Watch the bbcbitesize clips before you start these activities.

https://www.bbc.co.uk/bitesize/clips/zc2pvcw

What is the coast?

The coast is where the land meets the sea.

What physical features can you see on the coast?

What physical features can you see on the coast?

beaches

cliffs

sand

pebbles

rocks

caves

rock pools

arch

stack

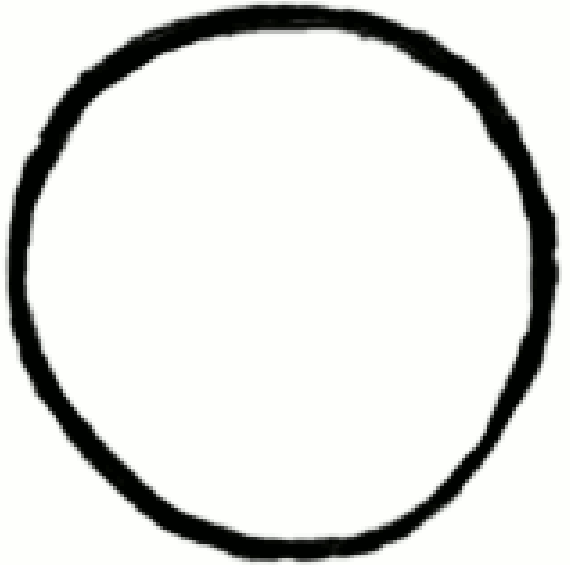
Whys does the coast look different everywhere?

- The sea constantly bashes against the edge of the land in different directions.
- Some rock in the land is soft, some is hard.
- Some places have more strong and forceful storms than others.

What is change?

Change is when something becomes different to how it was before.

E.g. it may be bigger or smaller in size etc.



Coastal Changes

Today we are learning about how the coast changes over time.

Why does this happen?

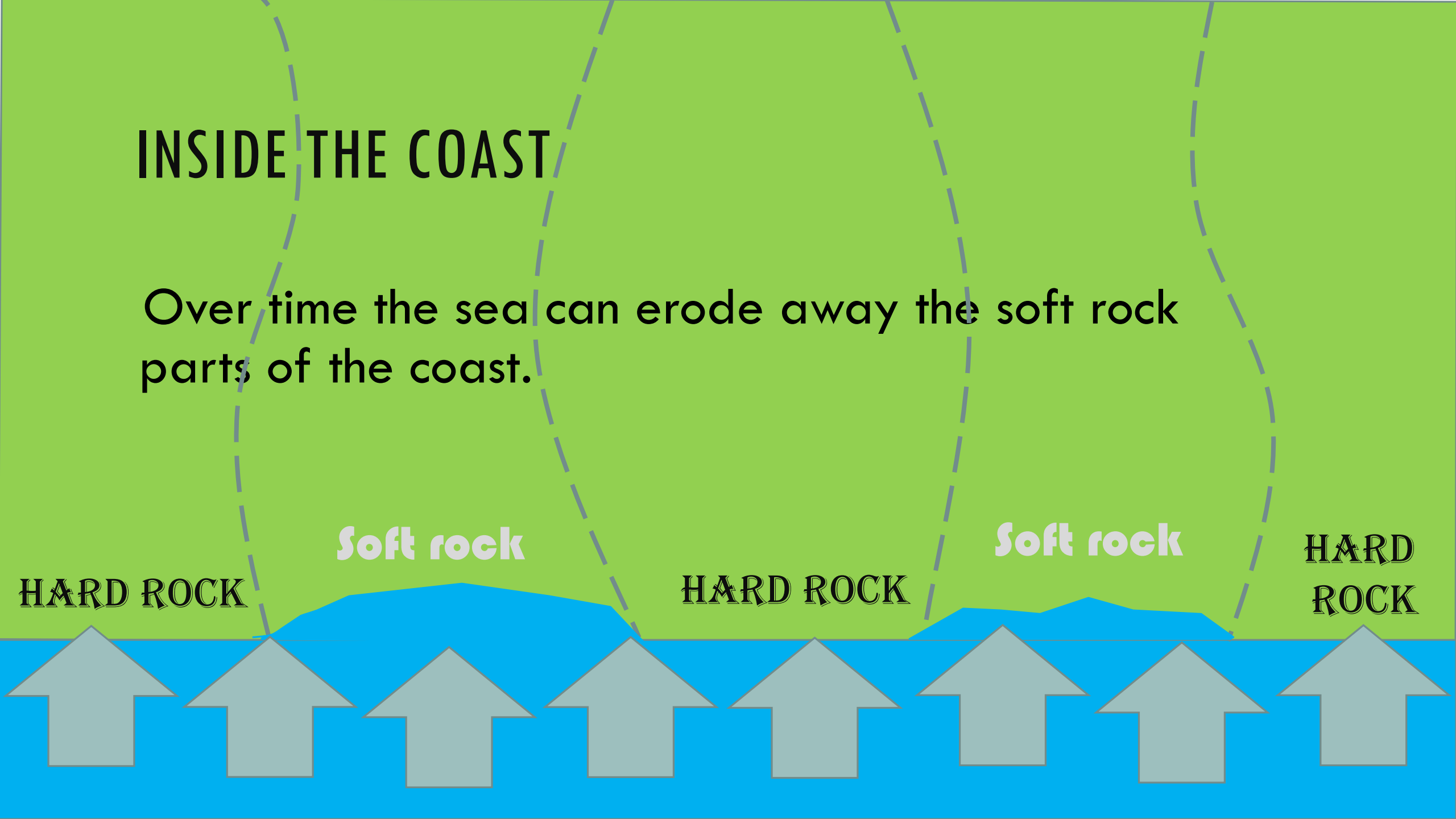
How are bays and headlands formed?

INSIDE THE COAST

The coasts are made of soft or hard rock. Often it can be in big patches likes this:

INSIDE THE COAST

Over time the sea can erode away the soft rock parts of the coast.



