In this unit, you will
▷ analyze a magazine article and see how it is used to explain biology research.
▷ use predictive writing.
▷ increase your understanding of the target academic words for this unit.

**WRITING SKILLS**
▷ Predictions and Facts
▷ Topic Sentences
▷ **GRAMMAR** Future Tense

**Self-Assessment**
Think about how well you know each target word, and check (✓) the appropriate column. I have...

<table>
<thead>
<tr>
<th>TARGET WORDS</th>
<th>never seen the word before.</th>
<th>heard or seen the word but am not sure what it means.</th>
<th>heard or seen the word and understand what it means.</th>
<th>used the word confidently in either speaking or writing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>adapt</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>data</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>design</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>final</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>job</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>normal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>predict</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>require</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

© Oxford 3000™ keywords
Building Knowledge

Read these questions. Discuss your answers in a small group.

1. Would you like to travel to space? Why, or why not?
2. Do you think people will travel to Mars someday?
3. Do you like to read about science?

Writing Model

An article appears in a newspaper, magazine, or online. Articles make an interesting topic simple for a wide audience to understand. Read an article about worms in space.

Worms in Space

By Mina Yu

Sending people to Mars is an exciting goal, but what about worms—those long, thin animals that live in the ground. Surprisingly, they are probably going to go to Mars before we do.

Why worms? Mars is 225,000,000 kilometers from Earth. To go there, we will have to fly for at least eight months. However, there are many things we don’t know. Traveling in space for such a long time might not be safe for humans. Sending worms first is a less dangerous way to collect data. With that information, scientists can test three predictions about how well people can survive the long journey to Mars.

For example, scientists predict that people will lose too much muscle being in space for such a long period of time. On Earth, gravity holds us to the planet. Human beings require strong muscles to move against gravity. But there is no gravity in space. Astronauts don’t

1 survive: to stay alive during a difficult or dangerous time
need to use as much muscle power to move. As a result, their muscles become smaller and weaker. Some astronauts never get back all their muscle after they return to Earth. This is a serious health problem. On the other hand, human beings may be able to adapt and keep their muscles strong while they’re in space. That would make travel in space less dangerous. Scientists can watch the worms to collect data about muscle weakening.

Scientists also worry about the health risks of radiation. Radiation is a form of energy similar to X-rays that some substances send out. Some people have gotten cancer from it. There may be dangerous radiation in space that is not normally found on Earth. However, people can adapt to different environmental conditions as well. Space-traveling worms will provide scientists with more data about what the radiation levels in space can do to an animal that is meant to live on Earth.

Finally, astronauts require food and water. The trip to Mars is very long. Carrying enough food will definitely be expensive. Scientists predict that people are going to grow their own food in space, as they do on Earth. If worms can survive well in space, maybe animals normally used for food can as well.

There is still a lot to learn. Scientists have a large job ahead to design further experiments. But the Mars project has already begun. Believe it or not, someday we will finally reach Mars. And we will have worms to thank.

---

2 health risk: the possibility that something bad may happen to your health
3 substance: a basic material; any solid, liquid, or gas
LEARN

A prediction is someone’s opinion about what will happen in the future. Predictions may or may not actually happen. Sentences that describe facts refer to things that are true in the present. Most predictions about the future are based on facts in the present.

Predictions often use the future tense:

We will travel to Mars one day.

It’s going to rain tomorrow.

Facts are usually stated in the present tense. This can be the simple present, or the present progressive using be + base form of the verb + -ing.

People need food to survive.

Scientists are designing new rockets.

When you write predictions, it is better to support your prediction by including facts. Giving facts or reasons makes your prediction stronger. Facts show why you believe the prediction will come true.

Humans will travel to Mars someday. Scientists are already researching how to make it safe for astronauts by studying worms in space.

Companies already make and test planes that go to space. Someday, people are going to fly in space on private spaceships.

