

Student Book & Workbook

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Contents

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4	elements	• chemistry elements	use prior knowledgemultiple choice	review informationidentify author's purpose			
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3	fish farming	 types of fish 	predict contentmultiple choice	 a summary a paragraph speculating on a topic 			
4	writing skills	 make suggestions 	make suggestionssummarize an opinion	 a letter to the editor making suggestions 			
D.,		E 41					

Progress Check 4 (pp. 53-54)

	Unit	Vocabulary	Skills/Functions	Writing/Learning Evidence		
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2	3D art	 art materials 	 arouse interest T/F statements answer questions 	 a summary a paragraph commenting on a topic 		
3	design	• materials	predict contentmultiple choicedescribe a sculpture	 develop research skills & make a presentation analyze a quotation 		
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The Environment (pp. 67-76)							
1	water	• water facts	 set a purpose match paragraphs to headings correct sentences 	 develop research skills & make a presentation a paragraph giving reasons 			
2	overpopulation	 environmental issues 	activate prior knowledgecomplete sentencesmatch headings to paragraphs	• a summary			
3	recycling	 things to recycle 	predict contentmultiple matchingmatch main ideas to paragraphs	 take notes & give a presentation 			
4	writing skills	 make suggestions 	 identify topic sentences match suggestions to results develop supporting sentences 	 an essay providing solutions to a problem express result 			

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Workbook

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Language Review (LR1-LR-25)

Word List (WL1-WL9)

American English – British English Guide

Rules for Punctuation

Irregular Verbs

The Physical World

Before you start ...

- What was your summer vacation like? Tell the class.
- What are your plans for this academic/school year?

What's in the module?



Vocabulary

- natural disasters
- celestial bodies
- anatomy of the human body
- elements in the periodic table

Skills & Strategies

- scan a text
- set a purpose for reading
- identify the author's purpose
- identify main ideas in paragraphs
- predict content using prior knowledge

Reading Skills

- complete gapped texts
- multiple matching
- identify pronoun references
- reading comprehension
- read for specific information (T/F)
- multiple choice

Writing Skills

summarize a text

- describe your feelings
- analyze rubrics
- use topic sentences
- develop paragraphs
- use linkers
- write a for-and-against essay



Speaking

- summarize a text
- give a presentation on a topic
- present main points
- agree/disagree on a topic
- describe impressive moments

Find the page numbers for ...

- a sketch of the human body
- chemical symbols

Forces of Nature

lightning strike

wildfire

Vocabulary Natural disasters

GEOLOGY

1

Listen and say. Have you heard of any of these disasters recently? Where did they occur? What happened? Tell the class.

Reading Scanning

Scan the text. What is it about?
a) a specific earthquake?
b) why earthquakes happen?
c) how to protect ourselves
in an earthquake?
Listen and check.

EARTHQUAKES: A FORCE OF NATURE

On March 11, 2011, a 33-foot-high tsunami hit northern Japan causing the country's worst destruction and loss of life since World War II. The tsunami was triggered by an earthquake in the Pacific Ocean. Measuring 9.0 on the Richter Scale, the earthquake was the sixth largest ever recorded by seismologists. \bigcirc \bigcirc Not only that, it shifted the Earth's axis by 10 inches. This deviation led to a shortening of the length of a day by 1.8 microseconds!

Earthquakes hit the headlines only rarely, but events like Japan's megaquake serve to remind us of their truly aweinspiring power. Every year, some 3 million earthquakes take place on the planet – equivalent to about 8,000 a day or one every 11 seconds. 1

Earthquakes happen because the Earth's crust is not contiguous. Rather, like a boiled egg with a broken shell, it is separated into about 20 pieces. These pieces are called tectonic plates.

The theory that explains the movement of these plates on the earth's surface is known as plate tectonics. According to plate tectonics, the Earth's plates are not stationary but are instead moving very slowly around the planet. 2 The result is that sometimes the plates crash into each other, sometimes they move away from each other, and sometimes they slide past each other. 3

Take, for example, plates that are sliding horizontally past each other. Because the edges of the plates are rough, they get stuck. However, even though the edges get stuck, the rest of the plate keeps moving. $\boxed{4}$ At some point (i.e.,



hailstorm



tornado



There is a special region of the globe known as the Pacific Ring of Fire. **5** In the Pacific Ring of Fire, plates are crashing into each other constantly.

When two plates crash together, one of two things can happen. Either one plate is forced to slide beneath the other one, or the two plates push against each other to form mountains and volcanoes. In either case, earthquakes can result.

