



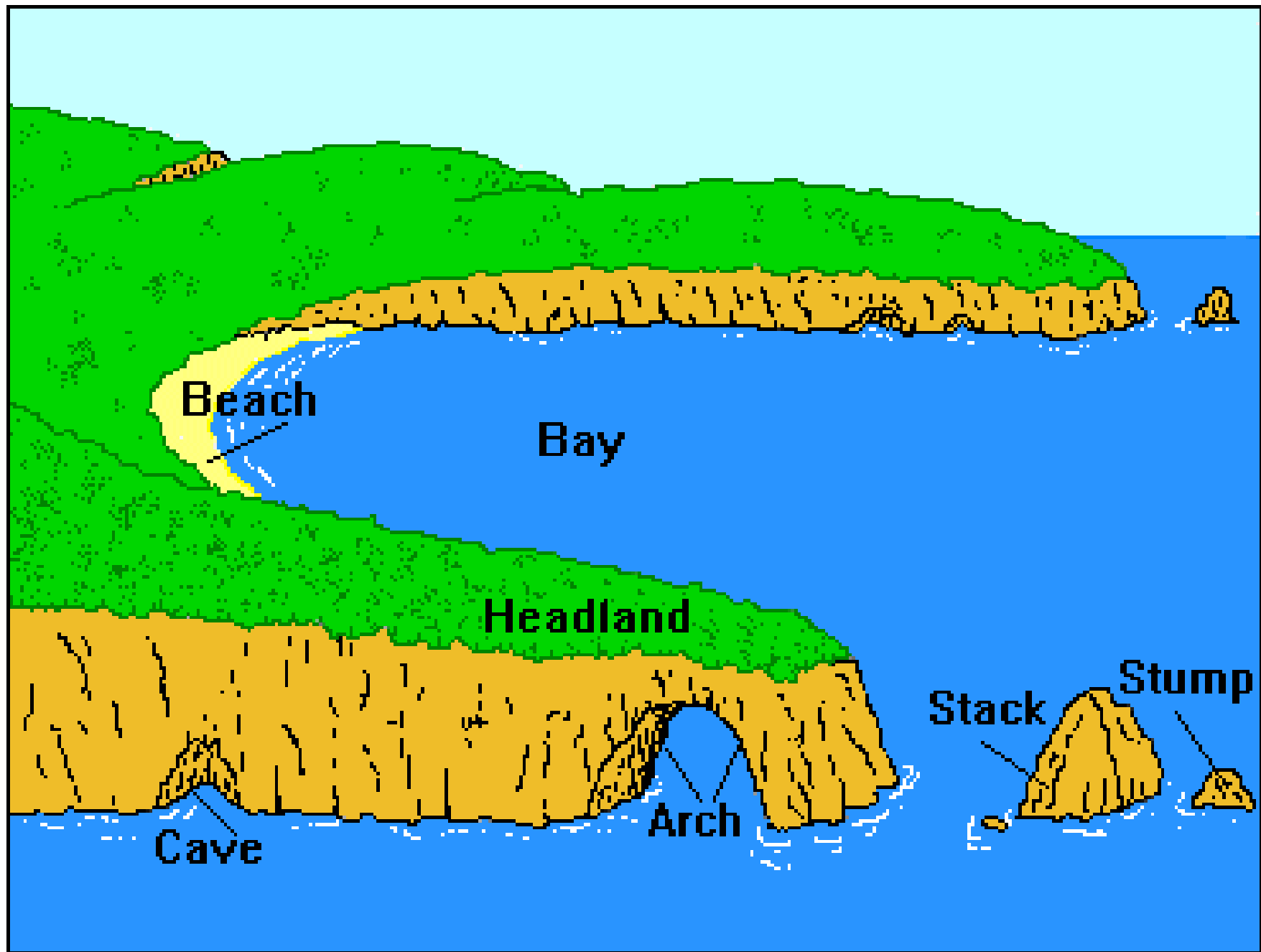
L.O. I know how to explain erosion

Geography



How are caves, arches, stacks and stumps formed?