INSIDE THE COAST

In the gaps sand and rocks can collect and form sandy or pebbly bays.

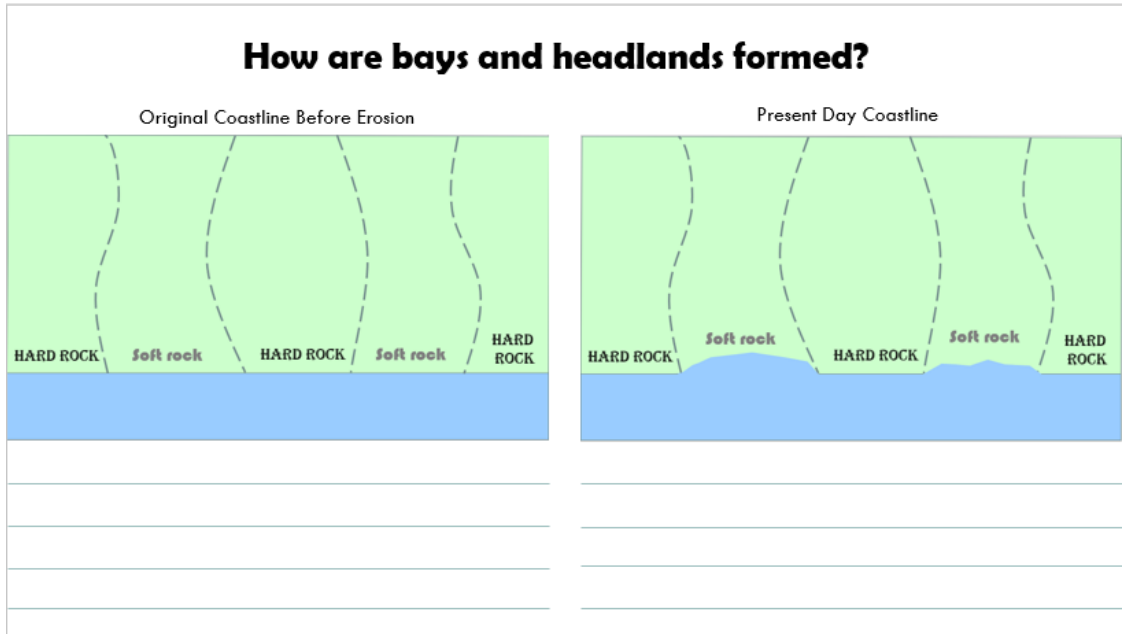
These lovely sandy bays are formed as the weaker section of coastline here have been eroded. The headlands stick out as they are harder more resistant rock which aren't as easily eroded.

Softer, less resistant rock has already been eroded. Sediment has formed beaches.

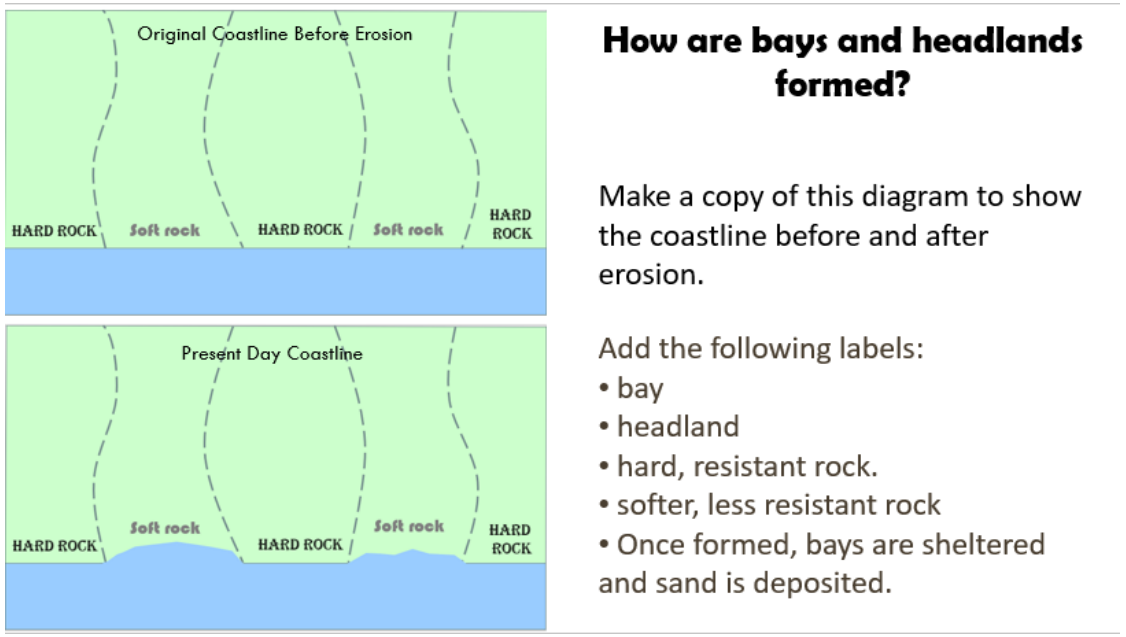
Harder, more resistant rock

Activity 1

Choose either of the following slides for activity 1.



