

When the Earth Shake

培生
英语阅读

地震

When the Earth Shakes

◆ 查尔斯·希金斯 雷吉娜·希金斯 著

12

凤凰出版传媒集团
译林出版社

When the Earth Shakes



By Charles Higgins and Regina Higgins

图书在版编目(CIP)数据

培生英语阅读. 第12辑. 地震/(美)希金斯(Higgins, C.),
(美)希金斯(Higgins, R.)著. -南京:译林出版社,2006.8
ISBN 7-5447-0120-4

I. 培... II. ①希... ②希... III. 英语-阅读教学-高中-课外读物
IV. G634.413

中国版本图书馆CIP数据核字(2006)第096334号

Simplified Chinese/English edition copyright © 2006 by Pearson Education Asia Ltd. and Yilin Press

Original English language titles: *When the Earth Shakes* by Charles Higgins & Regina Higgins, copyright © 2001

The Griffey's: Father and Son Baseball by Keith Grober, copyright © 2001

A Race Before Dark by Dina Anastasio, copyright © 2001

One Step at a Time Howard Gutner, copyright © 2001

All Rights Reserved.

Published by arrangement with the original publisher, Pearson Education, Inc., publishing as Modern Curriculum Press

This edition is authorized for sale only in the People's Republic of China (excluding the Special Administrative Region of Hong Kong and Macau)

登记号 图字: 10-2005-148 号

| | |
|------|------------------------------------|
| 书 名 | 培生英语阅读12·地震 |
| 作 者 | 查尔斯·希金斯 雷吉娜·希金斯 |
| 习题编写 | 夏爱林 |
| 责任编辑 | 唐晓萌 张彦 |
| 封面设计 | 侯海屏 |
| 出版发行 | 凤凰出版传媒集团 译林出版社(南京湖南路47号 210009) |
| 电子信箱 | yilin@yilin.com |
| 网 址 | http://www.yilin.com |
| 集团网址 | 凤凰出版传媒网 http://www.ppm.cn |
| 印 刷 | 江苏淮阴新华印刷厂 |
| 开 本 | 880×1230毫米 1/32 |
| 印 张 | 1.625 |
| 版 次 | 2006年8月第1版 2006年8月第1次印刷 |
| 标准书号 | ISBN 7-5447-0120-4/G·58 |
| 定 价 | (共5本) 24.00元 |

本书若有印装错误可与出版社联系

(联系电话: 025-83242790)



Contents

Chapter 1

It's an Earthquake! page 5

Chapter 2

How Earthquakes Happen page 11

Chapter 3

Living on the Edge page 17

Chapter 4

Tsunamis and Volcanoes page 23

Chapter 5

Earthquake Rescues page 31

Chapter 6

Predicting Earthquakes page 36

Chapter 7

Earthquake Safety page 42

Exercises page 48

Index page 52



**For Frances and Charles—
Earth shakers!**

Chapter 1

It's an Earthquake!

A woman and her children watched as the water in their swimming pool suddenly **spouted** five feet in the air. A man watched cars in a parking lot hop around as if they were toys. A woman went to sleep with her bed against one wall in her bedroom. The bed was against another wall when she woke up.



A parking lot and building are destroyed by an earthquake.

A boy and his dad were in their car. It suddenly started to **bounce**, as if there were big bumps in the road. The road itself bent and twisted. The broken concrete slabs dipped and rolled like the waves of an ocean.

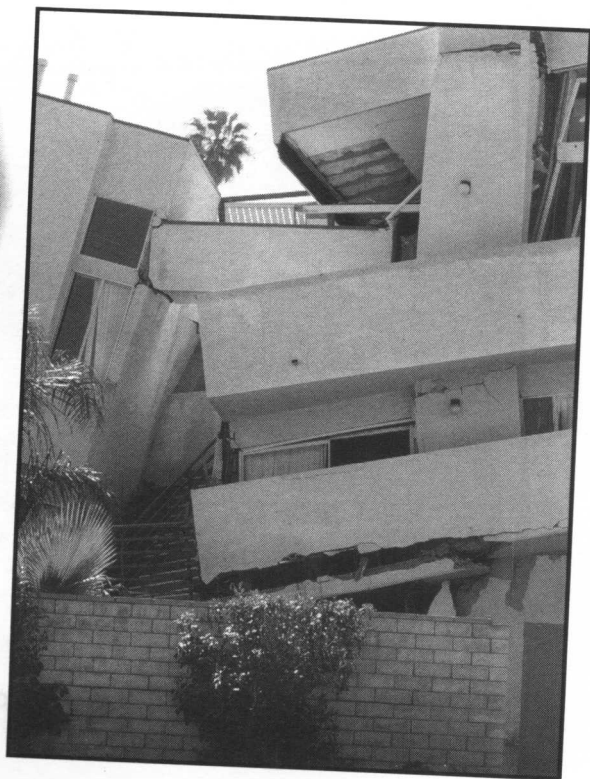
These people were experiencing earthquakes. An earthquake is a sudden shaking of the earth's surface. The **tremors** can be so mild that they barely make leaves on a tree flutter. They can be so violent that they cause **cracks** in the earth hundreds of miles long.

