

What the chapter will help you deliver**KS3 Programme of Study****Themes**

- b tectonic processes and their effects on landscapes and people, including:
 - a) the global distribution of tectonic activity and its relationships with the boundaries of plates
 - b) the nature, causes and effects of earthquakes or volcanic eruptions
 - c) human responses to the hazards associated with them

QCA Scheme of Work

Unit 2: The restless earth – earthquakes and volcanoes

Prior learning for Unit 21: Virtual volcanoes and internet earthquakes!

The big picture

These are the key ideas behind this chapter.

- ◆ The hard surface of the Earth is cracked into big pieces that we call plates.
- ◆ Plates are continually on the move, dragged by convection currents in the hot soft rock in the mantle.
- ◆ Plates can push into or pull away from each other, or slide past each other. All these movements cause earthquakes, and some cause volcanic eruptions.
- ◆ So the earthquake and volcano sites around the Earth form a pattern, which matches the pattern of plate edges.
- ◆ Earthquakes and eruptions cause a great deal of damage, and loss of life.
- ◆ We can't stop them. All we can do is help the survivors in the short term, and look for ways to protect people from these hazards in the long term.
- ◆ This costs a lot of money. So poorer countries generally cope less well than richer countries with these hazards, and may depend on richer countries for help.

Note that the pupils' version of the big picture is given in the pupils' chapter opener.

The chapter outline

Use this, and the pupils' chapter opener, to give pupils a mental roadmap for the chapter.

- 9 **Plates, earthquakes and volcanoes** As the pupils' chapter opener, this is an important part of the chapter; see page 11 for notes about using chapter openers
- 9.1 **A slice through the Earth** The layers in the Earth, and a closer look at the crust
- 9.2 **Earthquakes, volcanoes and plates** Introducing the Earth's plates, and their link with earthquakes and volcanoes
- 9.3 **Plate movements** The different kinds of plate movements, and how they cause earthquakes and eruptions – and can even make mountains grow
- 9.4 **Earthquakes** What they are, the Richter scale, and the damage earthquakes do
- 9.5 **Earthquake in Pakistan** Case study: the earthquake in Kashmir, in 2005
- 9.6 **Tsunami in the Indian Ocean, 2004** Case study: the earthquake and tsunami in the Indian Ocean, 2004
- 9.7 **Volcanoes** The structure of volcanoes, and the damage eruptions can do
- 9.8 **Montserrat: living with an active volcano** Case study: how life on a Caribbean island changed forever in 1995
- 9.9 **Coping with earthquakes and eruptions** Short- and long-term responses to these hazards

Objectives and outcomes for this chapter**Objectives**

Most pupils will understand:

- that the Earth is made up of different layers
- what the Earth's plates are, and why they move
- that plate movements result in earthquakes and volcanic eruptions
- what earthquakes are, and what kinds of damage they do, and why
- what the Richter scale is
- what volcanoes are, and what kinds of damage the eruptions do, and why
- that we have similar kinds of response to earthquake and volcano disasters
- that poorer countries generally find it more difficult to respond to these disasters
- that there are many reasons why people continue to live in high risk areas, at plate edges

Unit9.1
9.2
9.2, 9.3
9.4, 9.5
9.4
9.6, 9.7
9.8
9.8
9.9**Outcomes**

Most pupils will be able to:

- name and describe the three layers that make up the Earth
- explain what a plate is and why it moves; name at least five plates; draw a simple labelled cross-section of a moving plate
- explain that earthquake and volcano sites occur along plate edges; describe the three ways in which plates move relative to each other; explain why each causes earthquakes, and some cause eruptions
- explain what causes earthquakes, and why everything shakes; give examples of earthquake damage
- explain what the Richter scale is; and that the higher the number the more damage an earthquake can do
- draw a labelled cross-section of a volcano; list the products from eruptions, and the damage they do
- give three examples each of short- and long-term responses to earthquake and volcano disasters
- explain why poorer countries may find it harder to cope with these disasters, and protect people
- give at least four reasons why people continue to live in the danger zones

These tie in with 'Your goals for this chapter' in the pupils' chapter opener, and with the opening lines in each unit, which give the purpose of the unit in a pupil-friendly style.

Opportunities for assessmentSee the assessment package for this chapter, on pages 242–253 of *geog.1 teacher's resource file*. It includes a level-marked assessment, and suggestions for interim assessments using *geog.1* materials.**Getting ready for this chapter**Some of the suggestions for starters and plenaries, for the units in this chapter, need resources prepared in advance. Check out the *Resources* section on the 'Help at a glance' pages that follow. Other essential or useful resources for the chapter are:

- ◆ *geog.1 teacher's resource file*
- ◆ the *geog.world* subscription website at: www.oup.com/uk/geog/world

About the chapter starterPage 106 of *geog.1* students' book shows the abandoned town of Plymouth, on the Caribbean island of Montserrat, in 1997. In the background is the Soufriere Hills volcano. Plymouth was once the capital of Montserrat, with a population of around 3500. It was evacuated in 1995, when the volcano grew active. People were moved to the north of the island, from which many left for other Caribbean islands, or further afield. Since then, Plymouth has been buried by ashfalls and pyroclastic flows. In 2005, ten years later, the volcano was still active, and Plymouth, like much of the island, still out of bounds.