



Secondary
Subject specific

Coastal processes

Age: 12-15

Subject: Geography

Topic: Coastal erosion



Learning
through
Landscapes

Previous learning required

- A **crack** forms at a weak point in the headland rock.
- Hydraulic action of the waves grinds away at the crack causing a **cave** to form.
- The headland is broken through and an **arch** forms.
- The arch continues to widen until the roof is too heavy and crashes into the sea to leave an isolated **stack** of rock.
- The waves attack the base of the **stack**.
- This undercutting continues until the stack collapses leaving a **stump**.

Learning outcomes

- To understand the key physical processes relating to coastal environments.
- To correctly identify and explain the formation of cracks, caves, arches, stacks, and stumps.

Equipment

- Access to sand or mud either at a beach, in a sand pit or a large container.
- Sticks, post it notes or pebbles and marker pens to create labels.
- White playdough or plasticine.
- A camera to document the evidence.

Activity

1. Challenge pupils to work in teams or individually to model the stages of stack formation in sand and effectively label the process.
2. Start by asking the pupils to create a headland with a crack in the rock.
3. Ask them to show the different stages and features that would be created to form a stump from the initial crack in the headland.

Check for understanding

- Ask the pupils to label the names of the features they have created. This can be done using sticks, pebbles or post it notes to create labels. These can include just name labels, or more detailed explanations of how they are formed depending on the ability of your pupils.

What is the right answer?



1. A large crack is opened by hydraulic action.
2. The crack then grows into a cave by the hydraulic action and abrasion.
3. The cave becomes larger.
4. The cave breaks through the headland forming a natural arch.
5. The arch is eroded and collapses.
6. The stack is eroded forming a stump.

If you would like to develop your outdoor learning knowledge and skills, take a look at our range of training courses: l.tl.org.uk/outdoor-learning-training



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Check for understanding

- Challenge pupils to create further erosional features such as cliffs, headlands or bays. Ask pupils to show on their models the different behaviour of harder rock versus softer rock and their role in the formation of bays and headlands.

What is the right answer?

Hard rocks such as chalk and limestone will not erode to the same extent as less resistant rocks such as clay and sand. Hard rocks will remain to form headlands but softer rocks will be eroded to form bays. White plasticine could work well to represent areas of harder rock which is not worn away as easily.

Did you know:

The UK has over 30,000km of coastline that is constantly interacting with the natural environment around it.

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