

## LESSON 4

# Earthquakes and How to Survive Them

Before You Read

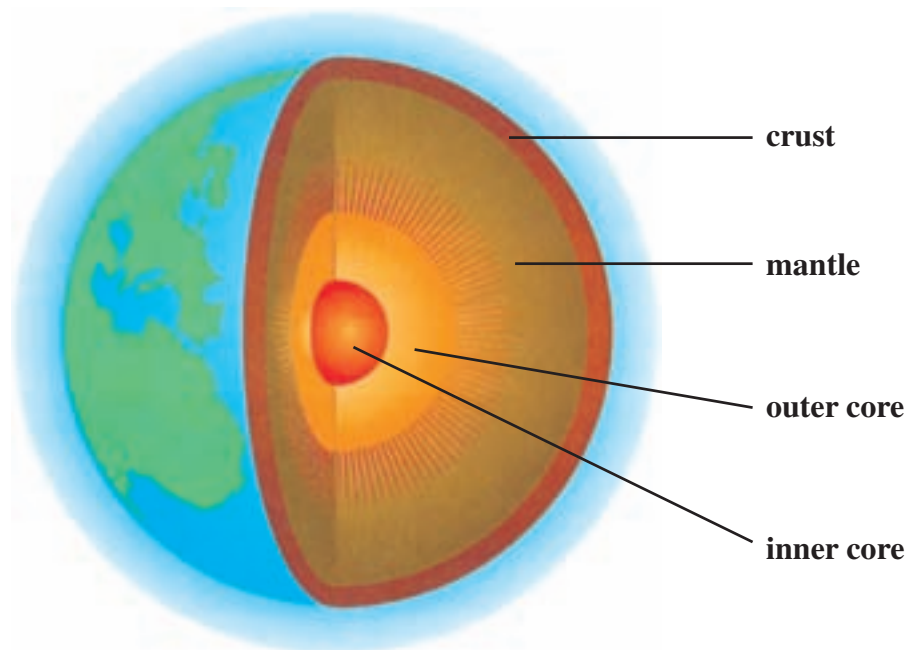


Every year a number of earthquakes happen in Iran. People may lose their things or even their lives. In this lesson, you will learn about earthquakes and what you should do before, during, and after them to reduce damages.

*Answer the following questions.*

1. What is Earth? What is it made of?
2. What is an earthquake? Do you know what causes earthquakes?
3. Do you know of any recent earthquakes in Iran and in other countries?
4. When and where was it?
5. Have you ever experienced an earthquake? What did you do?
6. Can earthquakes be predicted?
7. What do you think should be done before, during, and after an earthquake?

*Now ask your partner the same questions.*





## Earthquakes and How to Survive Them\*

1 The Earth is made up of three main layers: the crust, the mantle, and the core. The crust, the layer that you live on, is like the skin of an apple. It is very thin (from 6 to 30 kilometers) in comparison to the other two layers. It is broken into many pieces called plates. These plates **float** on the soft, plastic mantle below the crust. The core, which is at the center of the Earth, **consists of** heavy metals and is about 4000° centigrade hot.

2 The plates of the crust move along **smoothly** but sometimes they stick together and create pressure. The pressure increases and the rock bends until it breaks. When this occurs, an earthquake is the result.

3 Earthquakes happen every day. Though millions of people may never experience an earthquake, it is a very common happening on this planet. So today, somewhere, an earthquake will occur. It may be so light that only special instruments can record its movement; it may **shake** houses, **rattle** windows, and change the place of small things. It may be strong enough to cause **damage**, injury, and death.

4 It is thought that about 700 shocks each year have this power when they occur in a **populated** area. Luckily, most of these **destructive** earthquakes occur in less populated places.

5 Since a large number of the world's earthquakes each year occur along the Pacific Ocean, this is the most **probable** area for today's earthquakes. But it could hit any place because no area is **entirely** free of earthquakes.

