BIG QUESTION 2

What is the Earth made of?

Think and write.

What do you know?

What do you want to know?

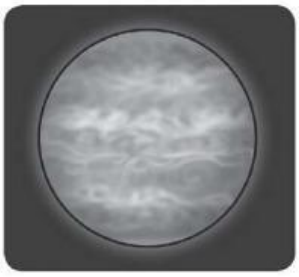
UNIT 3 Get Ready

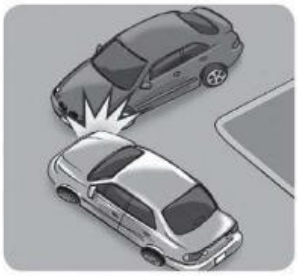
Words

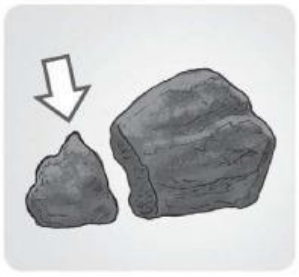
A Write the correct word for each picture.

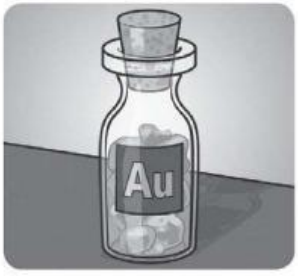
sphere collide chamber geologist chunk element pressure crust

1 

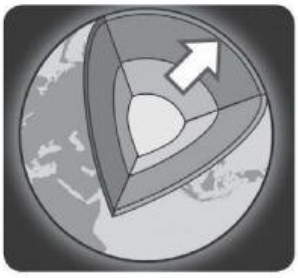
2 

3 

4 

5 

6 

7 

8 

LIVEWORKSHEETS

B Circle the correct answer.

1 A ball is the shape of a _____.
- **a** chunk
- **b** chamber
- **c** sphere
- **d** crust

2 _____ builds up, causing volcanoes to erupt.
- **a** Mass
- **b** Element
- **c** Sphere
- **d** Pressure

3 The oceanic _____ carries water.
- **a** chamber
- **b** crust
- **c** sphere
- **d** mass

4 Copper and gold are both _____.
- **a** elements
- **b** chambers
- **c** spheres
- **d** chunks

5 When two different chemicals _____, there may be an explosion.
- **a** erode
- **b** collide
- **c** comprise
- **d** pressure

6 Magma collects in magma _____.
- **a** chunks
- **b** crusts
- **c** spheres
- **d** chambers

C Write each word in the correct column of the chart.

mass crust sphere comprise chamber chunk geologist collide pressure gradually element erode chemically

Nouns		Verbs	Adverbs

D Write a sentence for each word.

1 crust _____

2 geologist _____

3 collide _____

4 gradually _____

5 element _____

6 erode _____

LIVEWORKSHEETS

Read

A Read. What comes out of a geyser?

B Read again. Evaluate what you're learning from the text. Are you enjoying it? Do you understand it? Does the way it's organized help you?

Hot Water ... But Not from the Faucet



Sometimes our planet surprises us with some unexpected sights. In a few places on Earth, there are geysers. What are geysers? They're natural pools of hot water. Geysers can send jets of hot water and steam erupting from beneath the surface of the Earth into the air. They're rare, and they only occur in places where there are also volcanoes.

What causes geysers?

Geologists have discovered that a geyser needs three key things in order to form. It needs to have a source of water, a source of heat, and **pressure**.

The water comes from rain and snow on the Earth's surface. The water **gradually** goes underground, a very long way into the Earth's **crust**. It gets there through cracks in the rock. These cracks develop in the **mass** of rock that makes up the layers of the Earth as rocks **erode** over time. The water and snow go underground through these cracks.

The source of heat for geysers is magma. Magma is the volcanic liquid that collects in magma **chambers** at extremely hot temperatures. These chambers are almost five kilometers below the Earth's surface. The heat in the magma chambers heats all the rock around the chambers, and that makes the water around the rock hot.

But where does the pressure come from? Imagine a geyser is a hole in the ground that goes a long way down into the Earth's crust. It's shaped like a tube, and it's full of water. The water at the bottom is very hot because it's being heated by magma. Slowly, it starts to boil, and just like boiling water in a kettle, some of the water turns into steam. The steam has to go somewhere, so it's forced upward and rises in jets toward the surface of the Earth, followed by the water. The jets of steam and water continue until the temperature inside the geyser falls below 100 degrees Celsius. Afterward, water gradually goes back into the tube, or geyser, and the process can start all over again.

How many geysers are there, and where can we see them?

Worldwide, there are about a thousand geysers. Almost half of them are in one place in the United States, at Yellowstone National Park in the state of Wyoming. The most famous geyser in Yellowstone is named Old Faithful because it erupts almost every 91 minutes.

Another place where you can see a lot of geysers is in Iceland. Iceland is situated where the North Atlantic and Arctic oceans meet. It has many active volcanoes and approximately 200 geysers. Its most famous geyser, Strokkur, erupts every five to ten minutes! There are also geysers in other volcanic areas such as Japan, Chile, and Russia. So if you're lucky enough to travel, you might get to see a geyser one day!

Think

How did the headings above each section help you understand the article?

