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INGL3102-001
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Unit 8: ALIEN WORLDS

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ALIEN WORLDS 8



Think and Discuss

1. I think the ocean since there are different species of animals that are very interesting.
2. The ocean since you can discover shipwrecks that contribute to history.

A spotted porcupinefish
swims along the ocean floor.

ACADEMIC SKILLS

READING Taking notes

WRITING / GRAMMAR Introducing your opinion
Using modal verbs to make predictions

CRITICAL THINKING Identifying speculation

THINK AND DISCUSS

- 1 Which do you think is more interesting—the ocean or space? Why?
- 2 Do you think it's more useful to explore the ocean or space? Why?

EXPLORE THE THEME

A Look at the information on these pages and answer the questions.

1. What is the Milky Way? What do we know about it?
2. In which part of the Milky Way do we live?
3. What does the Milky Way look like when seen from Earth?

B Use the correct form of the words in blue to complete the sentences.

Our planet is called Earth.

Earth has just a single moon, while Jupiter has 67.

The sun is a star.

Explore the Theme

A. Look at the information on these pages and answer the questions

1. The Milky Way is just a single galaxy, and it is small compared to the universe.
2. In the Orion Arm.
3. A band of cloudy light that stretches across the sky.

OUR HOME IN SPACE

The Milky Way Galaxy—our home—has hundreds of billions of **stars**. Our solar system—which includes the sun, Earth, Mars, Venus, and other **planets**—is in a part of the galaxy called the Orion Arm. The solar system may seem big to us, but it is a small part of our galaxy. Light

from one end of the galaxy would take 100,000 years to travel to the other side. However, the Milky Way is just a **single** galaxy, and it is small compared to the universe. Astronomers—scientists who study space—think there are billions of galaxies beyond our Milky Way.

Reading 1

PREPARING TO READ

BUILDING VOCABULARY

- A** The words in **blue** below are used in the reading passage on pages 133–134. Match the correct form of each word with its definition.

At a **distance** of around 60 million kilometers, Mercury is the **nearest** planet to the sun.

Scientists believe that in the past, conditions on Mars may have been **suitable** for **life**.

It takes around eight minutes for light from the sun to **reach** Earth.

Astronomers **discovered** the dwarf planet Pluto in 1930.

Scientists are **excited** by the fact that there is an ocean of water beneath the surface of Saturn's moon Enceladus.

1. discover (v) to find something for the first time
2. reach (v) to arrive at
3. excited (adj) very interested and happy
4. suitable (adj) right for something
5. near (adj) close, not far
6. distance (n) the amount of space between two things
7. life (n) things that are alive

USING VOCABULARY

- B** Answer the questions below with a partner. Use the diagram at the bottom of the page to help.

1. Which **planet** is the biggest in the solar system? Jupiter
2. Which is **nearer** the sun: Mars or Venus? Venus
3. Why do you think conditions on Pluto are not **suitable** for **life**? It's very cold

PREVIEWING

- C** Read the first paragraph of the reading on pages 133–134. What two questions does the author ask? What do you think the answers to these questions are? Discuss your ideas with a partner.

The questions are:

1. But are there other planets like Earth?
 2. And could humans live there one day?
- I think the answer to both questions is no.

Mercury

Earth

Venus

Mars

Pluto

UNDERSTANDING THE READING

A Match each of these main ideas with a paragraph (B–F) from the reading.

UNDERSTANDING
MAIN IDEAS

- E 1. Traveling to exoplanets is difficult because they are very far away.
C 2. Exoplanets that are similar to Earth might have water and maybe even life.
B 3. Astronomers have found many exoplanets.
D 4. Scientists found seven Earthlike exoplanets around the same star.
F 5. In the future, new technology may allow humans to travel to an exoplanet.

