

UNIT 4

Complete the sentences with the correct words.

affordable	alert	forecast	struck	throughout
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1. Houses in this area are more _____ than I expected.
2. Everyone _____ the country was celebrating the historic day.
3. The weather _____ for tomorrow says it is going to be warm and sunny for most of the day.
4. Lightning _____ a tree in the park last night, and it caught fire.
5. The country is on high alert for the storm, which is due this evening.

Match the words to the definitions.

- | | | |
|----------------|---|-------------------------------------------------------------|
| 6. entire | ● | ● a. extremely big |
| 7. vast | ● | ● b. when something goes on and on, without a pause |
| 8. collapse | ● | ● c. when something gradually increases in number or amount |
| 9. continuous | ● | ● d. something whole or complete, with nothing missing |
| 10. accumulate | ● | ● e. when something falls down suddenly |

Choose the correct word for each definition.

11. to make strong
 - a. strength
 - b. strengthen

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12. little or no light
a. dark
b. darken
13. to make higher
a. height
b. heighten

Write the verb form of each word.

14. social: _____
15. pressure: _____
16. theory: _____

Read the passage.**Sensing Disaster**

- 1 Twenty-three hundred years ago, hordes of mice, snakes, and insects fled the Greek city of Helike on the Gulf of Corinth. “After these creatures departed, an earthquake occurred in the night,” wrote the ancient Roman writer Claudius Aelianus. “The city subsided; an immense wave flooded and Helike disappeared.”
- 2 Scientists have long suspected that animals might have a “sixth sense.” This sense alerts them when natural hazards—like earthquakes and tornadoes—are about to strike. Until recently, though, we have had to rely on informal reports of changes in animal behavior. However, scientists have now begun to detect evidence that suggests animals can indeed sense when such events are about to occur.

A Natural Warning

- 3 In 2011, a research team began a study of animal behavior in the Peruvian Amazon in Yanachaga-Chemillén National Park. In order to track animal movements, the team placed motion-triggered cameras throughout the park. On a single day, the cameras typically recorded up to 15 animal sightings. Then the researchers noticed a change: Over a three-week period, the sightings dropped to fewer than five a day. In the last few days, there were no animal sightings at all.
- 4 The researchers were puzzled: This was highly unusual behavior, especially in a rainforest area normally filled with wildlife. But then, at the end of the three-week period, disaster struck. On August 24, the area

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was hit by a 7.0 magnitude earthquake. Could the animals have left the area—or found places to hide—because they sensed the earthquake was coming?

- 5 “As far as we know, this is the first time that motion-triggered cameras have documented this phenomenon prior to an earthquake,” says lead researcher Dr. Rachel Grant. She believes the findings could have important consequences for earthquake prediction. “Animals have the potential to be reliable forecasters of earthquakes and could be used alongside other monitoring systems,” she says. Cameras that track animal movements could therefore be used as an affordable early warning system.
- 6 Scientists are not certain why animal movements might change before earthquakes. However, Grant has a theory. Prior to an earthquake, large forces stress the Earth’s surface and change the atmosphere. The atmospheric changes can, in turn, cause increased serotonin levels in animals and humans, leading to unpleasant feelings of restlessness. Two weeks before the earthquake in Peru, a significant atmospheric change was recorded. Eight days before the quake, it became even more intense, possibly causing the animals to leave the area.
- 7 When it comes to predicting earthquakes, rodents such as rats appear to be the most sensitive animals in the rainforest. “What was interesting was that rodents were the first to disappear,” Grant says. “They were nowhere to be seen eight days before the earthquake ... That they should completely disappear was amazing.” Grant believes that recent research in China and Japan may help explain why this happened. According to these studies, rats’ sleeping and waking patterns are disturbed in the days leading up to an earthquake. These changes may alert them to a coming disaster.