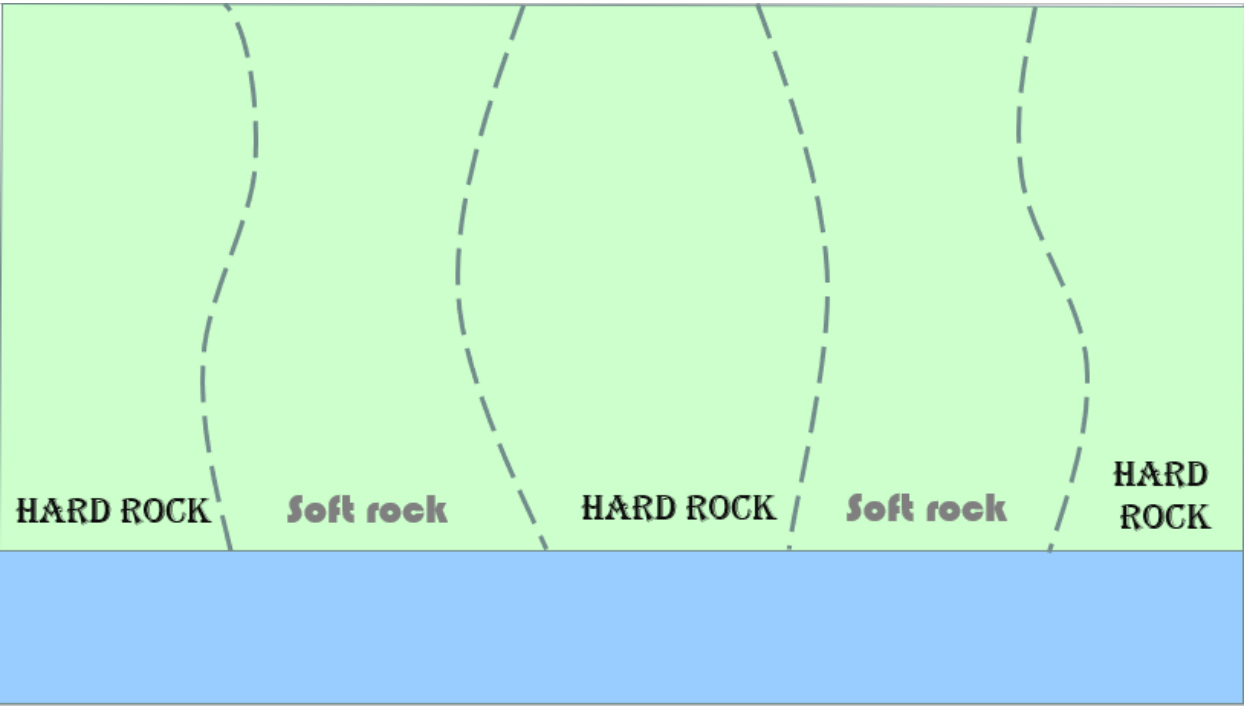
Explain the process of erosion which creates bays and headlands under the diagrams.



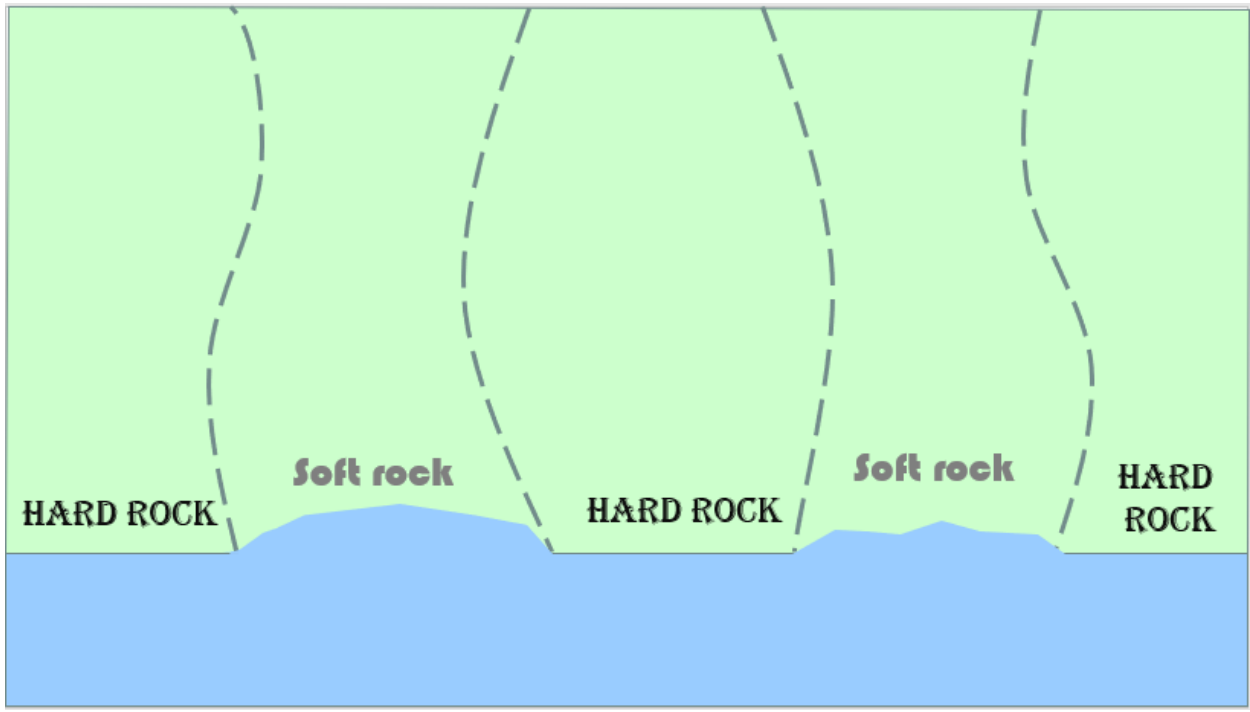
Follow the instructions, draw and label your own diagram.