6 Saying that an earthquake is going to happen today is not really **predicting** earthquakes. So far, they cannot be predicted, but anyone, on any day could say this and it would be true. This is because several million earthquakes

**float:**  
stay on the surface of a liquid such as water

**consist of:**  
be formed from

**smoothly:**  
without any sudden movements or changes

**shake:**  
move sth up and down and from side to side

**rattle:**  
move sth with a sound

**damage:**  
physical harm to sth

**populated:**  
full of people

**destructive:**  
causing damage and destruction

**probable:**  
likely to be or to happen

**entirely:**  
completely

**predict:**  
say that sth will happen

\* Adapted from <http://www.ceri.memphis.edu/public/facts.shtml>

occur each year. So, thousands occur each day, although most are too small to be **located**. The problem is in finding the exact area where and when a strong shock will happen.

**7** Earthquake prediction is a future possibility. Just as the weather organizations now **forecast floods** and strong storms, the national earthquake information centers may one day predict earthquakes. This may some day become a reality, but only after much more is learned about earthquake mechanisms.

## WHAT TO DO

### **8** *Before an Earthquake*

- All family members should know how to turn off gas, water, and electricity.
- Plan family **emergency procedures**, and make plans for your family to get together.
- Know emergency telephone numbers (doctor, hospital, police, fire department, etc.)
- Fix heavy things strongly to walls (bookshelves, mirrors, cabinets, etc.)
- Never place heavy things over beds, and keep them lower than the head height of the shortest member of the family.

### **9** *During an Earthquake*

- Stay **calm**.
- If you are inside, stand in a doorway, or go under a desk or table, away from windows or glass doors.
- If you are outside, stand away from buildings, trees, and telephone and electrical lines.
- If you are on the road, drive away from underpasses and overpasses; stop in a safe area, and stay in your car.

### **10** *After an Earthquake*

- Check for injuries. **Provide** first aid.
- Check for gas, water, and electrical lines.
- Check for building damage and possible problems during aftershocks.
- Clean up dangerous chemicals off the floor.
- Wear shoes.
- Turn on the radio, and listen for instructions from police and fire departments.
- Use the telephone for emergencies, only.

#### **locate:**

find the place of sth

#### **forecast:**

say what the weather will be like

#### **flood:**

when a lot of water covers an area that is usually dry

#### **emergency:**

an event needing immediate action

#### **procedure:**

a way of doing sth, especially the usual way

#### **calm:**

not excited

#### **provide:**

make sth available for someone who needs it

# After You Read

## Comprehension Check

**1** Check your understanding. Are these statements True (T) or False (F)? If they are not mentioned in the text, write (N).

- ..... 1. An earthquake is the result of the breaking of the plates of the crust.
- ..... 2. There are places in which no earthquakes occur.
- ..... 3. Earthquakes are the most common happenings on this planet.
- ..... 4. Scientists will be able to predict earthquakes in fifty years.
- ..... 5. Children need to know what to do in emergencies.

*Compare your answers with a partner's.*

- 2** A) What does the writer try to say in paragraph 2? Choose one.
- a) what Earth is made of
  - b) how an earthquake happens
  - c) what happens in the crust
  - d) what plates are and do

B) In paragraph 6, the writer introduces a difficulty in earthquake prediction. Copy down the sentence here.

.....  
.....

C) Complete the following sentence.

Fortunately, most earthquakes .....

*Compare your answers with a partner's.*

**3** Discuss the following questions in class.

- 1. Can you name some of the things people should do to reduce the damage of an earthquake?
- 2. Do you know what countries are the most probable areas for earthquakes to happen?
- 3. Are earthquakes always frightening? Why?

## Sentence Functions

Imagine that an earthquake happens while you are in the classroom. Tell your friend what to do. You can use the "WHAT TO DO" part of the text.

.....

.....

.....

*Compare your instructions with a partner's.*

## Reading Skills

از دیگر مهارت‌های خواندن درک روابط میان بخش‌های مختلف یک جمله و جمله‌های متن از طریق شناسایی کاربرد «علائم نشانه‌گذاری» (Punctuation Marks) است. در تمرین زیر با مهمترین این علائم آشنا می‌شوید.

**1** Look at the table below. Find a few examples for each punctuation mark in this and the previous lessons. Then write about the function of each.

Punctuation Mark	Examples in this lesson	More examples from other lessons	Functions
,			
colon			
semicolon			
dash			

*Compare your answers with a partner's.*

معنی برخی کلمه‌های ناآشنا در متن را از راه‌های دیگری نیز می‌توان حدس زد :  
 «تصاویر» (pictures)، «تخیل» (imagination) و آشنایی با آن کلمه‌ها در زبان مادری  
 (mother tongue). برای انجام دادن تمرین زیر این سه راه و راه‌های قبلی را به کار بگیرید.