Follow The Birds

- 8 Like rats, birds may also be sensitive to subtle changes in the environment. In fact, scientists have recently learned that some birds may be able to sense severe storms before they arrive.
- 9 In 2014, a team of U.S. scientists studied the migration patterns of golden-winged warblers. To track the birds’ movements, the researchers attached small, lightweight geolocators that recorded the birds’ locations. In April, the team expected to find the warblers in the Cumberland Mountains of eastern Tennessee, where they breed and raise their young. But the birds were not there. Instead, they discovered that most of the birds had flown south to Florida; one had even traveled to Cuba.

Read each statement and choose *True* or *False*.

17. According to the passage, hundreds of years ago, an earthquake caused the deaths of many animals.
- True
 - False

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18. According to the writer, scientists have discovered some information that suggests animals can feel when extreme weather is going to happen.
- True
 - False
19. The writer says some of the evidence came from camera recordings of animal behavior.
- True
 - False
20. The purpose of paragraph 5 is to explain how Dr. Rachel Grant proved her theory.
- True
 - False
21. The main purpose of the passage is to explain the similarities between animals and their movement through different seasons.
- True
 - False

Read the passage.

- A** In 1815, the mountain Tambora, on the Indonesian island of Sumbawa, exploded in the greatest volcanic eruption in the past 500 years. The explosion, which could be heard more than 2,000 kilometers away, destroyed the top of the mountain in an instant and sent a huge amount of rock and lava flowing down its slopes and into the sea. The resulting tsunami led to enormous destruction and loss of life. The force of the eruption was so powerful that it also sent hot rock flying as much as 40 kilometers into the atmosphere. If such a volcanic event were to occur in the same area today, the damage in terms of loss of life and financial cost would be even more enormous due to the increased number of inhabitants not only on the island, but also the population around the world as a whole. As destructive as the Tambora event was, its long-term impact is, in fact, of interest to scientists today.
- B** When Tambora erupted, it released millions of tons of dust, and a gas called sulfur dioxide (SO₂), into Earth's atmosphere. Unlike atmospheric carbon dioxide, SO₂ has a cooling effect. In the months and years after the eruption, this affected the climate of the entire planet. In one year, the scientific estimate is that Earth's average temperature dropped by one degree Celsius. This may seem a small change, but it had a huge impact on people's lives. In some areas, the summer of 1816 was colder and drier than normal. Other areas experienced heavy rain or freezing temperatures. As a result, farms around the world could not produce enough food. This caused a series of related problems including poor health, the spread of disease, an unstable world economy, and even social and political problems. It took many years for the situation to become stable again.

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- C** Even though the eruption of Tambora happened more than 200 years ago, it remains an example of how volcanic eruptions can have enormous consequences on people's lives. The main problem today, however, is not that the world is getting colder because of volcanoes. It is in fact widely accepted that human activity is causing the world to become warmer. Climate scientists predict that the average global temperature will rise between 1–2 degrees Celsius during the next century. Some people may argue that this is not a large increase, but the Tambora explosion shows that even a small change in temperature can have dramatic results.
- D** In addition to showing how dangerous climate change can be, research into volcanic eruptions like Tambora may offer a way to help the fight against global warming. In the last few decades, there have been other large volcanic eruptions in countries around the world. Although these were nowhere near as large as the Tambora explosion, they still released a great deal of dust and SO₂ into the atmosphere. With modern equipment, scientists were able to see how even these smaller volcanoes decreased global temperatures. As a result, some people suggest that one way to fight global warming would be to manufacture and release large amounts of SO₂ into the atmosphere. If enough of it were released, this might stop global temperatures from increasing, or even cause them to decrease. Most climate researchers believe that this is not the best way to stop or reverse climate change because of the cost and potential for negative side-effects, but if there are no other solutions, it may become a more attractive idea in the future.

Choose the correct answers.

