripple-forming currents, with water flowing up the shallow upcurrent slopes of ripples and down the steeper downcurrent sides, depositing sand in cross laminations. Erosion of sand from the upcurrent sides and deposition on the downcurrent sides moves the ripples downcurrent.	Listen to the explanation. Cognitive conflict = the ripples are an unexpected result – requiring an explanation of how they develop
Ask: Where would you be likely to find asymmetrical ripples like these forming naturally?	Asymmetrical ripples form anywhere where there is loose sand with moderate speeds of water flowing over the top – in gutters, rivers, in channels on beaches or in tidal channels [also in turbidity current flows and on the slopes of wind-formed sand dunes]	Bridging = applying learning from the activity to the real sand/ water world
Ask: For these ripple marks preserved in sandstone: • Which way was the current flowing (e.g. right to left)?	For these asymmetrical ripple marks: • the current was flowing from left to right	Bridging = applying learning from the activity to ripple marks preserved in ancient sandstone