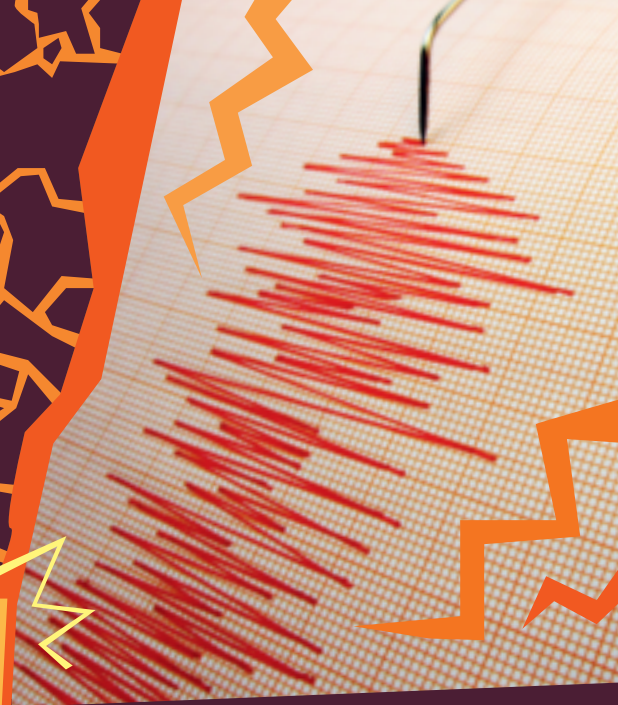
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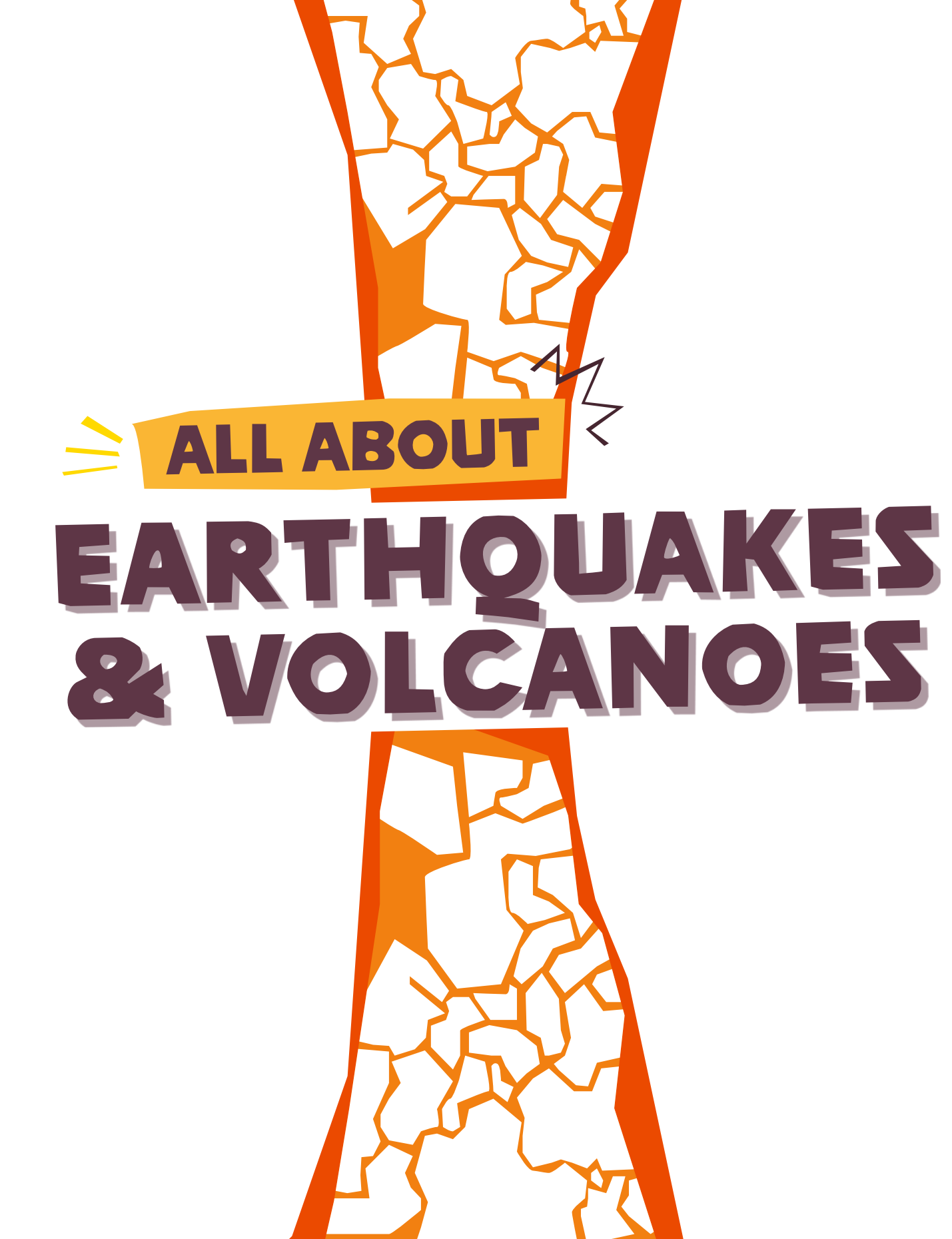