22. What does the writer say about the Tambora explosion?
- that it killed all people on the island
 - that it would have even bigger consequences if it erupted now
 - that it was the largest explosion in the history of the world
23. What is the main purpose of paragraph **B**?
- to describe how the explosion affected not just the island but the whole world
 - to outline how the amount of rain changed in the years after the event
 - to explain how Tambora contributed toward making the planet hotter
24. What does the passage say about climate change?
- that the smallest changes in temperature can have huge results
 - that the increase in temperature will get bigger year on year
 - that the world was 2 degrees Celsius warmer at the time of the Tambora explosion compared to now

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25. What does the passage say about other volcanoes?
- a. Larger volcanoes produce more dust.
 - b. There will never be an explosion as big as Tambora.
 - c. Eruptions from smaller volcanoes still release a lot of sulfur dioxide into the air.
26. What is the purpose of the final paragraph?
- a. to explain the number of volcanic eruptions there will be in the future due to climate change
 - b. to describe how SO₂ may help with the effects of climate change
 - c. to report on the negative effects of volcanoes and the atmosphere

Read each extract. Decide what the referent in bold refers to. Choose the correct answer.

27. *When Tambora erupted, **it** released millions of tons of dust and a gas called sulfur dioxide (SO₂) into Earth's atmosphere.*

- a. Tambora
- b. sulfur dioxide

28. *In the last few decades, there have been other large volcanic eruptions in countries around the world, although **these** were nowhere near as large.*

- a. the last few decades
- b. volcanic eruptions

Read the two sentences. Complete the sentence with the correct words so it has the same meaning as the first two.

29. Animals may be aware when extreme weather is coming.
Scientists believe this because of the animals' movement out of a particular area.

Animals _____ out of a particular area when they are _____ when extreme weather is coming.

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30. She wants to be famous.
She also likes to be private.

She wants _____, but she also wants _____.

31. Victor likes to run.
Victor also likes to swim.

Victor likes _____ and _____.

32. His plan is to call his mom later.
He also needs to take the dog for a walk.

He plans to _____ his mom and _____ the dog.

33. Beata achieved a lot of success.
This gave her a lot of happiness.

Beata was _____ and _____.

34. The robber threatened the customers.
Everyone thought it was a scary situation.

The robber made _____ and _____ the customers.

Read the sentences. Choose *True* or *False*.

35. A process essay explains how to do something.
a. True
b. False
36. The body paragraphs of a process essay should always be ordered in order of importance.
a. True
b. False
37. The first body paragraph should start with a topic sentence that outlines what the task or steps are, while the remaining paragraphs don't need this.
a. True
b. False

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38. You should use words and phrases to help you connect your ideas and the body paragraphs together.
- True
 - False
39. You can order the tasks if they need to happen in a particular order.
- True
 - False

Read the steps from a process. Order the steps. Write 1–5.

40. _____ After this, choose which seats you want to sit in.
- _____ Turn on the computer and open the Internet browser.
- _____ Pay for the tickets and receive a confirmation email.
- _____ Then, choose the date and time of the show.
- _____ Next, decide on the show you want to see at the movie theater.

You are going to write a process essay on the following topic.

41. **Discuss your own experiences with one of these two topics.**

Topic 1: Choose one type of extreme weather event. Describe the things that happen during this weather event.

Topic 2: An extreme weather event you've heard about on TV or the news. Describe what happened.

A. OUTLINE Plan an outline for your process essay.

Include a strong topic sentence that expresses the main idea.

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Add some details that describe one or more steps in the process.

Add ideas for a concluding sentence that is an opinion, a prediction, a question, or a restatement of the main idea.

B. Think of some words and phrases you can use in your process essay. Write them in the box.

The words and phrases below can be useful when ordering tasks or steps.

- *The first step is ... / First, ...*
- *Most importantly, ... / The most important thing ...*
- *Second, ...*
- *Next, ... / Then, ...*
- *After that, ... Another important thing is ...*
- *Before doing the next step, ...*
- *The last step is*

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- C. Write your process essay based on your outline. Use the model to help you. Remember to use the vocabulary you wrote down.**

Model:

A thunderstorm is an extreme weather event that happens frequently in many areas of the world. Some thunderstorms have worse consequences than others. There are many stages that occur before and during a thunderstorm.

