

The ESL Science Book



The ESL Science Book is a reproducible book of twenty five stories about science for intermediate level ESL students. Each unit is accompanied by a variety of exercises covering the different skill areas.

Topics in The ESL Science Book include everything from Dinosaurs and Global Warming to Earthquakes and Identical Twins.

- Intermediate level
- Suitable for teens and adults
- 150 pages

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The ESL SCIENCE Book

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INTRODUCTION

The ESL SCIENCE Book is a reproducible ESL/EFL reading and discussion text for intermediate or higher level students. It offers a number of important design features that make both teaching and learning easy and enjoyable.

- 1) **Contextualized learning:** Each reading selection focuses on a single topic, and is followed by vocabulary and comprehension exercises that review and expand upon the theme of the reading.
- 2) **Relevant content:** Each unit examines a topic that is interesting and informative.
- 3) **Lively journalistic style:** Although the passages are written for English language learners, their style remains vivid and authentic.
- 4) **Variety of exercises:** The numerous exercises offer a range of integrated activities for each unit -- getting the main idea, basic comprehension, finding details, inferences, interpretation and extension of important concepts, vocabulary study, a word puzzle, and a cloze exercise.
- 5) **Illustrations:** There is a clear and evocative illustration at the beginning of each unit, which can be used for pre-reading exercises such as activating prior knowledge and vocabulary brainstorming, or as a basis for discussion.
- 6) **Answer Key:** The text includes a full answer key for every closed-ended question in every unit.
- 7) **Reproducible Format:** Purchase of an original copy of this text gives the purchaser explicit permission to reproduce pages at will.

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Earthquakes

1 Although earthquakes have the reputation of being very destructive, which can be true, they are in fact commonplace events. Earthquakes are usually the result of pressure that builds up below the earth's surface due to the slow but continual movement of the earth's crust. When the pressure gets too great, the great rock masses beneath the earth's surface slip and slide causing the ground above to shake.

2 Close to 6,000 earthquakes are recorded throughout the world in an average year. Of these, almost 5,500 involve earthquake shock waves that are too small to be felt. Around 450 are felt but cause no damage, and around 35 cause minor damage from rock slides and avalanches. It is the remaining 15 earthquakes per year that cause major

damage and often result in people losing their lives.

Probably the most famous earthquake 3 in history was the 1906 San Francisco earthquake in California. That tremor caused the destruction of 521 blocks in the city center and also started an uncontrollable fire that lasted for three days. In 1923, approximately 143,000 people died in the biggest earthquake that Tokyo, Japan ever experienced.

The earth's crust is divided into 15 4 rigid layers called plates. These plates move independently of each other and are continually either colliding or sliding past one another. The Pacific Plate is the largest in the world, stretching some 24,000 miles around the rim of the Pacific Ocean. This plate 10-1

crosses over the North American Plate in a well-known area called the San Andreas fault.

5 This famous fault line is visible above ground as a continuous fracture for over 600 miles. It stretches from San Diego, a large city in southern California, to the small town of Point Arena on the northern California coast. The disastrous San Francisco earthquake of 1906 happened on this fault line and it is feared that another major earthquake will destroy one of the big cities in California that are built along the San Andreas fault.

6 Most earthquakes can only be detected by sensitive instruments called seismographs. There are various types of seismographs that measure earthquakes differently, but the one we hear the most about is the Richter Magnitude Scale. The Richter Scale grades earthquakes on a 1-to-10 scale and is based on the amount of energy released by the rock movements. For instance, the 1995 earthquake in Kobe, Japan that killed nearly 5,500 people

and left hundreds of thousands homeless registered 6.9 on the Richter Scale.

The best protection against a large, 7 destructive earthquake is early prediction of its location, time and strength. Scientists use the information they have gathered from earthquake observatories and past records of earthquakes to anticipate where a large earthquake will occur. One theory is that areas along a fault line where there has not been a recent earthquake are most likely to release built-up pressures.

Another effective method of reducing 8 the destructiveness of earthquakes is to design and build structures that will survive strong tremors. Several nations, including Japan and the United States, have created strict building codes that are legally enforced in high-risk earthquake areas. These building codes have had some success in reducing earthquake-related deaths and damage.

THE MAIN IDEA

Circle the letter of the sentence or phrase which best describes the main idea of the article about earthquakes. Be prepared to support your answer.

- a) Damage caused by major earthquakes.
- b) Causes and effects of earthquakes.
- c) How earthquakes are detected.
- d) Measures to reduce earthquake damage.

UNDERSTANDING WHAT YOU READ

If you can, answer these questions from memory. If you cannot, look back at the article.

1) About how many tremors cause major damage in an average year?

2) When was the San Francisco earthquake? What damage did it cause?

3) What is the Richter Scale?

4) Where do scientists think earthquakes may be most likely to happen?

REMEMBERING DETAILS

Write TRUE or FALSE under each statement. If the statement is false, write the statement correctly.

1) Earthquakes are quite rare events.

2) The Kobe earthquake was the biggest ever known in Japan.

3) The San Andreas fault is more than 600 miles long.

4) The best protection against earthquakes is strong buildings that resist tremors.

INFERENCES

Based on the article, circle the letter of the best sentence completion.

- 1) In view of how they seem to be caused, earthquakes should be...
 - a) easy to prevent.
 - b) quite hard to prevent.
 - c) very costly.
 - d) impossible to prevent.

- 2) The main reason why it is useful to know where and when a large earthquake is likely to happen is that...
 - a) people will be able to resist the quake.
 - b) people will be able to move to other areas.
 - c) people will be able to make their homes stronger.
 - d) people will be able to stop the quake from happening.