Earthquakes in the Pacific Ring of Fire result from plates colliding and slipping under each other. **6** It was the Pacific Plate sliding under the Eurasian Plate that caused the earthquake and tsunami in Japan on that fateful day in March 2011.

Check these words

earthquake

hit, destruction, trigger, shift, axis, deviation, awe-inspiring, Earth's crust, contiguous, stationary, slide past, rough, get stuck, jerk apart, release, built-up pressure, in an instant, the globe, collide, slip, fateful day





STUDY SKILLS

Gapped texts

Read the text quickly to see what it is about. Read it again sentence by sentence. Pay attention to the words before and after each blank as they will help you decide on your answer. Read the completed text again to see if it makes sense.

Completing a gapped text

- 3 a) The article in Ex. 2 is about earthquakes. Seven sentences have been removed from it. Choose from the sentences (A-H) the one which fits each blank (1-6). There is one extra sentence you don't need to use. There is an example at the beginning (0).
 - A The result is an enormous build-up of pressure.
 - B It is the movement of plates at their edges that causes earthquakes.
 - C So great was its power that it caused the entire island of Japan to move 16 feet eastwards.
 - D It is an explanation for mountains and volcanoes, not just earthquakes.
 - E The sudden drop of one plate below another, when it occurs under the sea, can generate a tsunami.
 - F Most are so small they go unnoticed, but a few (about 20 a year) are big enough to cause damage.
 - G It is here that an incredible 90% of all earthquakes (and 80% of the world's largest earthquakes) occur.
 - H Because the plates are interconnected, no single plate can move without affecting the others.

b) Which words helped you decide on each blank? Compare with your partner.

- Fill in: trigger, recorded, shift, jerk apart, collide.
- 1 It was the most destructive earthquake _____ in the last 100 years.
- 2 An earthquake can _____ fires and damage a lot of buildings.
- 3 When tectonic plates ______ they cause earthquakes.
- 4 When the plates _____, pressure is released and this causes an earthquake.
- 5 A 9.0 earthquake can _____ the Earth's axis.

Checking understanding

Complete the sentences. Compare with your partner.

5

- partner.
- 1 The tsunami that hit Japan on March 11, 2011, was the result of ______.
- 2 The earthquake measured _____
- 3 Because of the earthquake, the Earth's axis
- 4 Not all earthquakes cause _____.
- 5 Earthquakes happen because the Earth's plates
- 6 When the edges of tectonic plates become unstuck, the _____
- 7 The Pacific Ring of Fire is the place where
- 8 A tsunami is caused when _____

Speaking & Writing

- Summarize the text using the words in the Check these words box (50-60 words). Tell your partner.
- 7 Other Collect information about a force of nature from Ex. 1. Present it to the class.

QUOTATION

"Nature cannot be tricked or cheated. She will give up to you the object of your struggles only after you have paid her price." *Napoleon Hill, American author*

7

The Universe How DID IT ALL BEGIN?

Vocabulary Celestial bodies

PHYSICS

a) CListen and say. Then, read the dictionary entries.

planet /plænt/ (n) a large round object in space that moves around a star. e.g., the Earth

asteroid /æstəroid/ (n) a small celestial body that moves around the sun (mainly between the orbits of Mars and Jupiter)

comet /kpimit/ (n) a bright object with a long tail that travels around the sun

galaxy /gæləksı/ (n) a large group of stars and planets that extends over many billions of light years

star /sta:/ (n) a large ball of burning gas in space

meteor /mi:tiə/ (n) a small mass traveling through space

moon /mu:n/ (n) any planet's natural satellite

constellation /konstileɪʃən/ (n) a group of stars that form a pattern and are named after it

> b) Can you name the planets in our solar system? Listen and check.

Throughout history, mankind has wondered about the origin of the universe. Has it existed eternally with no beginning or end, or was it created at some point in time? Physicists still can't say for certain how the universe came to exist, or why it exists, but they have several theories ...

A The Big Bang Theory

Before the 20th century, people believed that the universe had existed forever, and had looked the same way forever. But in 1929, astronomers made a startling discovery. Looking through their telescopes they noticed that the galaxies in our universe are actually moving away from each other at enormous speed – our universe is expanding!

If our universe is expanding, then logically at some point in the past the entire universe was contained in a single point in space. The Big Bang

Theory states that about 14 billion years ago, our universe exploded out of nowhere from a single point and <u>it</u> has been expanding ever since to form the universe we know today. Our universe, in other words, has not existed forever. It had a definite beginning. Before our universe came into existence there was nothing...no time, space, matter, energy ... nothing! The Big Bang created time, space and matter.