Beach

Bay

Headland

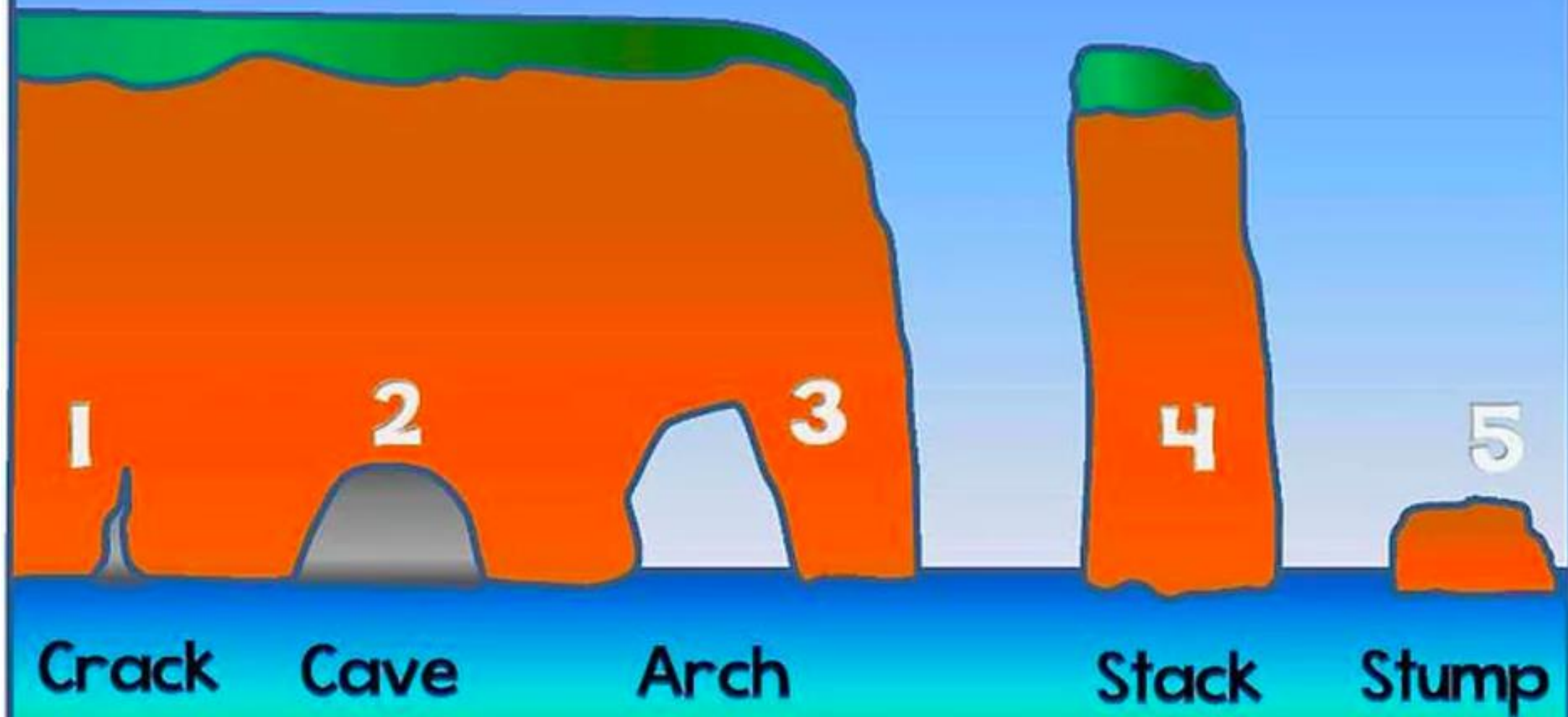
Cave

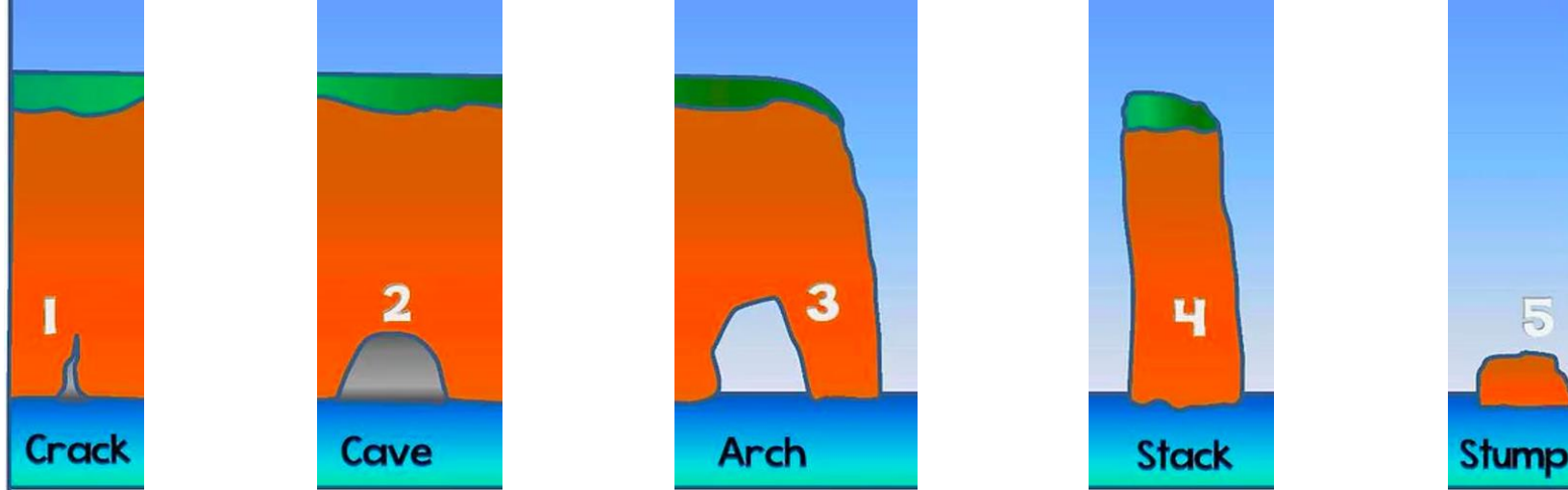
Arch

Stack

Stump

Formation of Caves, arches, stacks and stumps





1. Waves attack a rock face using the force of the water and a crack forms in the weakest part of the rock.
2. Over time the crack enlarges to form a cave.
3. The cave is widened and deepened and pushes through the headland to form a natural arch.
4. More erosion from the sea and weathering can cause the arch to collapse, leaving a stack.
5. Over time further weathering and erosion lead the stack to wear down to a stump.

The sea cuts through to form an arch



A stump is the remains of the eroded stack



The cave is widened and deepened



Part of the former cliff is now isolated as a stack



The sea erodes the foot of the arch and widens it