**2** What do the following words from the text mean?

Word	Paragraph	Meaning
layer	1	
cabinet	8	
mechanism	7	
underpass	9	
overpass	9	

*Compare your answers with a partner's.*

## Vocabulary Review

Choose a pair of words having a similar relationship as the pairs in each item.

- happen: occur
  - bend: stick
  - reduce: release
  - forecast: predict
- entirely: completely
  - surely: certainly
  - smoothly: suddenly
  - exactly: probably
- crust: earth
  - flood: river
  - tree: garden
  - skin: apple
- lazy: hard-working
  - angry: calm
  - soft: mild
  - concerned: worried
- metal: hard
  - bone: soft
  - fire: hot
  - weather: cold

*Compare your instructions with a partner's.*



## Focus on Grammar

### Modification of Adjectives

Read the following sentences carefully.

1. The earthquake was **so strong** that it destroyed the whole village.
2. The earthquake was **so light** that only especial instruments could record it.
3. It was **such a strong earthquake** that it destroyed the whole village.
4. It was **such a mild earthquake** that only special instruments could record it.
5. The emergency telephone numbers are **easy enough** to remember.
6. Only a few people stay **calm enough** to help the injured after an earthquake.
7. They had **enough money** to buy a first-aid box.
8. She had **enough confidence** to help the injured.
9. Some instructions were **too difficult** for us to understand.
10. Most people were **too frightened** to do anything.

Now fill in the blanks in the following sentences with *so, too, such* and *enough*.

1. The words ..... and ..... come before adjectives.
2. The word ..... comes before an adjective followed by a noun.
3. The word ..... comes before nouns and after adjectives.
4. The word ..... shows that it is possible to do something.
5. A that-clause comes after ..... structures.
6. An infinitive comes after ..... structures.
7. The word ..... shows that it is not possible to do something.

*Compare your answers with a partner's.*

## Grammar Practice



Use *so, such, enough, or too* in the blanks in the following sentences.

1. Most earthquakes are ..... weak that they cause almost no damage.
2. The building was strong ..... . It was not destroyed during the earthquake.
3. The injured man was ..... heavy for me to carry.
4. The weather was ..... hot that we couldn't stay outside.
5. The fire department was ..... a long way from here that it took half an hour for the firemen to arrive.

*Compare your answers with a partner's.*



**2** Choose the right word from the parentheses and combine the following sentences.

1. The teacher spoke quickly. The students could not understand him. (so/such)  
.....
2. It was a hot day. We decided to go swimming. (so/such)  
.....
3. That dress looks expensive. Sheila can't buy it. (too/enough)  
.....
4. There is not much light. We can't take the photographs. (too/enough)  
.....
5. The room is large. It can hold at least 30 guests. (too/enough)  
.....

*Compare your answers with a partner's.*

**3** All of the following sentences contain an error. Underline the errors and then correct them.

Example: I think it's so soon to know the results of the test.

I think it's too soon to know the results of the test.

1. The man did not have experience enough to do the job well.  
.....
2. The instructions were such simple that even children could learn them easily.  
.....
3. It was so terrible weather that we spent the whole day indoors.  
.....
4. The situation after the flood was too bad that I can't explain it.  
.....
5. Some people are not too fast to take immediate action during emergencies.  
.....

*Compare your answers with a partner's.*

### 1. so + adjective / adverb

The film was **so good** that I saw it twice.

She ran **so fast** that she forgot to take her keys.

### 2. such + (adjective) + noun

I've never met **such friendly people**.

It was **such a funny joke** that we couldn't help laughing.

### 3. too + adjective + (for+ object) + infinitive

The coffee is **too hot** to drink.

The lesson was **too hard for us to understand**.

### 4. adjective + enough + (for+object) + infinitive

He is **tall enough to touch** the ceiling.

The exercise was **easy enough for me to do**.

### 5. enough + noun + (for + object) + infinitive

Mary had **enough time to read** this novel.

There is **enough money for you to take** a vacation.