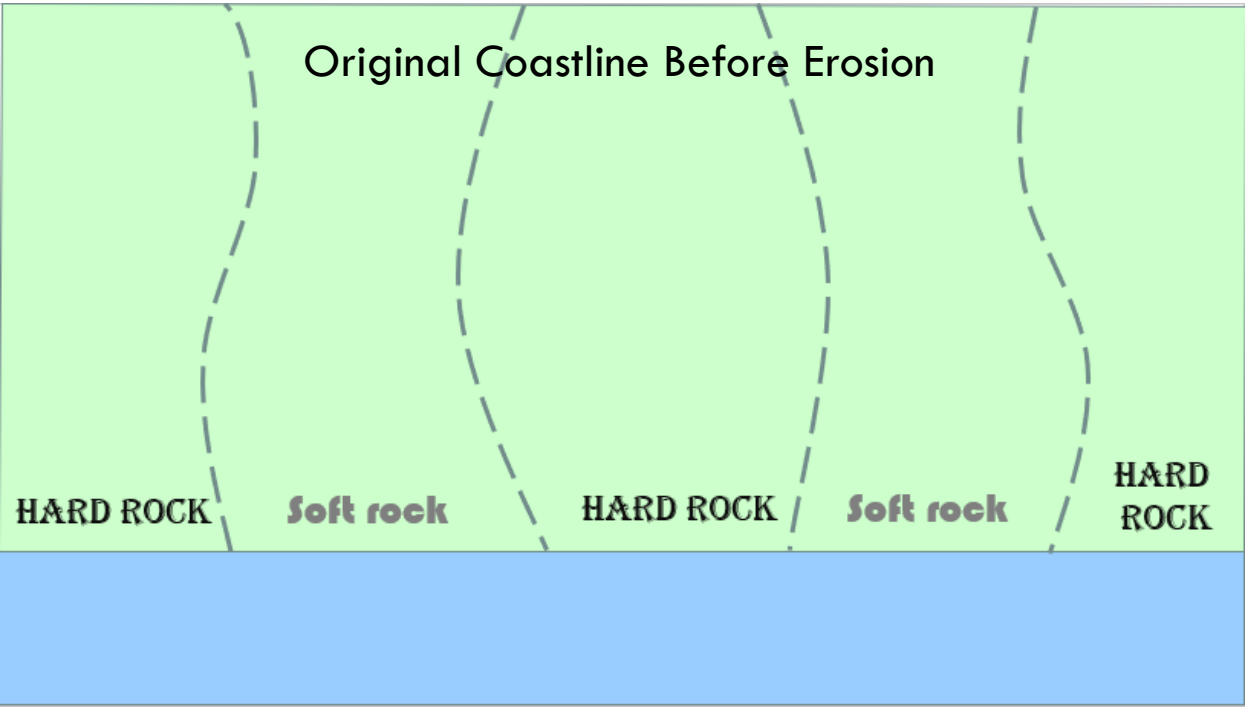
How are bays and headlands formed?

