



Colourful Cliffs and Spiky Stacks!

In this study you are going to be learning:

- ✓ Why the cliffs at Alum Bay on the Isle of Wight display a rainbow of colours
- ✓ What The Needles formations are and why they are like this.



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Colourful Cliffs!

The multi-coloured cliffs at Alum Bay are well known, and homes all around the world contain a glass memento filled with these rainbow sands. However, although many people come to admire the spectacle, not that many go away knowing why it's like this!

It's really rather complicated, but we're going to keep it simple...

A long, long time ago, (about 70 million years!) the sea level was much higher than it is today, and warm shallow seas covered the Isle of Wight.

These seas were home to sharks and rays, and over 500 different types of shellfish lived in them.

The Isle of Wight is made of sedimentary rocks, which were formed at this time under the sea. The remains of animals (e.g. bones and shells), and eroded sediments carried to the sea by rivers, accumulated on the sea bed.

This debris built up in layers, and over millions of years these were compacted so tightly under pressure from above, that rocks were formed.

So, Alum Bay itself is mainly made up of a variety of different types of sandstones (a type of sedimentary rock), and the array of colours on display is due to the different minerals in the rocks.



Activity 1: How many colours can you see?

Make a list!



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Activity 2: Look around on the beach.

You will be able to find fragments of the different coloured rocks. Can you make a picture/piece of art out of them? Be creative and work as a team!



Spiky Stacks!

Looking over towards the mainland, you will spot several spikey rocks jutting up out of the sea? What are they, and how did they get here?

These geographical features are called **stacks** and they are formed by **erosion**.



Former
Headland

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Once upon a time, these stacks would have been attached to the chalk **headland** that you can see (approximate former headland shown with line).

However, constant thrashing and pounding by the sea has resulted in erosion of the exposed headland.

Erosion would have widened **cracks** in the rock to form small **caves**.

These caves would gradually enlarge and cut all the way through to the other side of the headland to form an **arch**.

Over time, the roof of the arch becomes weaker and weaker and eventually collapses, and all that is left is an isolated pillar of rock – a **stack**!

Activity 3

Using the information on page 3, name the feature shown in each picture.

Then write numbers 1-4 on each to show the sequence in the formation of a stack.



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