Lines of weakness such as faults (cracks) occur in headlands



The roof of the arch becomes too heavy and collapses

Abrasion and hydraulic action erode the fault to form a cave



Over time the stack is eroded, it might be undercut and collapse

Can you reorder these images correctly and draw them out with your own presentation ideas.

You could do this on paper or on a computer.

Answers are on the next slide so try yourself first!

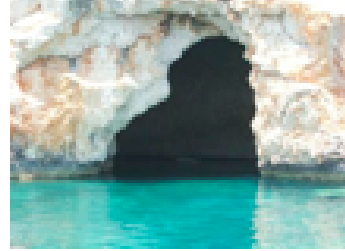
1. Lines of weakness such as faults (cracks) occur in headlands



2. Abrasion and hydraulic action erode the fault to form a cave



3. The cave is widened and deepened



4. The sea cuts through to form an arch



5. The sea erodes the foot of the arch and widens it



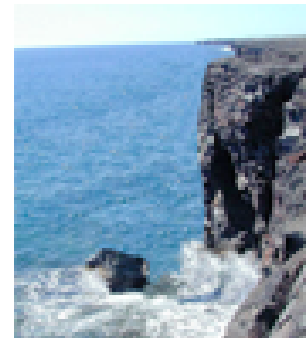
6. The roof of the arch becomes too heavy and collapses

