How Coastlines Change and Shape Over Time

KS2 GEOGRAPHY KS3 GEOGRAPHY Ages 10-14 ⏰ 3 min read

What is a Coastline?

A **coastline** is where the land meets the ocean. It's the edge of a country or continent that touches the sea. But here's the amazing thing: coastlines aren't fixed or permanent—they're constantly changing!

How Waves Shape Coastlines

Waves are one of the biggest forces changing coastlines. When waves crash against rocks and cliffs, they carry sand, pebbles, and shells with them. Over time, this action **wears away** the rock in a process called **erosion**. The rocks crumble into smaller and smaller pieces, creating sand and pebbles on beaches.

Think of it like brushing your teeth—if you scrub hard enough and long enough, you'll wear away the bristles. Waves do the same thing to coastlines!

Building Up Beaches

While erosion breaks coastlines down, nature also builds them up! This process is called **deposition**. When waves slow down in shallow water, they drop the sand and pebbles they've been carrying. This creates and extends beaches. Some beaches grow wider by several metres each year.

Imagine filling a bucket with sand and then slowly emptying it—the sand piles up in heaps where it falls. That's how coastlines grow!

Other Forces Changing Coastlines

Storms and **hurricanes** can dramatically reshape coastlines in just hours. Strong winds and huge waves remove enormous amounts of sand and damage cliffs. **Tides**, caused by the **Moon**'s gravity, also affect coastlines by moving water in and out twice a day. Over long periods, **climate change** is raising sea levels, which floods low-lying coastal areas and increases erosion.

Humans Change Coastlines Too

People build **sea walls** and **barriers** to protect towns from flooding and erosion. We create harbours and dredge sand. While these protect people, they can sometimes cause erosion in other places. **Deforestation** and development remove plants that naturally hold soil in place, making erosion worse.

Timescales of Change

Some coastal changes happen slowly—millimetres per year. Other changes happen fast: a single storm can move **thousands of tonnes** of sand overnight. Over **thousands of years**, entire bays, cliffs, and islands can vanish or appear.

Understanding how coastlines change helps us protect important habitats and keep coastal communities safe from flooding and erosion.