APPLY

A. Read the article on pages 30–31 again. Underline the eight sentences that contain the future tense. Write them in the chart in activity B. Check (✓) the ones that are predictions. Compare your answers with a partner.
B. With your partner, find the fact in the article that supports each prediction below. The fact might appear before or after the prediction. Write the fact in the chart.

<table>
<thead>
<tr>
<th>Sentence in future tense</th>
<th>Prediction?</th>
<th>Supporting fact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Surprisingly, they are probably going to go to Mars before we do.</td>
<td>✓</td>
<td>Sending worms first is a less dangerous way to collect data.</td>
</tr>
<tr>
<td>2. To go there, we will have to fly for at least eight months.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A. Read the article on pages 30–31 again and fill in the outline below with the three main predictions the scientists want to test. List the predictions and the reasons (facts) that support the predictions. Compare your answers with a partner.

Paragraph 3

I. Prediction: **Muscle loss will be a big problem.**

   Reasons:
   1. *There is no gravity in space.*
   2. *Without gravity we can lose muscle.*
Paragraph 4
II. Prediction: ____________________________________________________

Reasons:
1. ______________________________________________________________
2. ______________________________________________________________

Paragraph 5
III. Prediction: ____________________________________________________

Reason: __________________________________________________________

B. Look at the reasons you listed in activity A. Circle the best answer to each of the
following questions. Compare your answers with a partner.
1. Why does the author mention gravity in paragraph 3?
   a. to explain why astronauts lose muscles in space
   b. to show how scientists predict worms will move in space
2. Why does the author mention that radiation can cause cancer in paragraph 4?
   a. to give an example of how people can adapt
   b. to show why radiation can be dangerous
3. Why does the author talk about growing food in space in paragraph 5?
   a. to explain why worms are being sent into space
   b. to give an example of why carrying food is expensive

C. Work with a partner. Find the scientific words listed below in the article on pages 30–31. Write the definition from the article. Then answer the questions below with a partner.

gravity: ____________________________________________________________
radiation: __________________________________________________________

1. Did you know the meaning of these words before you read the article?
2. Is this article written for scientists? Explain your answer.

Vocabulary Activities  STEP I: Word Level

The verb design means “to create a plan that shows how to make something.”

Scientists will design a spaceship that can protect astronauts from radiation.

A designer is “a person who designs things.”

The designer added straps to the chairs so astronauts will stay in them without gravity.
A. Match the type of designer in the box with what that person designs. Discuss your answers with a partner. Use a dictionary if necessary.

<table>
<thead>
<tr>
<th>architect</th>
<th>furniture designer</th>
<th>landscape architect</th>
</tr>
</thead>
<tbody>
<tr>
<td>fashion designer</td>
<td>jewelry designer</td>
<td>web designer</td>
</tr>
</tbody>
</table>

1. houses: architect
2. websites: architect
3. tables: architect
4. dresses: fashion designer
5. gardens: landscape architect
6. earrings: jewelry designer

B. A job is work that you do regularly to earn money. It is often a title of a paid position, such as salesperson or teacher. Check (√) the following phrases that might be considered a job. Discuss your choices with a partner.

√ 1. working as a nurse in a hospital
___ 2. sweeping the floor
___ 3. riding a train
___ 4. making copies of a report before a meeting
___ 5. playing with a child
___ 6. driving a taxi

C. Complete the chart below with the correct forms of the target words data, predict, and require. Use a dictionary to check your answers.

| Word Form Chart |
|-----------------|-----------------|
| Noun | Verb | Adjective |
| ______ | ______ | ______ |
| require | ______ | ______ |
| predict | ______ | ______ |

D. Complete each sentence below with the correct form of the word data, predict, or require.

1. Physical fitness is just one of the requirements for becoming an astronaut.
2. What kind of food will worms require in space?
3. Scientists collected data by measuring how much the worms grew.
4. Scientists are using worms to predict how human muscles will react to long periods of time spent in space.
5. We will load all of the requirements supplies onto the spaceship.
6. Their conclusions are based on large amounts of data.
**Vocabulary Activities** **STEP II: Sentence Level**