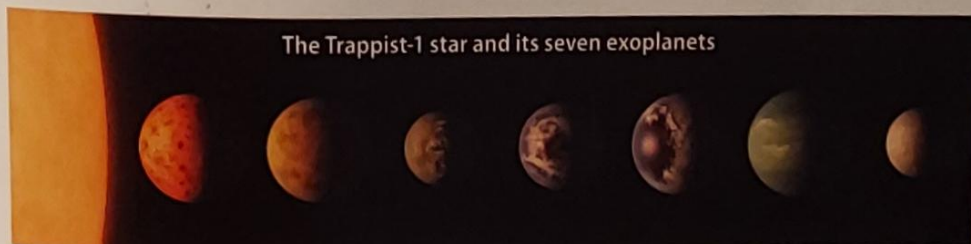
B Answer the questions. Circle the correct option.

UNDERSTANDING
DETAILS

1. What is an exoplanet?
a. a planet that is similar in size to Earth b. a planet that moves around a star outside our solar system
2. According to the passage, what is true about Alpha Centauri?
a. It is the closest star system to Earth. b. It has more Earthlike exoplanets than any other star system.
3. What does Andreas Tziolas believe?
a. We already have the technology to travel to Alpha Centauri. b. Travel to another star system will be possible in the future.

C Complete the notes about the Trappist-1 star system.

UNDERSTANDING
DETAILS



- The system contains seven exoplanets that are a similar size to ¹ Earth.
- The planets are very ² close to the star, but Trappist-1 is very ³ cool compared to other stars.
- The planets may have ⁴ water and therefore possibly life.

CRITICAL THINKING Speculation involves making a guess or prediction. It is important to identify which parts of an article are speculation and which are facts.

D Read the following sentences from the article. Check (✓) the sentences that are speculation. Circle the words that helped you decide.

CRITICAL THINKING:
IDENTIFYING
SPECULATION

- ☐ 1. New technology is helping astronomers discover hundreds of new planets.
☒ 2. Earthlike exoplanets may be more common than once thought.
☐ 3. Trappist-1 is much cooler than our sun.
☒ 4. Temperatures could therefore be suitable for life.
☒ 5. One day we might be able to travel to another star system.

DEVELOPING READING SKILLS

READING SKILLS Taking Notes

Taking notes as you read can help you remember important information in a passage. It will also help you remember key ideas for a writing task or test.

As you read, note key nouns, such as names, places, and times. Include details about each one. Also, note how ideas and information relate to each other. For example, note any causes and effects, problems and solutions, steps in a process, or events in a story. Remember that when you write notes, you don't need to write complete sentences.

It can be helpful to note information using an outline or a graphic organizer. Here is one example:

Outline

Main Idea

Detail

Detail

Main Idea

Detail

Detail

TAKING NOTES

- A** Complete the outline using information from pages 133–134.

p. 133 para B

- Main Idea: astronomers use new technology to find exoplanets
- Detail: so far, found more than 3,500 exoplanets
- Detail: some may be like Earth