Damage from the
1994 Los Angeles
earthquake

tremors

- A. major earthquakes
- B. small earthquakes
- C. lines on the surface

Key: B





Rescuers look for people after an earthquake in San Francisco.

Major earthquakes can cause great **destruction**. The most serious problems happen when buildings collapse. People inside can be trapped.

After an earthquake is over, the danger and damage may still go on. The water in damaged pipes below the street may burst out like a fountain. Whole sections of a city may be flooded. The roads and streets themselves may crack open. When that happens emergency crews cannot reach people who need help.

When gas pipelines under the street break, the leaking gas can start fires. If water pipes are broken, firefighters may be unable to get water to **put out** the flames.

Cities are not the only places damaged by earthquakes. In hilly areas, loose rock and soil tumble down hillsides when the ground shakes. The **landslide** becomes a mudslide if the ground has been soaked by rain.

In areas with lots of snow, the shaking ground causes snow and ice to roll down hillsides. Like a landslide or mudslide, an **avalanche** crushes everything it reaches.



After an earthquake, a landslide caused more damage to this house.

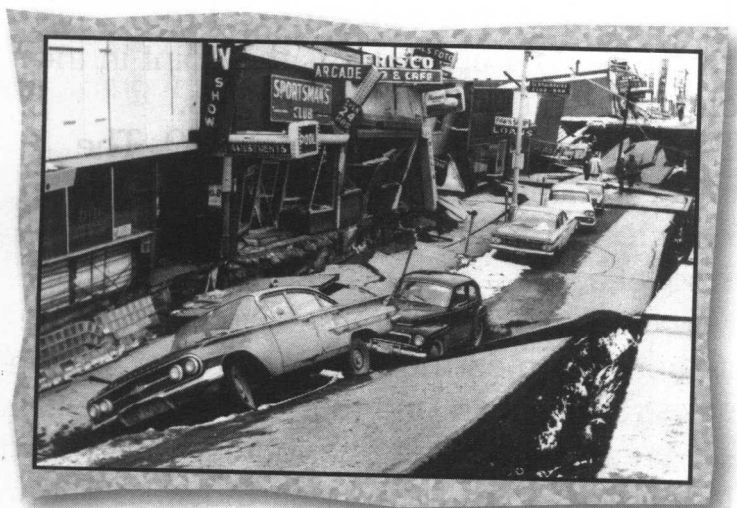
Sometimes a small earthquake can cause more damage than a large one. It depends on where the earthquake happens. This makes comparing the size of earthquakes difficult.

The **Richter scale** is the system most people use to compare earthquakes. This scale tells how much the ground shakes at any point 60 miles away from the **epicenter** of the earthquake. The epicenter is the point in the ground where the earthquake starts.

The Richter scale goes from 1 to 9. The number 1 means an earthquake too small for people to feel. The number 9 is the strongest earthquake. Each step on the Richter scale is for an earthquake ten times stronger than the last step. So an earthquake measuring 7 is ten times stronger than one registering 6. It usually takes an earthquake registering between 5 and 6 to damage homes. Major earthquakes are any that measure over 7. An earthquake that measures as high as 8 on the Richter scale is rare. There has never been an earthquake recorded as high as 9.

Scientists measure the movements of the ground with an instrument called a seismograph. How much the ground moves is shown on a computer or on paper as jagged lines that go up and down. A strong earthquake will be recorded with big jagged lines.

About 500,000 or more earthquakes happen every year around the world. Most of these earthquakes are very small. About 5,000 of the earthquakes are big enough for people to feel. About 1,000 of them are strong enough to cause some damage.



Anchorage, Alaska, after the 1964 earthquake

Earthshaking Fact

The longest earthquake on record lasted four minutes. The earthquake shook Alaska in March of 1964. It was also the strongest earthquake ever recorded. It measured between 8 and 9 on the Richter scale.