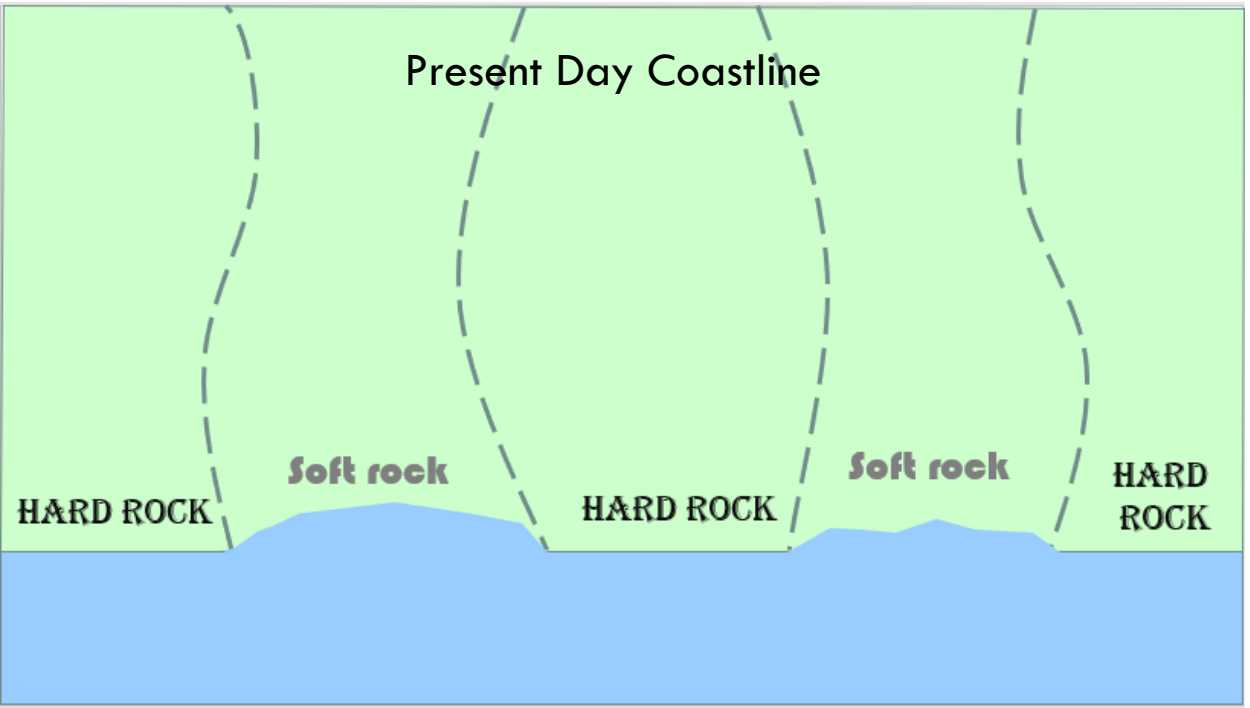
Original Coastline Before Erosion



Present Day Coastline







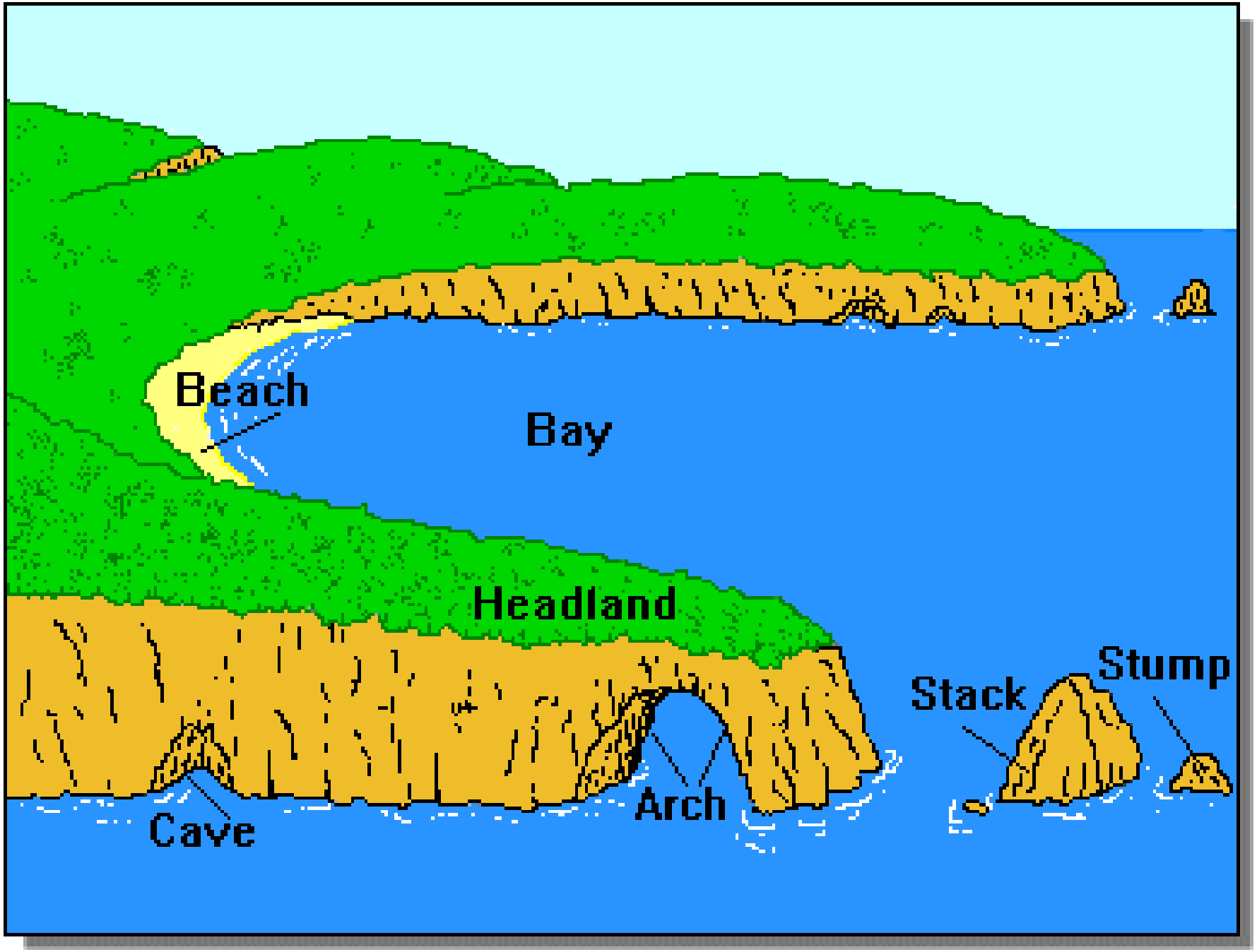
How are bays and headlands formed?

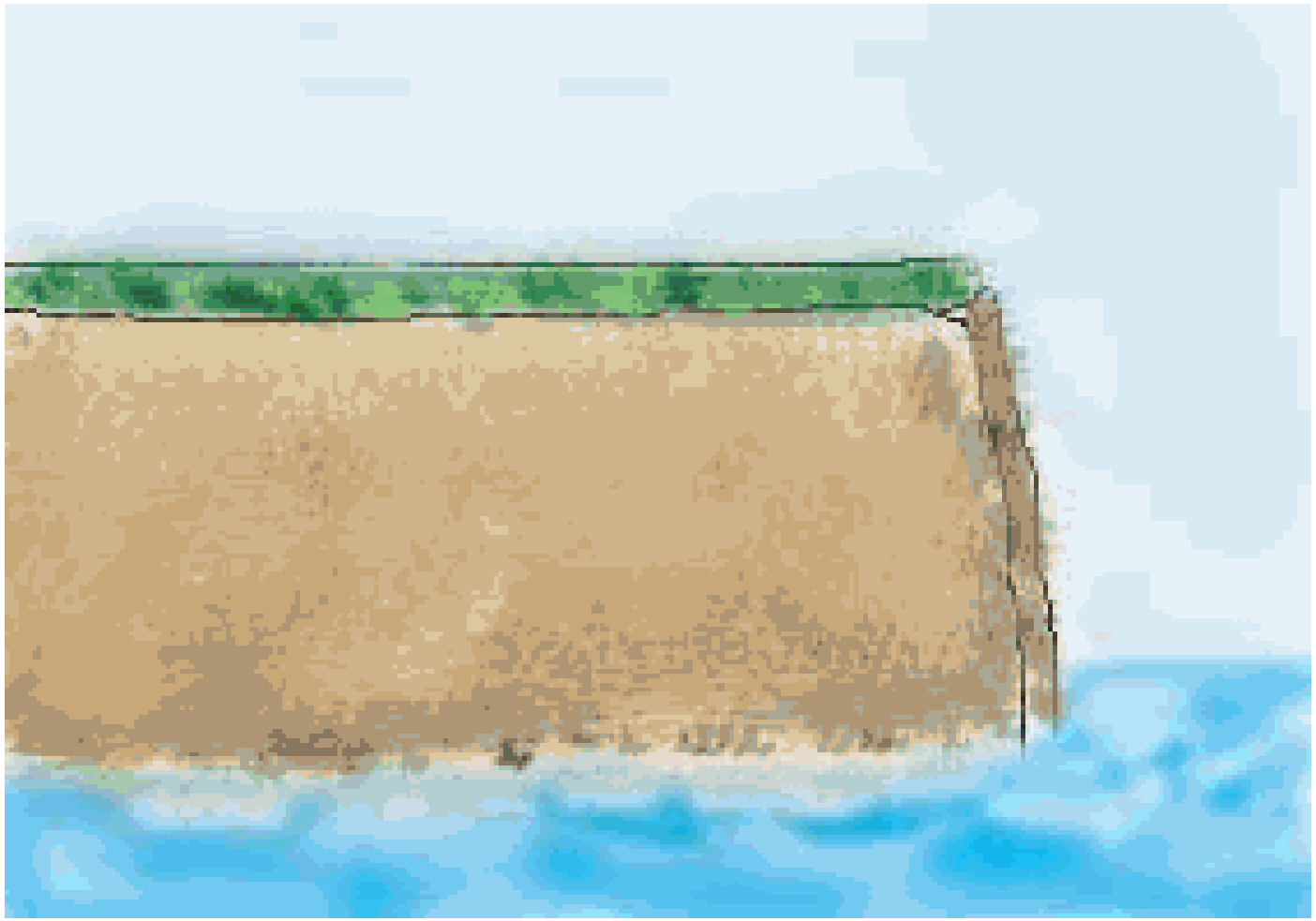
Make a copy of this diagram to show the coastline before and after erosion.