The Big Bang Theory is currently the most widely accepted hypothesis for the origin of the universe. However, <u>it</u> still leaves many questions unanswered. For instance, it doesn't explain *why* the big bang happened in the first place.

в) The Cyclical Universe Theory

The Cyclical Universe Theory addresses the question, "What caused the big bang?" The answer it gives is the collapse and expansion of a prior universe. According to the Cyclical Universe Theory, our universe began when another universe collapsed violently into a single point then exploded out again. Trillions of years from now, our own universe will stop expanding and begin to contract. Eventually, it will also collapse into a single point and explode out again giving rise to a new universe. Our universe is therefore just the latest in an endless series. Countless universes have preceded this universe and countless others will follow it. Space and time had no beginning. Cycles of expansion, contraction, collapse, and explosion have been going on forever.

STUDY SKILLS

Setting a purpose

Before you read a text, think what you already know about the topic. This will help you think what else you would like to learn about it.

Check these words

eternally, exist, startling discovery, expand, logically, explode, widely accepted, hypothesis, collapse, prior, trillion, endless, countless, expansion, contraction, infinite, motivation

c The Multiple Universe Theory

According to the Multiple Universe Theory, what we have been calling the universe is actually nothing like we thought! It is just a single bubble in an infinite number of universes. We are actually living in a multiverse consisting of trillions of universes. The multiverse has existed forever, and each universe in it is different.

The main motivation behind the Multiple Universe Theory is to provide an explanation as to why our universe seems to be so perfectly suited towards supporting life. For many people, this fact demands an explanation. They feel it is too much of a coincidence that the conditions in our universe just happen to be right to make life possible.

The Multiple Universe Theory states that there is nothing mysterious about this. There are trillions upon trillions of universes in the multiverse and therefore at least a few of <u>them</u> will have conditions that make life possible. We simply happen to be living in one of these universes.

Reading

Setting a purpose

What do you know about the origin of the universe? What would you like to know about it? Write down two questions.

(, Listen and read the text. Can you answer your questions?

Multiple Matching

- 3 Read the article again, then for questions 1-8, choose from theories A-C. The theories may be used more than once. Which theory/theories:
 - 1 say(s) space, time, and matter have existed forever with no beginning or end? _____
 - 2 do most physicists support?
 - 3 suggests a reason why our universe has the ideal conditions for supporting life?
 - 4 says our universe came from an earlier universe?
 - 5 say only one universe exists at any one time?
 - 6 is supported by evidence we can see? ___
 - 7 says our universe will eventually disappear?
 - 8 says our universe we are living in is unique?

Fill in: *expanding, exploded, collapse, prior, infinite.*

- 1 Astronomers have discovered that our universe has been ______ since it was formed.
- 2 Many universes may have existed ______ to the one we are living in.
- Our universe might actually be just one of a(n)
 _____number of other universes.
- 4 One day our universe may ______ and give rise to a new universe.
- 5 According to the Big Bang Theory, our universe ________into existence from a single point.

STUDY SKILLS

Avoid repetition

4

Writers use pronouns to avoid repeating the same nouns again and again. Identifying the nouns they refer to will help you understand the text better.

Identifying pronoun references

5 Cook at the underlined pronouns in the text. Decide which noun each one refers to.

Speaking & Writing Checking understanding

a) Write one question for each theory in the text.
 Write the answers on a separate piece of paper.

How did the universe start according to the Big Bang Theory?

b) Swap papers and answer your partner's questions. Check with your partner.

7 THINK Read the quotation. Imagine you were with Neil Armstrong. In three minutes write a few sentences describing your feelings at that specific moment. Tell your partner. Discuss.

QUOTATION

"It suddenly struck me that that tiny pea, pretty and blue, was the Earth. I put up my thumb and shut one eye, and my thumb blotted out the planet Earth. I didn't feel like a giant. I felt very, very small."

Neil Armstrong, U.S. astronaut

1.3 Human Biology

Vocabulary

Human anatomy

🔷 💭 Listen and repeat.

1



Reading Identifying the author's purpose

STUDY SKILLS

Identifying the author's purpose

Authors write in order to inform, entertain, and persuade. Identifying the author's purpose helps us understand the text better.