Chapter 2

How Earthquakes Happen

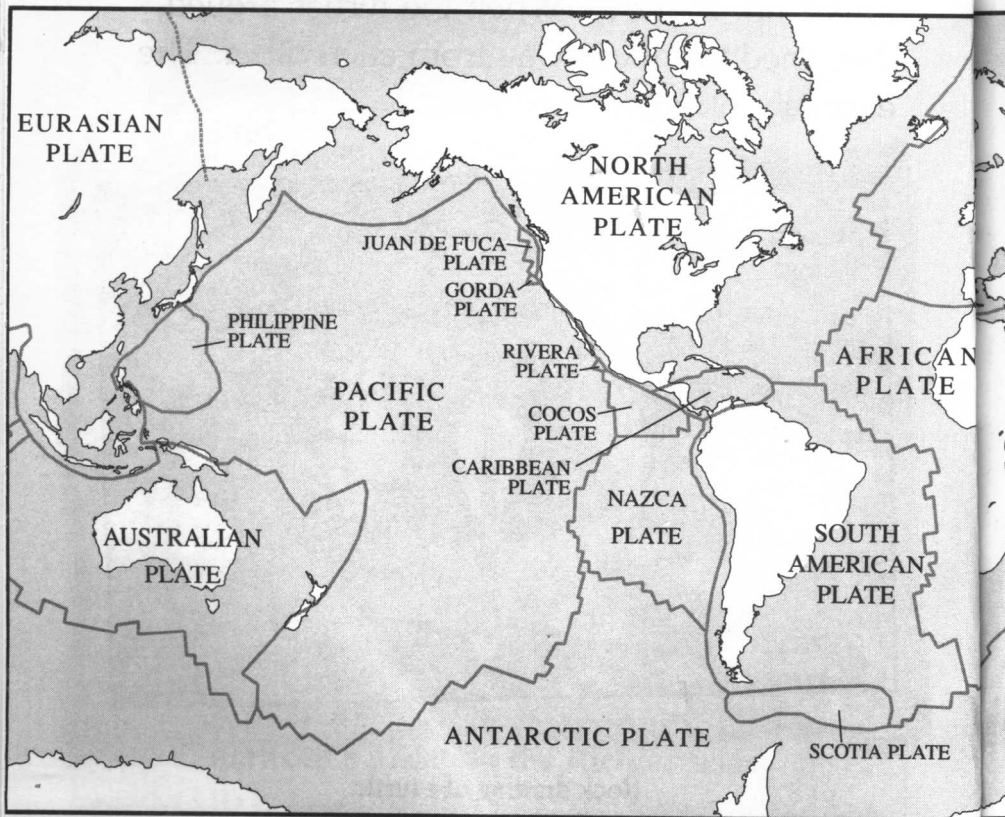
In ancient times, many people **made up** myths, or stories, to explain why the earth shakes. Native Americans living in California told the tale of six turtles who supported the world on their backs. The Great Spirit told the turtles not to move. When the turtles argued, they tried to move away from each other. The earth shook when they moved.



Rock drawing of a turtle

People in California and all over the world now know that earthquakes are caused by movements within the earth. These powerful movements come from deep within the earth. They travel upward to the earth's surface where people can feel them. To understand how these movements shake the earth's surface, think of the earth as having several layers **instead of** being a solid ball.