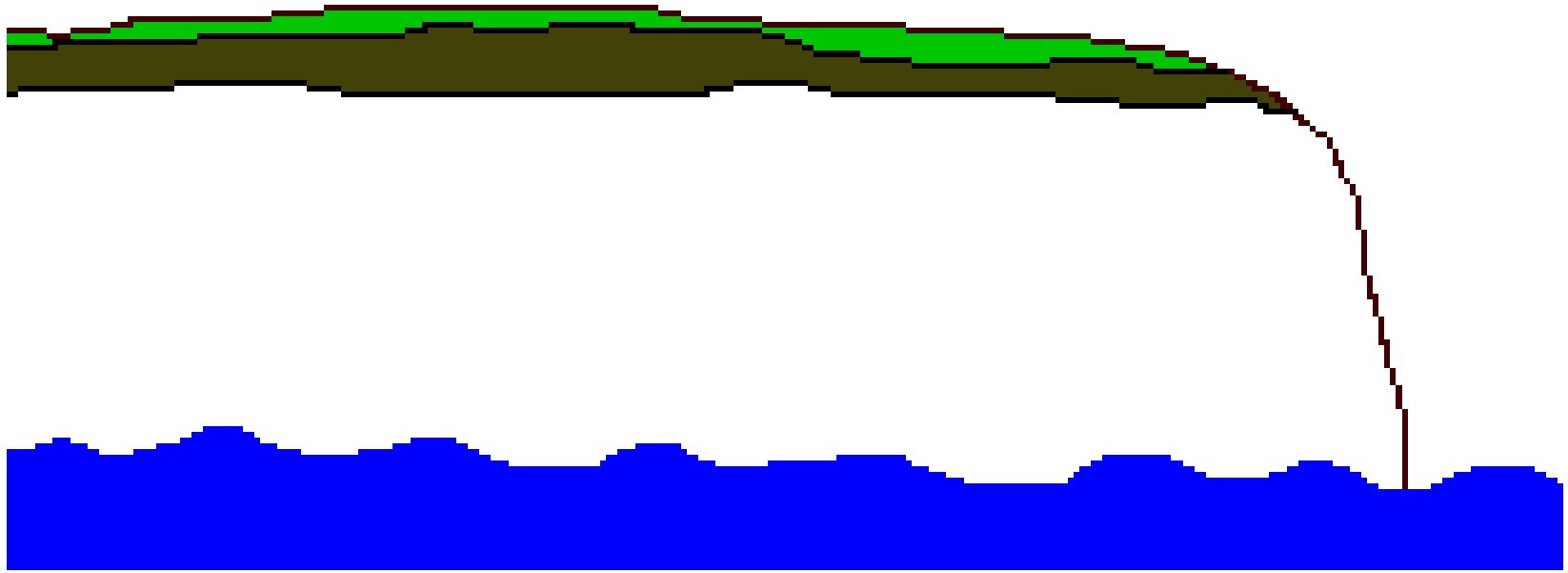
Add the following labels:

- bay
- headland
- hard, resistant rock.
- softer, less resistant rock
- Once formed, bays are sheltered and sand is deposited.