ALL ABOUT EARTHQUAKES & VOLCANOES

PACKED WITH FASCINATING FACTS!




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& VOLCANOES

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Our active planet

Earthquakes and volcanic eruptions are some of the most spectacular events in the natural world. They're also among the most dangerous. These natural hazards have been happening for many millions of years – and they still take place all the time around the world.

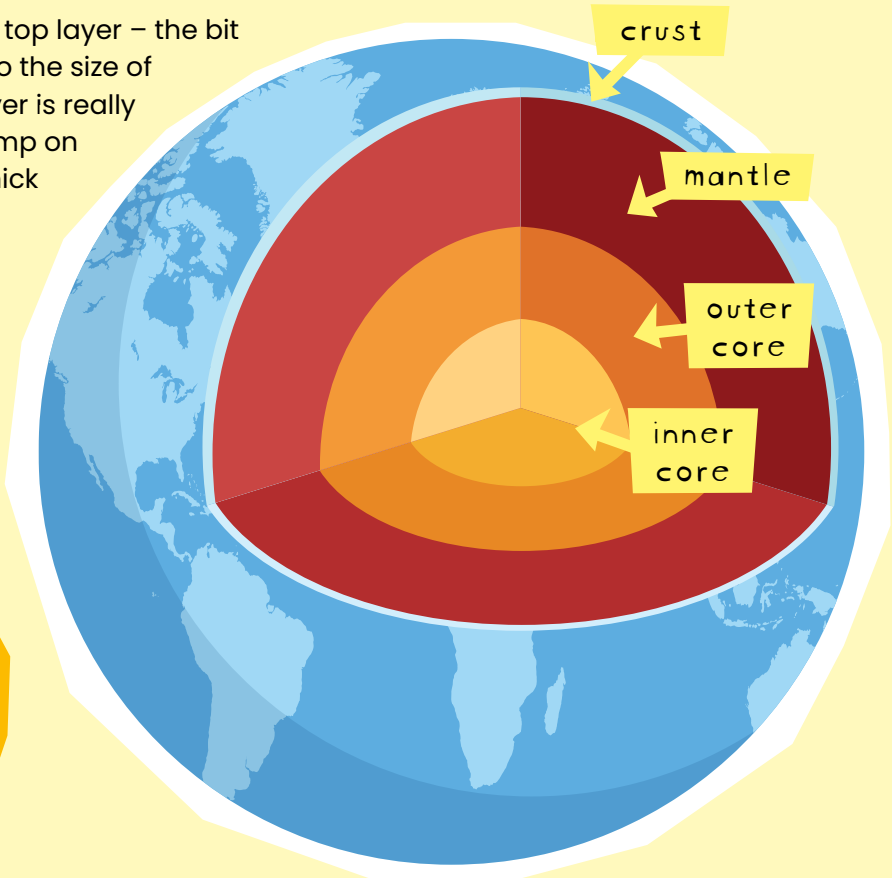


EARTH'S LAYERS

If you cut our planet in half from north to south, you'd see that it's made up of four layers: the crust, the mantle, the outer core and the inner core. Activity in these layers deep beneath our feet is what causes earthquakes and volcanic eruptions on the surface of Earth.

Crust

The crust is Earth's rocky top layer – the bit we walk on. Compared to the size of the whole planet, this layer is really thin – like a postage stamp on a football. It can be as thick as 80 kilometres, but in some places it's as thin as 6 kilometres. All the life in the entire universe (that we know of!) exists on Earth's crust.



FASCINATING FACT

The crust only makes up around 1% of the volume (size) of Earth.

TRUE OR FALSE?

The solid top parts of Earth – the crust and outer mantle – are called the lithosphere.

Find out on p.88!