7. Part of the former cliff is now isolated as a stack



8. Over time the stack is eroded, it might be undercut and collapse

9. A stump is the remains of the eroded stack



Activity 2

Chilli Challenge

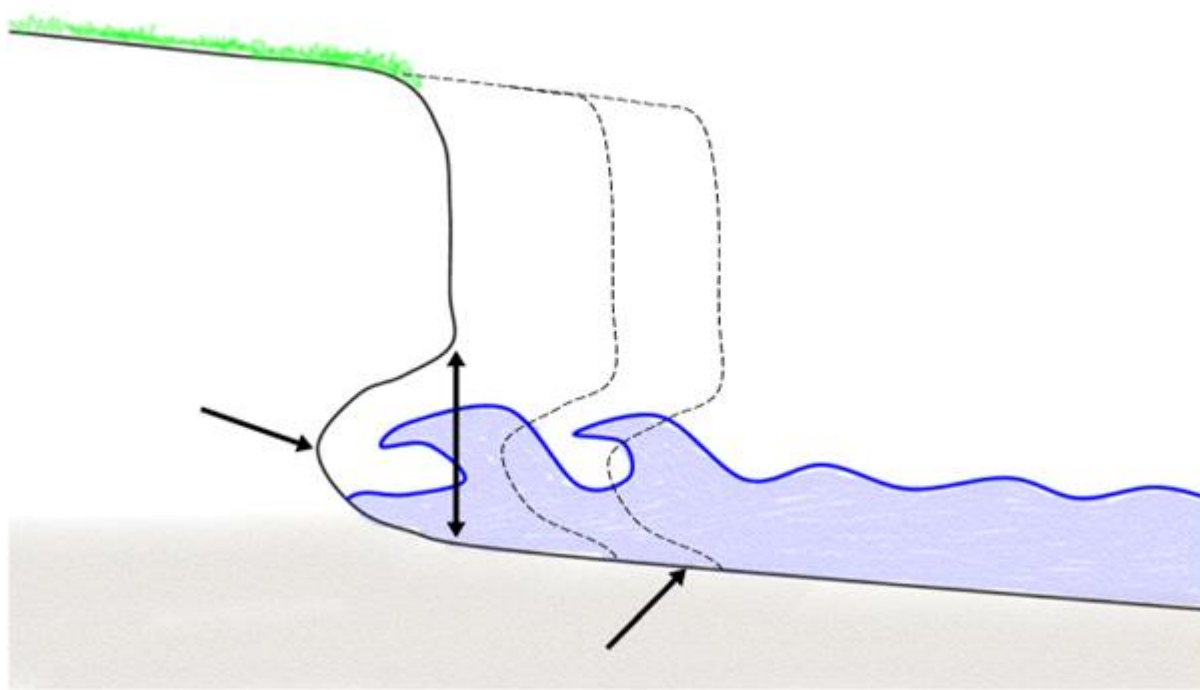
Look at the information on wave cut platforms. Research this land feature and explain how you think they are formed.

Chilli Hot Challenge

Research a wave-cut platform like this one
found on Burgh Island, Devon.



Chilli Challenge



Look at this diagram.

Write an explanation of how you think a wave cut platform is formed.

1. Original position of the cliff
2. Cliff retreats
3. Present position of the cliff
4. Sea level (high tide.)
5. Wave cut notch at foot of cliffs
6. Wave cut platform.

Have you seen examples of this in real life?



Here are some key words that you might like to use in your explanations.

Hydraulic action – the weight of a wave crashing on a cliff face, pushing the air in cracks and caves, under pressure, to force open the crack/cave

Corrosion – chemicals in the sea water dissolve the rocks

Attrition – small rocks are smashed against each other making smaller rocks.

Abrasion - little rocks getting picked up by the waves and being smashed on to the cliffs

Tides – the rising and falling of the sea caused twice a day by the moon's gravity

Waves – long bodies of water, created by the wind, crashing on the shore

Sea level change – higher sea levels lead to greater erosion shaping the coasts.

Currents – water moving in a certain direction, like wind in the air,

Longshore drift – currents in the sea carries sand down the beach