

Video question script, KS3 Geography:

Starter: Teacher – ‘What’s the difference between weathering and erosion?’

Question/Activity	Likely response	Rationale
When teaching about the Earth we often use practical activities to explore Earth processes. Here we are going to use ‘contrasting ideas’ to help overcome some misconceptions about weathering and erosion.		
People often confuse the processes and products of weathering and erosion, so first, we need some definitions.	<i>Film statements:</i> Weathering is the break up and break down (physical break up and chemical breakdown) of rocks at the Earth’s surface, without the removal of solid material (although material can be removed in solution) Erosion is the removal of solid material, by gravity, water, wind or ice (as the start of transportation).	Concrete preparation
I’m going to go out and film some examples of weathering and erosion, but I am not always going to give them their correct names. Pause the video each time and see if you can spot the times when I am being accurate, and those where I am giving the kind of wrong statement that a lot of people use. Don’t worry- I shall give the correct answers at the end.	Oh dear – we’ve got to do some thinking!	Preparation for cognitive conflict
Weathering can take place by chemical alteration of the rock.	<i>Film – cut section of gravestone showing oxidation near the surface.</i> Correct: The iron minerals in the natural cement of this sandstone have oxidised, turning the colour from grey to brown for the outermost 8mm of the stone.	Through using the ‘contrasting ideas’ approach, pupils have to think about their own mental construction of the terms ‘weathering’ and ‘erosion’ and test these against potentially wrong ideas through cognitive conflict. Metacognition is involved.
Flakes of bricks fall off in weathering	<i>Film – debris at foot of garden wall</i> Incorrect: the removal of solid material is erosion, in this case, by gravity; the flakes may have been previously weakened by weathering though. <i>Film - wall above, showing loosened flakes, with comment about freeze/thaw weathering</i>	As above
Has weathering or erosion has affected this gatepost?	<i>Film – Gatepost about 150 years old with bedding vertical, showing cracks and flaky surface.</i> Weathering, probably freeze-thaw and chemical processes.	

Wind blasting sand against a cliff or a wall works like sandpaper, eroding bits off.	<i>Film – wind-eroded building stone.</i> Correct: when solid material is removed by wind – this is erosion (even though it is being done by the weather in this case).	As above
Erosion is the transportation and deposition of sediment.	<i>Film – section of river bed with deposition</i> Incorrect: erosion is the initial removal of sediment – which may then be transported and deposited; it can be the start of transportation.	As above
Rocks are worn away by weathering	<i>Film – section of eroding river bed</i> Incorrect: rocks are worn away by erosion, by gravity, wind, water or ice although they may have previously been weakened by weathering.	
Weathering rounds off pebbles on the beach	<i>Film – pebbles</i> Incorrect: beach pebbles are rounded by erosion, not weathering – the pebbles are thrown against one another in storms, abrading one another – a process called attrition.	As above
Acid rain dissolves limestone in weathering (Photo: Limestone pavement at Austwick, North Yorkshire, P. Kennett)	<i>Film – Photo of limestone pavement.</i> Correct: the acid rain removes the limestone by dissolving it and carrying the solute away in solution – so this is weathering. <i>Film:</i> Demonstrate with a drop of dilute acid on a piece of limestone.	As above