To *adapt* means “to change in some way for a new or different situation.” In this meaning, it often appears with the word *to.*

*The scientists had to adapt to the extreme cold at the South Pole.*

To *adapt* can also mean “to change something so you can use it in a different way.” In this meaning, it often appears with *for.*

*My friend wants to adapt his car for racing.*

The noun form is *adaptation.*

*Worms developed several adaptations to living in space.*

---

**E.** Work with a partner. Rewrite the sentences below using the form of the word *adapt* in parentheses. Use *to* or *for.*

1. Humans are good at being in new places. (adapting)
   
   *Humans are good at adapting to new places.*

2. They redesigned the spaceship so that it would be able to fly faster. (adapted)

3. One change was making the spaceship longer and thinner. (adaptation)

4. The astronauts got used to living in smaller spaces. (adapted)

5. The scientists had to change their design when a longer trip was planned. (adapt)

---

*Final* is an adjective that means “last.”

*This is our final class before the summer break.*

The noun *finals* is a plural noun that means “exams at the end of a school term."

*I’m studying hard for my finals so I can graduate.*
F. In a small group, write a sentence about what probably happened before each event below. Use the words in parentheses in your answers.

1. The student graduated from college. (her finals)

   The student passed her finals.

2. The championship team celebrated. (final game)

   ____________________________________________

3. Parliament passed the law. (final vote)

   ____________________________________________

4. The pianist bowed and the audience applauded. (final song)

   ____________________________________________

G. Work with a partner. Think of a job. Answer the following questions to describe this job. Use the words in bold in your answers. Share your answers with another pair. Guess which job they are describing.

   The job title: _________________________________

   1. Who will like doing this job? A person who likes helping people will like this job.

   2. What is a normal task for this job? _________________________________

   3. What skills does this job require? _________________________________

   4. What do you predict will be hard about the job? _________________________________

Grammar Future Tense

To write about the future, use will or be going to.

Use will to write about predictions based on your opinion.

   By the year 2500, people will live in space.

Use will for a promise you make.

   I will call you tonight.

Use be going to for predictions based on something that just happened or is happening now.

   There are a lot of clouds outside. It is going to rain.

Use be going to to write about plans.

   I am going to take classes in astronomy. I already talked to the professor.

Form the negative by adding not to both forms.

   We will not travel to another solar system.
   We are not going to eat at this restaurant again.
A. Read the paragraph below. Circle the correct form of the verbs in parentheses. Use *be going to* for things that are already planned, and *will* for things that are not known yet.

Researchers (1) (are going to conduct / will conduct) an experiment next week. They (2) (are going to test / will test) how people (3) (are going to react / will react) to traveling in space alone. They do not know if it (4) (is going to be / will be) hard to be alone for a long time. The experiment was carefully designed. One person (5) (is going to live / will live) in a tiny room for one month. Scientists think it (6) (is going to be / will be) very stressful.

B. Complete each sentence below with one predication about what you think will happen and one prediction about what you think will not happen. Use *be going to* if you already have plans. Share your answers with a partner.

1. Tomorrow,  
   *I am going to watch a movie.*  
   *I am not going to do homework.*

2. Next week,  
   *                                  *  
   *                                  *

3. Next year,  
   *                                  *  
   *                                  *

4. In ten years,  
   *                                  *  
   *                                  *
A well-written paragraph has one main idea. Everything in the paragraph is connected to the main idea. The main idea is usually expressed in one sentence called a topic sentence. A clear topic sentence helps the reader understand the whole paragraph.

In this paragraph, the topic sentence is the first sentence.

According to a new report, exercise helps us study better. Researchers followed students who were preparing for a test. Half of them exercised for one hour every day. The other half studied for an extra hour. Surprisingly, the students who exercised did better on the test. This may be because exercise helps students relieve stress. Maybe exercise helps the brain work better. In any case, students need to both study and work out to do well.