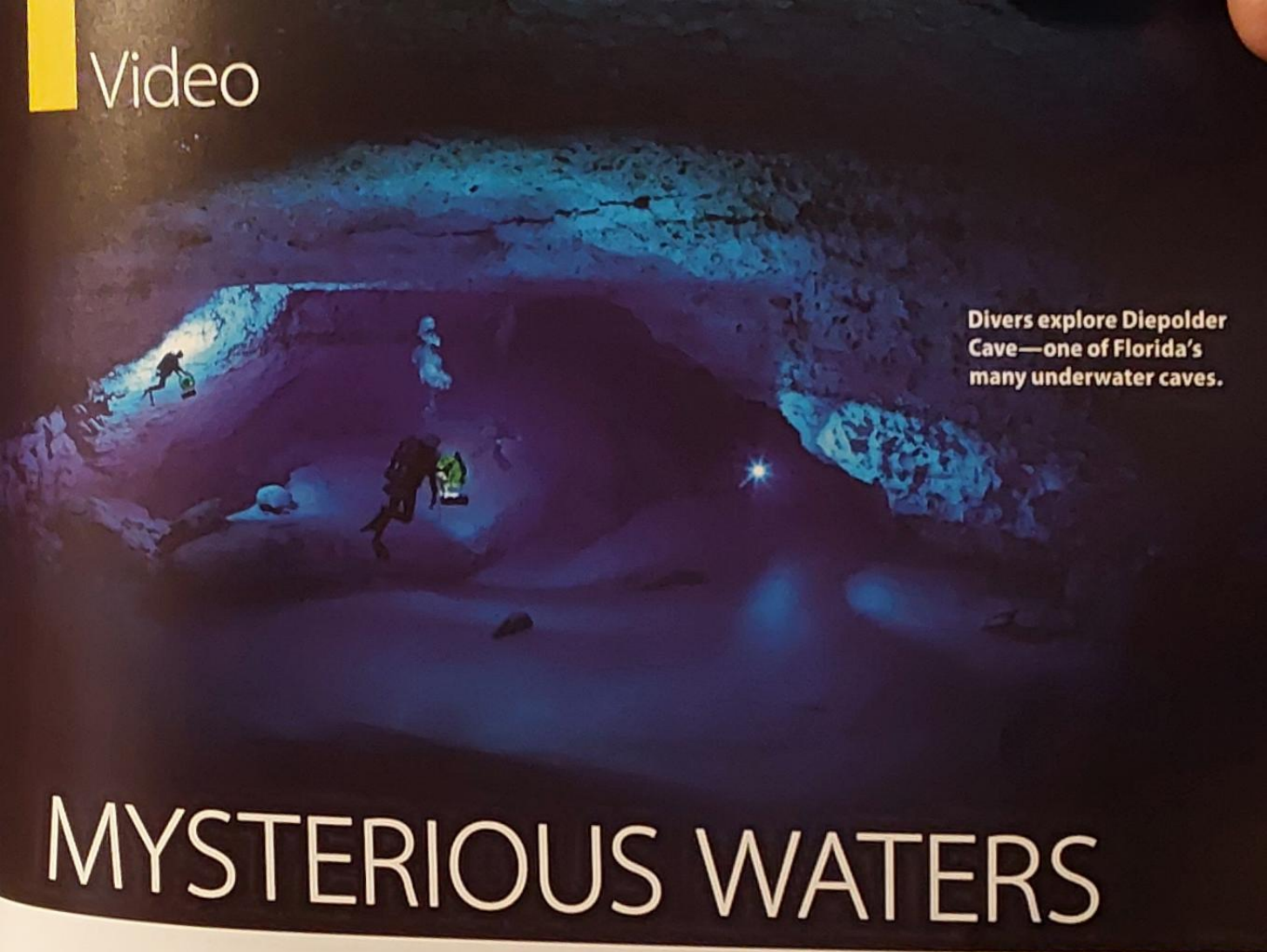
p. 134 para E

- Main Idea: main problem with traveling to an exoplanet is the distance
- Detail: nearest star system is 4.3 light years away
- Detail: traveling there would take thousands of years

APPLYING

- B** Now create your own outline for paragraph F on page 134.

- Main Idea: New technology may allow humans to travel to an exoplanet.
- Detail: New technology will let us reach the nearest star in a few decades
- Detail: Andreas Triolas thinks that one day we might be able to travel to another star system.



Divers explore Diepolder Cave—one of Florida's many underwater caves.

MYSTERIOUS WATERS

BEFORE VIEWING

A Look at the photo and read the caption. Where are the people? What do you think they can learn from exploring a place like this? Discuss your ideas with a partner.

B They are in Diepolder Cave. They can learn about the history and animals of the place.

The words in **bold** below are used in the video. Match the correct form of each word to its definition.

DISCUSSION

VOCABULARY IN CONTEXT

An echo is created when sound **bounces** off a surface and returns to the listener.

It's hard to swim in water that has a strong **current** because it can push you in the wrong direction.

An underwater cave system can be like a **labyrinth**. It is very easy to get lost.

A **three-dimensional** (3D) map of a city shows how tall the buildings are.