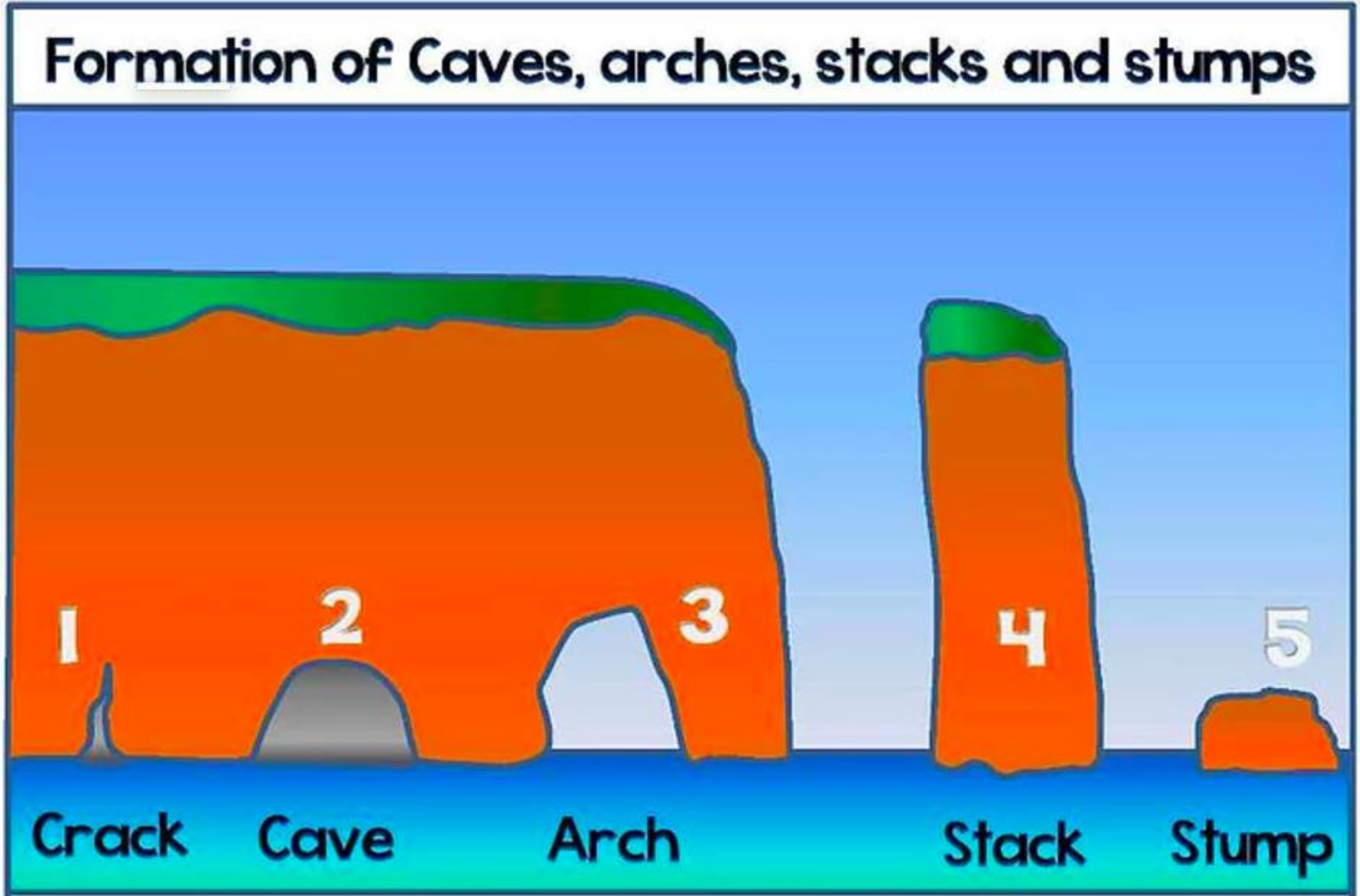
How are caves, arches, stacks and stumps formed?

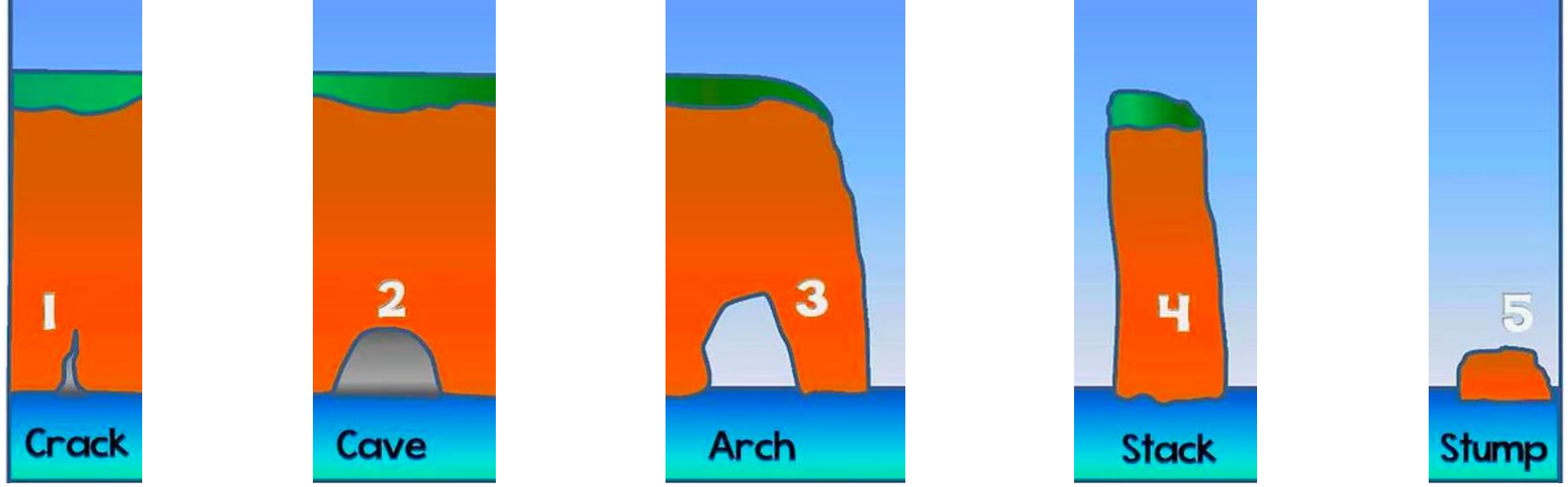

Beach
Bay
Headland
Stack
Stump
Arch
Cave





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

Order these images to show how an arch and stack is formed.