Student Book pages 30–32

LIVEWORKSHEETS

Comprehension

A How did you evaluate "Hot Water … But Not from the Faucet"? Fill in the chart. Check (✓) *Yes* or *No* and then explain your answer.

	Yes	No	Explain
Did I enjoy it?	☐	☐	
Did I learn something?	☐	☐	
Did I understand it?	☐	☐	
Did the organization help me?	☐	☐	

B Circle True (T) or False (F).

1 There must be three things for a geyser to form: water, heat, and pressure. T F
2 Geysers aren't rare. They're extremely common. T F
3 Water on the Earth's surface comes from the ocean. T F
4 Cracks develop in rock because the rock erodes. T F
5 Magma collects in magma chambers. T F
6 A geyser is shaped like a mountain. T F

C What are the similarities and differences between geysers and volcanoes?

_____

_____

D **Words in Context** Complete each sentence with the correct word.

mantle	sections	intense	continental	enormous	erupt

1 The Empire State Building is _____. It's 443 meters tall!
2 In the diagram, the Earth's crust is divided into _____.
3 The heat from magma is so _____ that you can't get near it.
4 Unlike the oceanic shelf, the _____ shelf carries land.
5 Not all volcanoes _____. Some are inactive, or dormant.
6 The _____ is the deepest section of the Earth.

LIVEWORKSHEETS

Grammar in Use



A Study the grammar.

Learn Modals

Ability	Geologists **can** tell the date of some rocks.
Permission	**Can** I get closer to the geyser, please?
Request	**Could** you help me examine these rocks?
Necessity / obligation	Geysers **need to** have water, heat, and pressure.
Possibility	My friend **may** be wrong. It **might** be sedimentary rock.
Deduction	It **must** be a volcano. It **can't** be a mountain chain.

B Match the sentences to the situations. Write the letter.

1 The steam from that geyser must be hot. ____ **a** necessity / obligation
2 You have to be careful near a geyser. They're dangerous. ____ **b** ability
3 May I take a picture of the geyser? ____ **c** request
4 I think that could be igneous rock. I'm not sure, though. ____ **d** possibility
5 Could you explain how geysers work? ____ **e** deduction
6 Can you tell how old these rocks are by looking at them? ____ **f** permission

C Circle the correct answer.

1 That **must** / **can** be a fossil. I can see the outline of bones.
2 Mountain climbing is easier with two people. **Could** / **Must** you go with me?
3 The experts **have to** / **weren't able to** predict exactly how strong the earthquake would be.
4 That **had to** / **can't** be the geyser. It's time for an eruption, but there's no water!
5 **Can** / **Must** I see that fossil, please?
6 The scientist thinks it **has to** / **might** be an extinct volcano.
7 **Could** / **Must** you help me find my hiking boots?
8 I **need to** / **might** wear my glasses to see the volcano from here.



Student Book page 33

LIVEWORKSHEETS

D Write sentences. Put the modal in the correct place.

1 geysers send jets of hot water into the air. (can)
Geysers can send jets of hot water into the air.

2 in the future, many of Iceland's volcanoes erupt. (could)

3 I help you find some information about Earth's mantle? (can)

4 that man be a geologist because he knows so much. (must)

5 people study geology without modern technology a hundred years ago. (had to)

6 geologists handle fossils with special care because fossils are so old. (need to)

E Complete the sentences with a suitable modal.

1 All students _____ study Earth Science for two years. Those are the school rules.
2 The tourists _____ wait long before the geyser erupted.
3 I _____ download the song I wanted last week, but I have it now.
4 Last year, I _____ run a kilometer in 5 minutes. Now I can do it in 4 minutes 30 seconds.
5 This _____ be a volcano. It's the wrong shape.
6 I'm not sure, but I think the continental shelf _____ carry land.
7 _____ you help me carry these books?
8 You may be right. It _____ be a fossil.

F Answer the questions.

1 What can you do that you couldn't do two years ago?

2 What three things do you have to do every day?

3 What do you ask your parents for permission to do?

LIVEWORKSHEETS

Word Study

A Fill in the chart with homonyms.

match
rock
tie
bow
clear

1	_____	something to light a fire with
2	_____	a weapon that goes with an arrow
3	_____	sometimes a game will end in this
4	_____	easy to understand
5	_____	something you can tie using ribbon
6	_____	a large stone
7	_____	the sky is this on sunny days
8	_____	you can wear one around your neck with a shirt
9	_____	a type of music
10	_____	a game you play against another team

B Complete the sentences with homonyms from **A**.

1 I need a _____ to light this candle. Do you have one?
2 My older sister loves listening to _____ music.
3 The game was still a _____ with only two minutes to play.
4 Let's put a _____ on this gift to make it look nicer.
5 Dad always wears a suit and a _____ to go to his office.
6 Great news! My team won the _____ !
7 On some nights, the sky is so _____ that you can see every star.
8 In archery, players use a _____ and an arrow.
9 Mom couldn't drive down the road because a large _____ was blocking the way.
10 The article was easy to understand, and the visuals were _____ .

C Use the homonyms from **A** to write five sentences of your own.

1 _____
2 _____
3 _____
4 _____
5 _____

LIVEWORKSHEETS