INTERPRETATION

- 1) Are earthquakes common in the area where you live, or in a place where you have lived in the past? What experience have you had with earthquakes?

- 2) If you were offered an excellent job in a city known for dangerous earthquakes, would you move there? Why or why not?

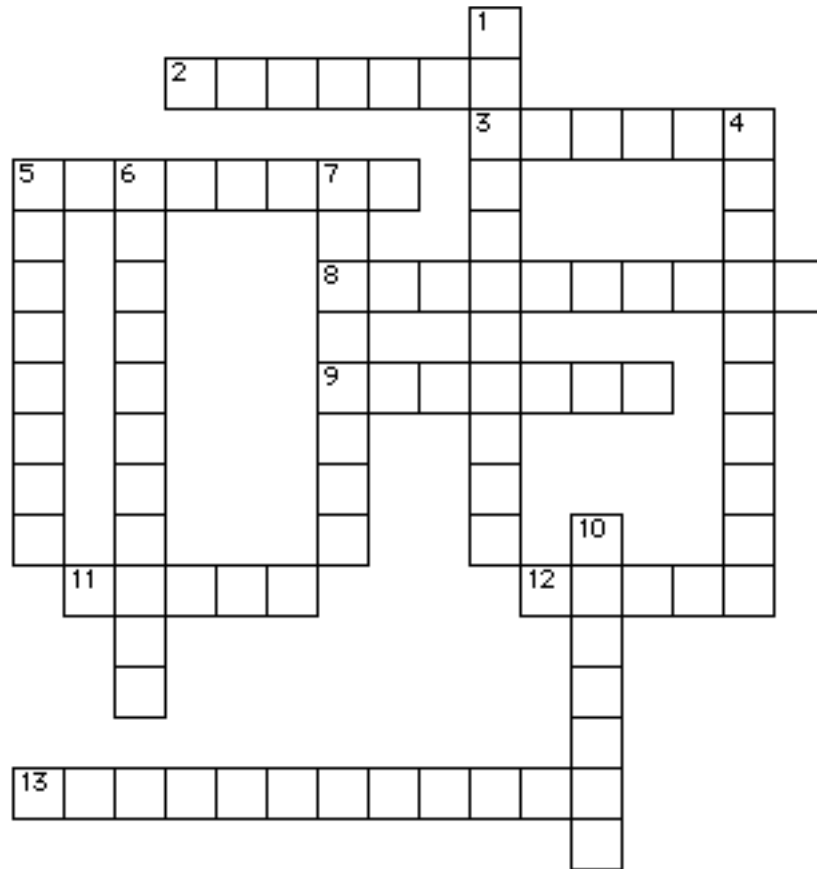
- 3) What natural events, other than earthquakes, have the power to cause great damage? Which are the worst ones? What can we do about them?

WORD POWER

Circle the letter of the word that means the same as the word on the left.

- | | | | |
|----------------|---------------|--------------|----------------|
| 1) commonplace | a) usual | b) dangerous | c) exceptional |
| 2) continual | a) occasional | b) constant | c) continental |
| 3) colliding | a) joining | b) breaking | c) impacting |
| 4) rim | a) surface | b) edge | c) bottom |
| 5) fracture | a) break | b) valley | c) river |
| 6) anticipate | a) protect | b) observe | c) predict |

CROSSWORD PUZZLE



ACROSS:

- 2) The great rock masses beneath the earth's _____ slip and slide.
- 3) Several nations have created _____ building codes in high-risk areas.
- 5) Building codes have had some success in _____ earthquake-related damage.
- 8) Earthquakes have the _____ of being very destructive.
- 9) The most famous earthquake in _____ was the 1906 San Francisco earthquake.
- 11) The earth's crust is divided into 15 _____ layers called plates.
- 12) The San Francisco earthquake happened along the San Andreas _____.
- 13) There are various types of _____ that measure earthquakes differently.

DOWN:

- 1) The best protection against a large, _____ earthquake is early prediction.
- 4) Close to 6,000 earthquakes are recorded _____ the world in an average year.
- 5) The Richter Scale is based on the amount of energy _____ by the rock movements.
- 6) The tremor caused the _____ of 521 blocks in the city center.
- 7) Point Arena is located on the _____ California coast.
- 10) The Pacific Plate is the _____ in the world, stretching some 24,000 miles.

ANSWER KEY

THE MAIN IDEA

b) Causes and effects of earthquakes.

UNDERSTANDING WHAT YOU READ

- 1) In an average year, major damage is caused by about fifteen earthquakes.
- 2) The San Francisco earthquake occurred in 1906; 521 blocks of the city center were destroyed, and a huge fire lasted for three days.
- 3) The Richter Scale is a system to measure the power of earthquakes, going from a level of 1 to 10.
- 4) Scientists think tremors are most likely to occur along a fault line where there has been no recent earthquake.

REMEMBERING DETAILS

- 1) F Earthquakes are quite commonplace
- 2) F Japan's biggest earthquake was in Tokyo, in 1923.
- 3) T
- 4) F Strong buildings can help, but the main thing is to predict the time, place and strength of earthquakes before they happen.

INFERENCES

- 1) d
- 2) b

WORD POWER

- 1) a
- 2) b
- 3) c
- 4) b
- 5) a
- 6) c

CROSSWORD PUZZLE

ACROSS: 2) surface 3) strict 5) reducing 8) reputation 9) history 11) rigid 12) fault 13) seismographs

DOWN: 1) destructive 4) throughout 5) released 6) destruction 7) northern 10) largest

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