Activity 2

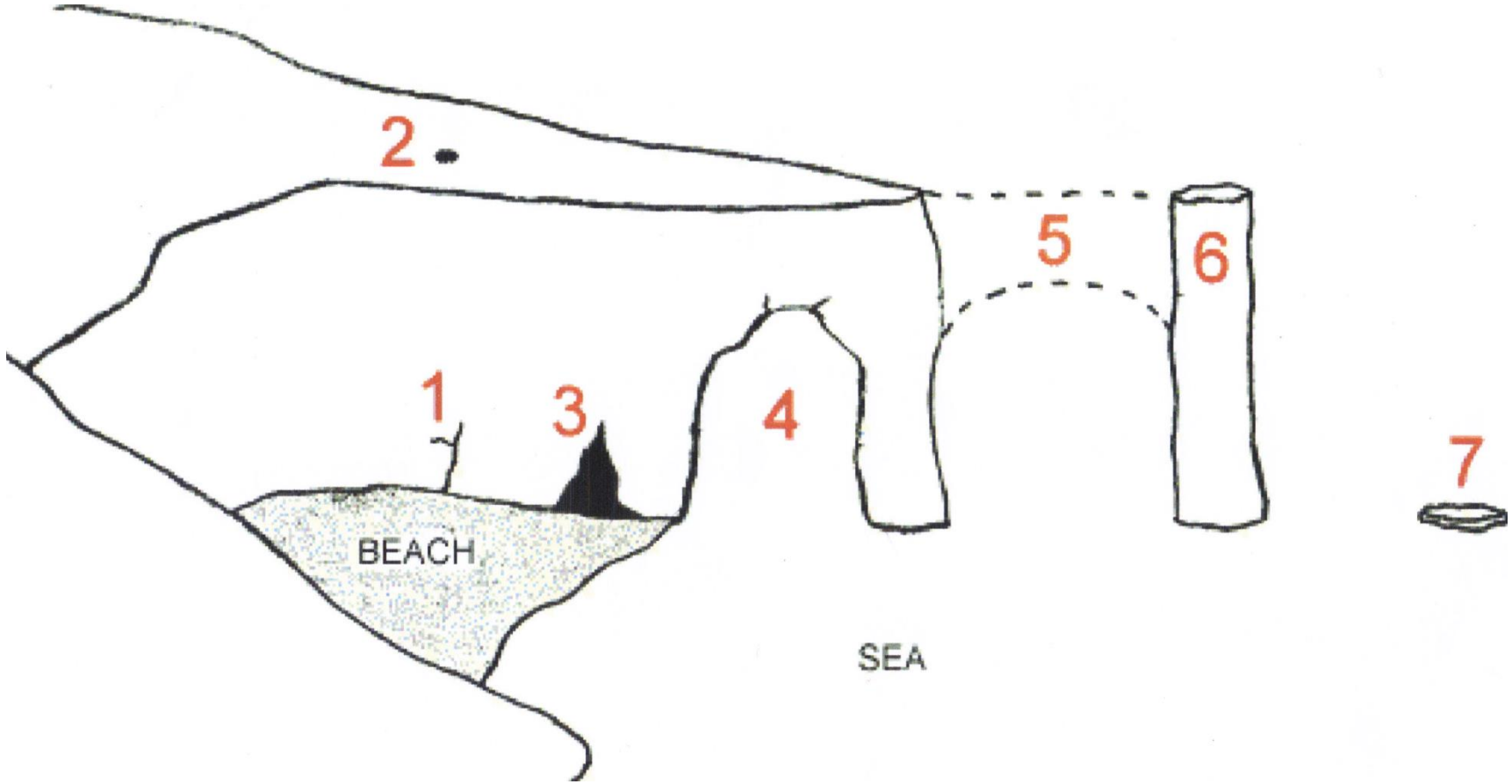
Copy the diagram of coastal erosion examples. Label each word with the correct number.

Challenge

Explain how each feature above is formed.

Chilli-Hot Challenge

Look at the information on wave cut platforms. Explain how you think they are formed.



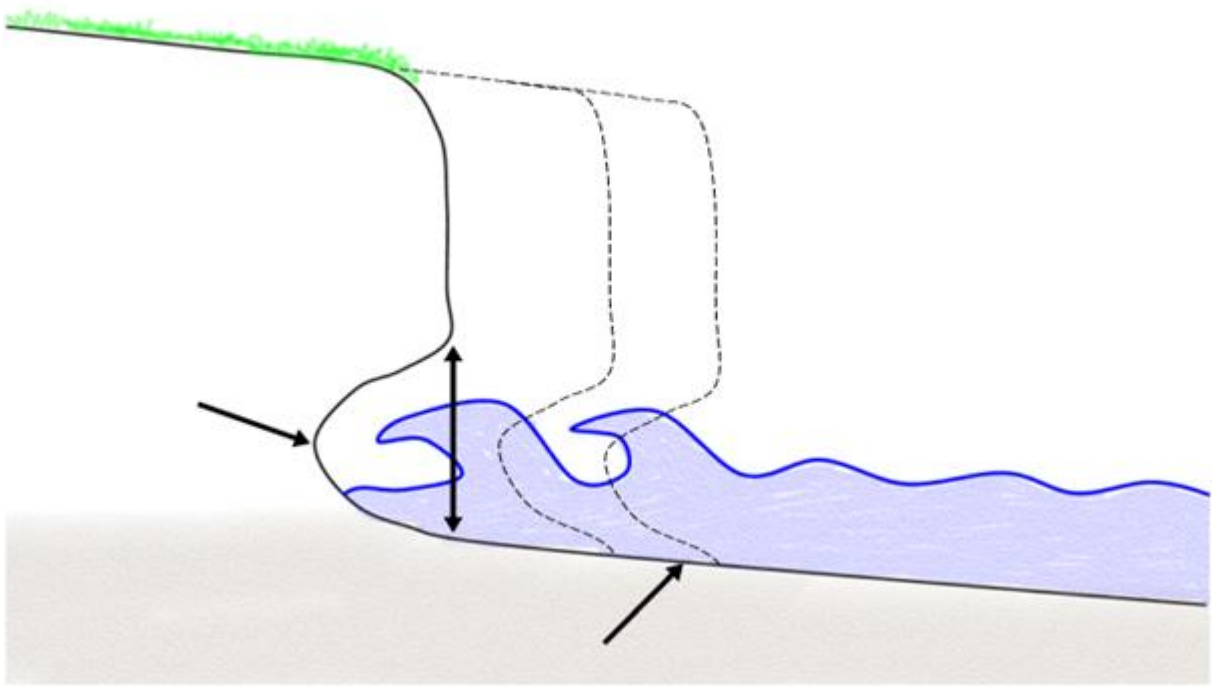
stack
stump
cave
arch

fault
collapsed arch
blowhole

Chilli Hot Challenge

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

Chilli Hot Challenge



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.

Look at this diagram.

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

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