Mantle

Beneath the crust is the mantle, the thickest layer of Earth. It is mostly made from dense, solid rocks, which contain metals such as iron and magnesium. Although it's hot enough in the mantle for all the rocks to melt, there's so much pressure bearing down on them that they stay solid. It's only in the upper mantle that some of the rock melts into a liquid.

Outer core

The outer core is mainly made up of liquid metals – iron and nickel. The flow of these magnetic metals near the centre of our planet is what creates Earth's magnetic field.

Inner core

Earth's inner core is a ball of metal – mostly iron with some nickel – 2,500 kilometres wide. Here, at the heart of our planet, temperatures reach 6,000 °C. That's easily enough to melt metal, but the pressure is so great at the core that the metal stays solid.

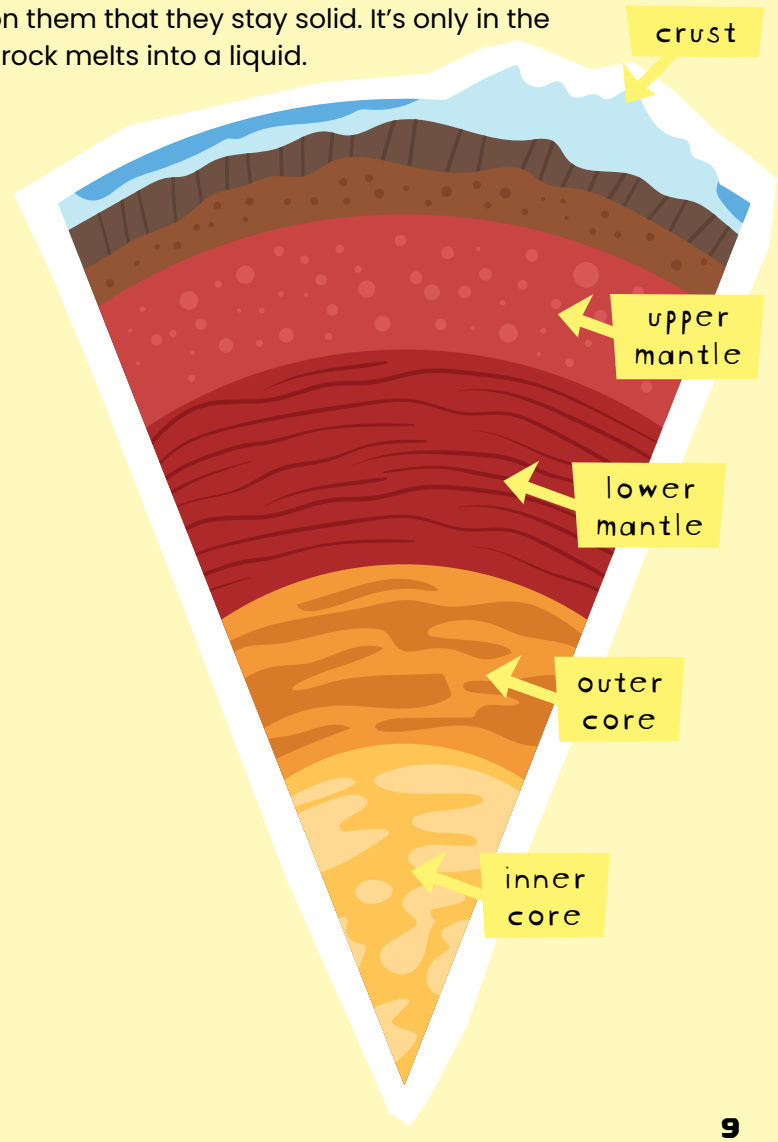
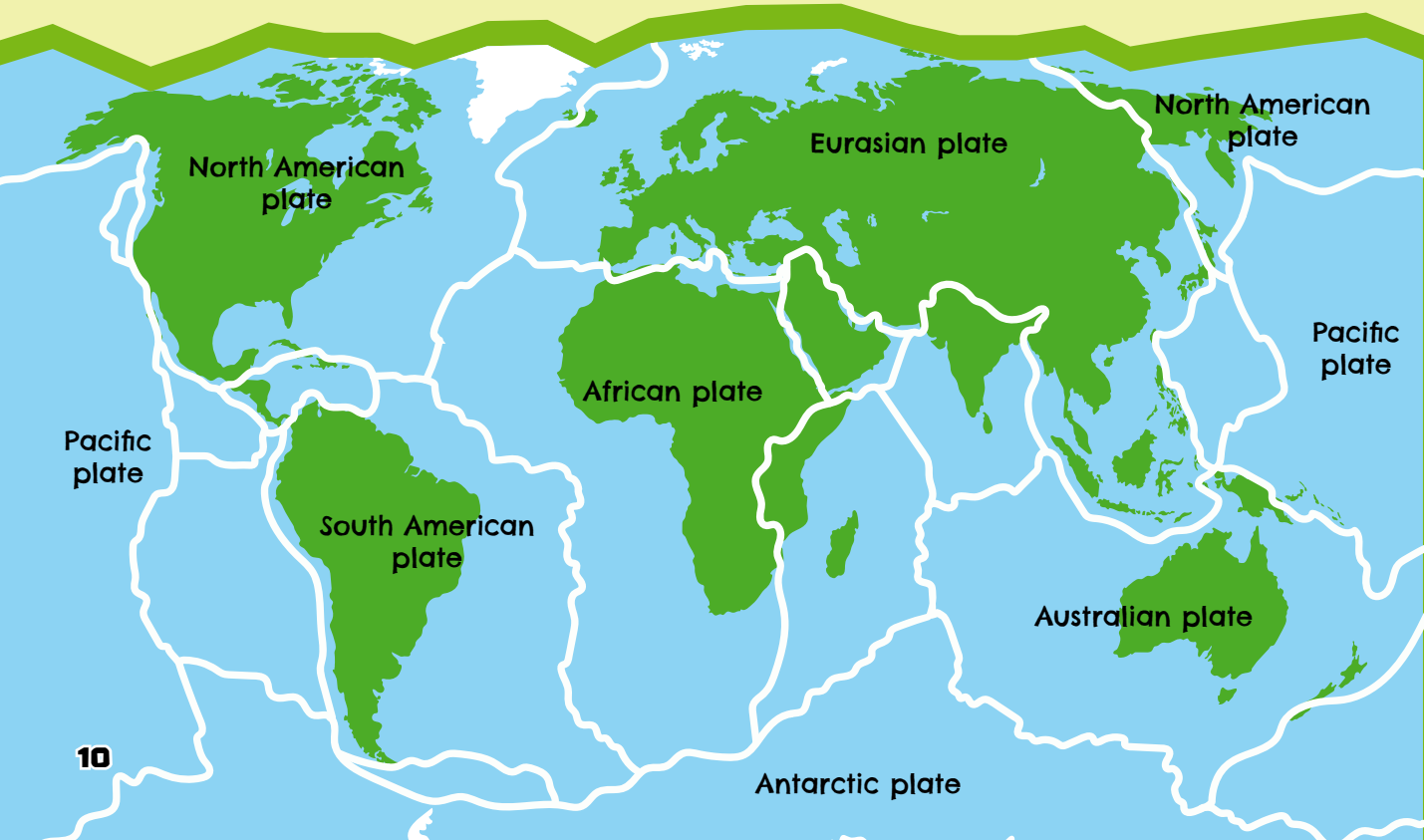