2 Read the title then skim the text. What is the text about? What does the author want us to know about the topic?

Identifying main ideas

3 Find the main idea in each paragraph. Compare with your partner.

STUDY SKILLS

Identifying main ideas

Paragraphs are usually laid out so that each one contains a main idea. Identifying the main idea helps us to understand what the paragraph is about. The main idea is usually found in the first or the last sentence of the paragraph. These sentences are called topic sentences. The results of a recent experiment to slow the effects of the aging process in mice amazed scientists in Boston, USA. The scientists increased the amount of an enzyme called telomerase in the cells of the mice. Telomerase is an important enzyme because it repairs DNA. With increased telomerase in their cells, the mice's fertility improved, their fur began to look healthier, even their brains worked better. The scientists were hoping simply to slow the aging process in mice but, much to their surprise, they actually reversed it! Could we use the same process to stop humans from aging? It's possible, but it wouldn't be without risks. Scientists believe increasing the level of telomerase in human

cells would put people at greater risk of cancer. What's more, it's unlikely that simply increasing telomerase would be enough to keep us young because hundreds of enzymes are involved in the aging process.

Although scientists don't yet know exactly how and why we age, they have several theories. One theory is that as time passes, our bodies become less efficient at removing toxins from our cells. One way to try to stop the aging process is to keep cells as clean as possible. Scientists in New York successfully used this technique to restore the livers of old

Check these words

aging process, enzyme, cell, repair, fertility, process, reverse, efficient, toxin, technique, restore, breed, ability, protein, youthful, combat, artificially, development, prevent, serving, compare, wrinkles, fantasy



mice. The researchers bred special mice that did not lose their ability to remove damaged proteins from their livers. When these special mice were two years old, their livers were as healthy as the livers of ordinary one-month old mice. Although these special mice with youthful livers didn't live any longer than ordinary mice, scientists believe this study could eventually lead to ways of protecting humans from the diseases we get in old age.

Of course, if scientists ever do succeed in developing drugs that combat the aging process we will need to ask ourselves whether it is right to use them. For instance, should we keep people young and healthy artificially when, already, there are far too many people on the planet?

> What if you can't wait for these future developments though? Well, scientists may not yet be able to stop you from aging, but they do know a way you can keep yourself looking younger - tomatoes! Tomatoes contain a substance called lycopene which helps prevent one of the main causes of skin aging: sun damage. Researchers in the UK asked a group of people to eat a serving of cooked tomatoes every day for 12 weeks. They then compared their skin to the skin of people who hadn't eaten any tomatoes. The skin of the people who ate the tomatoes was much less likely to burn in the sun. Eating tomatoes also increases the levels of procollagen in your skin. Procollagen helps keep skin firm, so the more you have in your skin, the less likely you are to get wrinkles. So while living forever is still just a fantasy, nature has at least provided a way for us to keep looking as young as possible, for as long as possible!

Comprehension questions

Δ

Read the text and answer the questions.

- 1 What physical change did the Boston scientists see in the mice in their experiment?
- 2 What problem is there with performing the Boston procedure on people?
- 3 What builds up in our cells as we age?
- 4 What did the New York scientists achieve?
- 5 What global problem does the writer mention that could be affected by anti-aging treatments?
- 6 How does eating tomatoes help us achieve younger-looking skin?
- 7 Why might reversing the aging process one day become a reality?

Fill in: reversed, serving, combat, efficient, enzymes.

5

6

- Scientists are trying to find ways to ______ the aging process and keep people looking young.
- 2 Our bodies are more _____ at removing toxins from our cells when we are young, than when we are old.
- 3 Eating a daily _____ of cooked tomatoes can help protect your skin against sun damage.
- 4 Scientists haven't just slowed down the aging process in mice; they have ______ it.
- 5 Telomerase is just one of hundreds of ______ involved in the aging process.

Checking understanding

Read the text again and mark the sentences T (true) or F (false). Correct the false statements.

- 1 Telomerase is an enzyme that fixes damaged DNA.
- 2 There is no telomerase in human cells.
- 3 Scientists have bred mice that don't have proteins in their livers.
- 4 The diseases of old age may be the result of toxins building up in cells.
- 5 Lycopene increases your skin's sensitivity to the sun.

Speaking & Writing

- 7 **THINK** In three minutes, write four things that you learned from the text. Tell the class.
- 8 **THINK** How do you think your life today would be different if scientists had found a way to stop people from aging? In three minutes, write a few sentences. Tell the class. Discuss.

QUOTATION

"I think your whole life shows in your face and you should be proud of that." *Lauren Bacall, American actress*