The paragraph is about exercise and studying. These two words are repeated many times. Only the topic sentence clearly explains the relationship between exercise and studying, without giving details. The other sentences in the paragraph contain details that support or explain this idea.

Write each topic sentence in the box below at the beginning of the correct paragraph. One of the sentences will not be used.

Traveling anywhere in space takes a long time.
It is very expensive to pay for a space program.
Traveling in space will become a normal activity in the future.
Traveling in space may be very difficult for people.
There are a lot of dangers to sending people into space.

Scientists predict it will take eight to ten months to get to Mars. Going to another galaxy could take years. Traveling to the moon only takes four days, but we have already researched the moon. All of the more interesting places are farther away.

The launch, when the rocket leaves the ground, is the most dangerous part. The fuel used in rockets can explode or catch on fire. Also, there is a lot of equipment on a spaceship. If one thing goes wrong, it can lead to serious problems.
Last year, the United States spent almost two billion dollars on space travel. Russia spent closer to five billion dollars. You need well-trained people and a lot of special equipment. Traveling to space is not simple, so the cost is quite high.

First of all, it is frightening to be going so far from home. Second, you are in a very small space. Third, there is a lot of work to be done. So it can be a very stressful experience.

**Collaborative Writing**

**A.** Look at the notes for a paragraph predicting a potential problem with long space journeys. Write a topic sentence for this paragraph.

- **Topic sentence:**
  
  - spaceship = small
  - crew = 4–6 people
  - problems:
    1. conflicts – no privacy, no place to be alone
    2. boredom – small space, no fun

**B.** With a partner, look at the notes in activity A again. Complete the sentences below to make predictions and state facts for this new paragraph.

1. Traveling in a spaceship is not normal because

2. Living with four to six people in a small space requires

3. I predict conflicts can start because

4. Astronauts should adapt to

**C.** Work with a partner. Use the notes in activity A and your sentences from activity B to write a paragraph predicting a problem with long-term space travel.

**D.** Share your paragraph with another pair. Discuss the questions below.

1. Is there a clear topic sentence in each paragraph?
2. What differences are there between the paragraphs?
3. Do those differences make one paragraph better than the other? If so, how?
4. What do you like about the other pair's paragraph?
Independent Writing

A. You are going to write a paragraph predicting what life will be like in space. Complete the outline below with two predictions about life in space. Provide at least one reason why you believe each prediction will happen. Your reasons may be facts or examples.

I. Prediction:

____________________________________________________________________

Reasons
1. ___________________________________________________________________
2. ___________________________________________________________________

II. Prediction:

____________________________________________________________________

Reasons
1. ___________________________________________________________________
2. ___________________________________________________________________

B. Think about each prediction from activity A. How sure are you that it is true? Add an adverb to each prediction to describe how sure you are that it will happen.

C. Write a topic sentence for your paragraph. Complete the sentences below as a guide.

I predict that in space we will ________________________ because ________________________.

There will also be ________________________ because in space there is ________________________.

D. Write your paragraph. Use your outline from activity A and ideas from activity C. In your writing, use the target vocabulary on page 29 and include adverbs to show how likely you think your predictions are to happen.

VOCABULARY TIP
Use adverbs such as definitely, probably, possibly, or maybe to show how likely a prediction is to come true.
A. Read your paragraph. Answer the questions below, and make revisions to your paragraph as needed.

1. Check (✓) the information you included in your paragraph.
   - predictions
   - examples
   - facts
   - consequences

2. Look at the information you did not include. Would adding that information make your paragraph easier to understand?

B. Check the language in your paragraph. Revise and edit as needed.

   **Language Checklist**
   - I used target words in my paragraph.
   - I used adverbs to show how likely my predictions are to come true.
   - I used the future tense correctly.
   - I used parts of speech correctly in complete sentences.

C. Check your paragraph again. Repeat activities A and B.

**Self-Assessment Review:** Go back to page 29 and reassess your knowledge of the target vocabulary. How has your understanding of the words changed? What words do you feel most comfortable using now?