KS3 Geography: Physical geography with Liz Bonnin

Plate tectonics in the UK

LIZ BONNIN: Hi, I'm Liz Bonnin. When we think about plate tectonics, we normally picture erupting volcanoes, gigantic mountain ranges like the Himalayas, or terrifying tsunamis and earthquakes, but rarely do we picture scenes from around the coast of the UK.

Well time to change that thinking, as Nick Crane discovers the fault lines and earthquakes around Anglesey on Wales' north coast...

NICK CRANE: **Many make their way to these cliffs for the glorious sights looking out to sea, but what's brought me here are the rocks beneath my feet.**

On the island's edge, you see a slice right through the Earth's geological history. An extraordinary collection of rocks are exposed here.

Just to show you how different Anglesey is, look at this geological map of southern Britain. Great swathes of it are all the same colour, meaning they're all the same rock type.

Here's this great band of chalk running up here in green, there's another huge band of limestone running down here. But up here on Anglesey, something different is happening. There's an intense mosaic of different colours, meaning there are many different rock types.

Much of the mystery of Anglesey's formation is buried below the turf. But the coast reveals the island's subterranean secrets. The most stunning geological feature is the long channel of water that separates Anglesey from the mainland: the Menai Strait.

To understand its significance, I'm with David Schofield, from the British Geological Survey.

What part does this gulf play in Anglesey's geology?

DAVID SCHOFIELD: Well this is actually a long fault zone which we call the Menai Straits Fault System. I mean, it separates very much older rocks to the north-west than those to the south-east. We're looking at a fundamental geological divide here, which we know is still active today because we're seeing some of Britain's biggest earthquakes just happening along this fault line.

NICK CRANE: Right where we're standing?

DAVID SCHOFIELD: Right where we're standing, yes.

NICK CRANE: So the shore we're on here is moving in relation to the shore over there?

DAVID SCHOFIELD: It certainly is, yes. It's at a very slow rate every year, and every now and then it takes a bit of a jump and then there's an earthquake.

NICK CRANE: **Around 300 small earthquakes shake Britain each year. Often felt most strongly here, caused as the mainland grinds against Anglesey.**

It's part of the bigger movement of landmasses around the globe. The Earth's crust is made up of separate distinct plates, which are constantly moving against each other.

Where the edges of the plate move apart, new crust is created about as fast as your fingernails grow. The plates of crust pull apart at one edge but collide at the other edge.

As they crush into each other, a jumble of different rocks is left behind. Local geologist, Margaret Wood, is my guide.

Wow! Just look at that! Those colours, Margaret!

MARGARET WOOD: It's fantastic, isn't it!

NICK CRANE: So many shapes too. It looks like a great big blancmange.

MARGARET WOOD: It's wonderful isn't it. Those are quartz rich rocks, you've got limestone over there, and you've got schists, you've got conglomerate. And the colours are fantastic, aren't they?

NICK CRANE: So this is two plates of the Earth's crust colliding?

MARGARET WOOD: Exactly.

NICK CRANE: In the hundreds of millions of years Anglesey's been moving around the globe, collisions and splits in the Earth's crust have created an astonishing array of rocks.

LIZ BONNIN: A couple of amazing facts in that clip: Anglesey is its own tiny tectonic plate and we get 300 mini earthquakes in the UK every year. Almost one a day. That's just my camera man mucking about.