

Video summary	Before watching	While watching
<p>This video explores the structure of the Earth and how the lithosphere is split into seven major plates and many minor plates.</p> <p>Between the plates are plate boundaries and this video introduces <i>destructive</i>, <i>constructive</i> and <i>conservative</i> plate boundaries and how the plates move at each of these, with earthquakes occurring as a result of plate boundary movement.</p> <p>In 2010 a major earthquake caused widespread destruction in Haiti and in 2011 a powerful earthquake rocked Christchurch in New Zealand.</p> <p>The video compares the impact of the two earthquakes and how the outcome of tectonic events can differ depending on location, population density and level of development.</p>	<p>Ask students to draw the structure of the Earth. What do they already know about the different layers found inside the Earth?</p> <p>Discuss how the structure of the Earth is linked to earthquakes. Ask students to suggest how earthquakes occur. If they are unsure, ask them to make a prediction and to write this down. Students can add to this once they have watched the video.</p> <p>Ask students to create a spider diagram of the impact of an earthquake. Students could categorise this into social, economic and environmental impacts.</p> <p><b>Introduce key terms such as:</b></p> <p><b>Mantle:</b> the layer of semi-solid rock that sits between the crust and the core, beneath the Earth's surface.</p> <p><b>Lithosphere:</b> the rigid, outermost layer of the Earth, made up of the crust and upper mantle.</p> <p><b>Subduction zone:</b> the point at a destructive plate boundary where one plate slides beneath the other.</p> <p><b>Magnitude:</b> a measure of the size of an earthquake or the amount of energy released by an earthquake.</p> <p><b>Population density:</b> the number of people living per square kilometre in a location.</p>	<p>You may wish to stop at relevant points during this short video to pose questions and check understanding, or wait until the end. Useful questions might include:</p> <ul style="list-style-type: none"> <li>• What is the lithosphere?</li> <li>• What happens at a destructive plate boundary?</li> <li>• What is a subduction zone?</li> <li>• What happens at a constructive plate boundary?</li> <li>• What happens at a conservative plate boundary?</li> <li>• What causes an earthquake?</li> <li>• What caused the earthquake in Haiti?</li> <li>• What were the impacts of the earthquake in Haiti?</li> <li>• What caused the earthquake in Christchurch?</li> <li>• What were the impacts of the earthquake in Christchurch?</li> <li>• What factors can affect the impacts of an earthquake?</li> </ul>
After watching		
<p>To help with their understanding of plate boundaries, students should draw out the different plate boundaries and the processes that occur at each. Students could research where these plate boundaries can be found - for example, there is a constructive plate boundary which divides Iceland and forms the Mid-Atlantic Ridge.</p>		

## After watching (continued)

Look at websites such as the United States Geological Survey and the British Geological Survey earthquake maps. Is there a pattern as to where the earthquakes happen? Can students map this to the plate boundary maps?

Students could compare the impacts of the two earthquakes studied in the video and divide these impacts into 'social', 'economic' and 'environmental'. Are there any impacts that they could add to their spider diagram from the activity before the video? Students could research a further earthquake of similar magnitude - for example, the 6.5 magnitude earthquake that hit Aceh in Indonesia in 2016.

Curriculum notes	Where next?	Links
<p>This clip will be relevant for teaching Geography at KS3 in England, Wales and Northern Ireland and 3rd and 4th Level in Scotland.</p> <p>In the English National Curriculum this film can be used to help teach the following:</p> <ul style="list-style-type: none"> <li><i>Physical geography relating to geological timescales and plate tectonics.</i></li> </ul>	<p>What could be done to reduce the impacts of earthquakes? Some countries - such as Japan - have specially-built infrastructure which is designed to reduce the impact of an earthquake. This includes using damping, cross braces and flexible foundations.</p> <p>Students could research what has been done in countries across the world and use these ideas to help them to design their own earthquake-proof buildings. These could also be turned into 3D structures with groups of students building them in teams.</p>	<p>Plate tectonics: <a href="https://www.bbc.co.uk/bitesize/topics/zn476sg/articles/zrcgr2p">https://www.bbc.co.uk/bitesize/topics/zn476sg/articles/zrcgr2p</a></p> <p>Plate margins and plate tectonics: <a href="https://www.bbc.co.uk/bitesize/topics/zqvb7v4/watch/zyk46rd">https://www.bbc.co.uk/bitesize/topics/zqvb7v4/watch/zyk46rd</a></p> <p>Earthquakes and tsunamis: <a href="https://www.bbc.co.uk/bitesize/topics/zn476sg/articles/zc4rcmn">https://www.bbc.co.uk/bitesize/topics/zn476sg/articles/zc4rcmn</a></p> <p>Earthquakes: <a href="https://www.bbc.co.uk/bitesize/guides/zp46sg8/revision/1">https://www.bbc.co.uk/bitesize/guides/zp46sg8/revision/1</a></p> <p>Haiti earthquake: <a href="https://www.bbc.co.uk/bitesize/guides/zp46sg8/revision/4">https://www.bbc.co.uk/bitesize/guides/zp46sg8/revision/4</a></p>