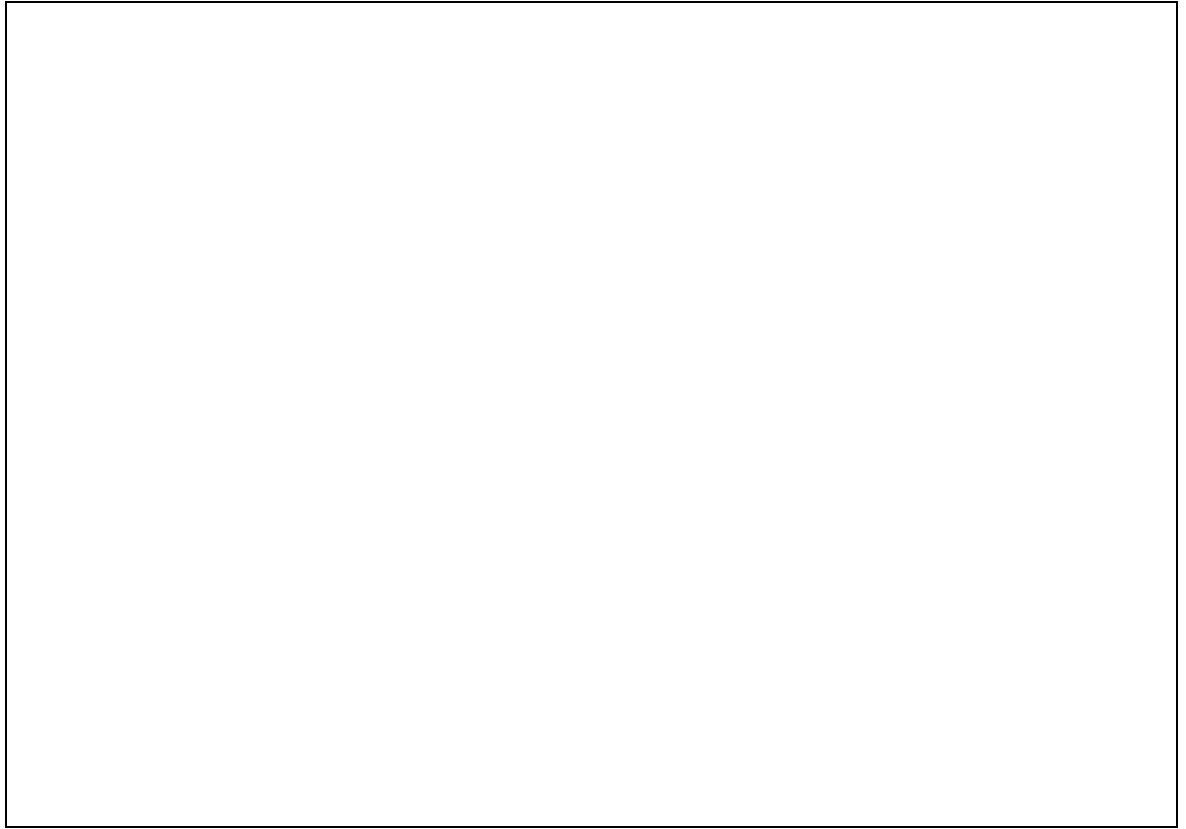
First, there is a stage in which the thunderstorm starts to develop. During this time, there will be tall clouds in the sky, known as cumulus clouds. There is often some light rain, and the wind starts to get slightly stronger. This is when you'll have an idea that a storm might be on its way.

Next, the thunderstorm starts to build. This is when the rain begins to get heavier and the clouds become much darker. There is also a lot of heavy wind. You may see some occasional lightning and hear some thunder in the distance. This is usually the time when people become aware that the thunderstorm is about to begin.

After this is when the strongest part of the storm starts. The thunder and lightning become louder and stronger, rain becomes very heavy for a long period of time, and the sky gets dark. During this time, the thunderstorm may have more serious effects, such as flooding or destruction of property or things outside.

The last stage of a thunderstorm is when it becomes calmer. The rain becomes lighter and winds become weaker, but sometimes they remain for quite a while after the storm has finished.

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(12 points)