PLATE TECTONICS

The solid surface of Earth isn't one smooth, connected piece of rock. It's split into a series of gigantic sections called plates. These plates fit together like a huge jigsaw puzzle and they move around thanks to activity inside Earth. The way this happens is called plate tectonics.

The seven major plates

Although there are lots of smaller tectonic plates, there are seven major ones: Pacific, North American, Eurasian, African, Antarctic, Australian and South American. They get their names from the landmasses and oceans above them.



Continental and oceanic crust

Not all of Earth's crust is the same. The crust that sits beneath Earth's land surface is called continental crust. Oceanic crust lies beneath the ocean floor. It's thinner than continental crust, but more dense. Some tectonic plates are so big and cover such large areas that they contain both types of crust; for example, the African and South American plates. The Pacific plate is almost entirely oceanic crust.

Shifting plates

Tectonic plates rest on top of Earth's softer, hotter upper mantle. The mantle moves around very slowly, like thick, syrupy liquid, and this causes the plates floating on top of it to move around too. They shift very slowly though – only a few centimetres a year – so we don't feel it happening.

The science of plate tectonics

Plate tectonics explains a lot of things about our planet. Without plate tectonics there would be no mountains or ocean trenches. It's why the seven continents are the shapes they are, and why certain parts of Earth experience earthquakes and volcanic eruptions. It also helps scientists to understand Earth's history and to predict when and where natural disasters will occur.



Special equipment helps predict how likely earthquakes and landslides are in the area.



FASCINATING FACT

When dinosaurs first roamed Earth, the planet was a single, giant supercontinent that we now call Pangaea. It began to break apart into the continents we know today about 200 million years ago.