Earth's tectonic plates

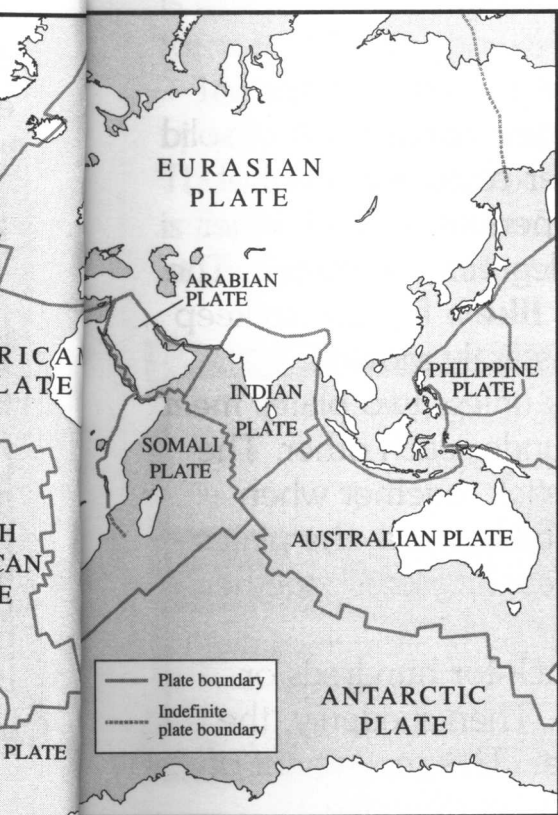


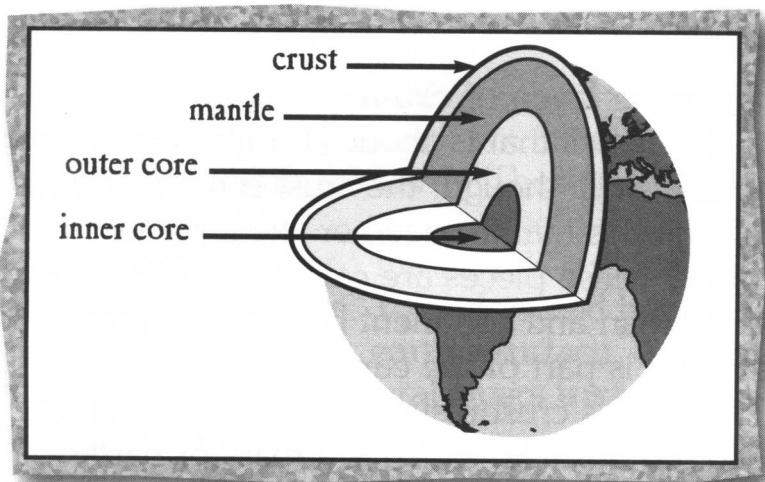
The outer layer, or **crust**, is hard and rocky. It is like a shell that is about 70 miles thick. Unlike a shell, though, the crust is not smooth. It is in pieces that fit together like a jigsaw **puzzle**. These pieces are called tectonic plates. Every ocean and continent lies on a tectonic plate that is part of the earth's crust.

The earth's crust rests on another layer. It is called the **mantle**, which is a mass of partly melted rock. The melted rock is called magma.

It is soft, gooey, and very hot. As the magma moves, the tectonic plates move, too.

The plates on the mantle move very, very slowly. The plate that holds North America and the plate that holds Europe, for example, are moving apart **at the rate of** four inches per year. This is too slow for people to see or feel.





The layers of the earth

Beneath the mantle lies the **outer core**. At the very center is the **inner core**, a ball of solid rock. The inner and outer cores are very hot. Scientists think that temperatures in the inner core may reach 9,000 degrees Fahrenheit. The heat from the core **acts like** a furnace to keep the magma soft and constantly moving.

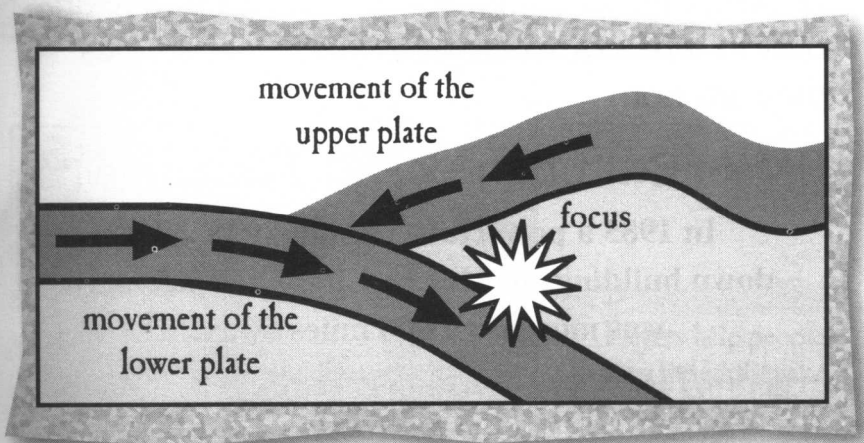
The plates move easily unless two plates meet and try to push past or under each other. The edges of the plates can stick together when they meet. The magma underneath the plates keeps moving. This forces the plates together even harder.

The plates can stay stuck for hundreds or even thousands of years. Then suddenly, the plates jolt past each other. This movement of the earth's crust causes an earthquake.

After the first sudden movement, the plates may move a little more. These later movements cause more shaking and are called **aftershocks**. Aftershocks can occur hours, days, weeks, or even months after the first big earthquake. Usually, the later the aftershocks come, the smaller they are.

The point under the ground where the plates shift is called the focus. The focus can be more than 400 miles below the earth's surface. This is where the earthquake begins and where its force is the most powerful.

The vibrations that start at the **focus** move upward at a rate of up to ten miles per second. The spot above the focus on the earth's surface is the epicenter. The most destruction happens at the epicenter during an earthquake.



Where an earthquake happens



After an earthquake in Mexico City

There are places on Earth that are much more likely than others to have major earthquakes. These places sit above the point where the edges of tectonic plates meet. Skyscrapers, homes, highways, and even sports arenas have all been built in such places. Sometimes they are built to **withstand** an earthquake. Sometimes they are not.

Earthshaking Fact

In 1985 a powerful earthquake knocked down buildings in Mexico City. The epicenter was more than 200 miles away!