1. three-dimensional (adj) not flat, having a shape
2. current (n) water moving in one direction
3. labyrinth (n) a place in which it's difficult to find your way, like a maze
4. bounce (v) to hit a surface and then quickly move away from it

LEARNING ABOUT
THE TOPIC

- C** Read the information about the Wakulla Springs cave system. Then answer the questions.

Florida's Wakulla Springs is one of the largest underwater cave systems in the world. When it was first explored in 1955, explorers found the bones of land animals that lived thousands of years ago. They also found a number of items that belonged to humans. The explorers realized that a long time ago, the area was above sea level. As the caves filled with water, the animal bones and other objects were kept safe for thousands of years.

1. What two things did divers find when the caves were first explored?


They found the bones of land animals that lived thousands of years ago and a number of items that belonged to humans.

2. What did this tell the explorers about the area?

The explorers realized that a long time ago, the area was above sea level.

WHILE VIEWING


UNDERSTANDING
MAIN IDEAS

- A**  Watch the video. What was the purpose of the team's dive?

- a. to look for the bones of ancient animals
- b. to study animal species living in the caves

c. to create a map of the caves

UNDERSTANDING
DETAILS

- B**  Watch the video a second time and complete the notes.

- Diving can be very ¹ dangerous. Around ² 300 divers have died in Florida's caves since 1960.
- Boyd Matson makes a mistake: kicks up a lot of ³ sand and can't see. Uses a ⁴ rope to get out.
- Divers use a machine to ⁵ bounce sound waves off the cave walls to create a 3D map.
- Deep in the cave, the ⁶ current is very strong. But in the end, the divers return safely to the surface. The dive is successful.

AFTER VIEWING

REACTING TO THE
VIDEO

- A** Would you like to explore underwater caves? Why or why not? Note your ideas below. Then discuss with a partner.

No since it scares me since I could run into dangerous animals or underwater currents.

CRITICAL THINKING
SYNTHESIZING

- B** How are the challenges of exploring underwater similar to the challenges of exploring space? Note your ideas below. Then discuss with a partner.

Distance is a challenge in both, just like the oxygen we need to live.

Reading 2

PREPARING TO READ

- A** The words in **blue** below are used in the reading passage on pages 140–141. Complete the definitions using the correct form of the words.

BUILDING
VOCABULARY

Most of space is a **mystery** to us. We don't know much about it.

A layer of gray dust **covers** the moon.

You have to use a special **vehicle** to explore **deep** parts of the ocean.

1. mystery (n) something that you cannot explain or understand
2. vehicle (n) a machine that moves people or things from one place to another
3. covers (v) to make a layer over the top of something
4. deep (adj) far below the surface of something

- B** Read the definitions below. Then complete each sentence with the correct word.

BUILDING
VOCABULARY

A **variety** is a number of different kinds or examples of something.

An **illness** is a disease, or a period of being sick.

If you **complete** a task or a journey, you finish it.

The **beginning** of something is the first part of it.

1. There are a variety of reasons that people decide to study space.
2. In 1840, the British explorer Sir James Clark Ross used a tool to get samples from the ocean floor. Some believe this was the beginning of deep-sea exploration.
3. You should not go swimming if you have an illness like a cold or the flu.
4. In 22 years, the space shuttle Columbia completed 27 flights into space.

- C** List three ideas for each category below. Then share your ideas with a partner.

USING
VOCABULARY

1. three animals that live **deep** in the ocean

Lantern Fish Goblin Shark Deep-See Octopus

2. three **vehicles** that are used in water

boat submarine punt

3. three common **illnesses**

allergies headaches diarrhea

- D** You are going to read an article about deep-sea exploration. Why do you think it might be useful to explore the deepest parts of the oceans? Work with a partner and list some ideas. Then read the passage to see which of your ideas are mentioned.

PREDICTING

To discover species and obtain underwater samples.

UNDERSTANDING THE READING

UNDERSTANDING THE GIST

- A** Which of the following would be the best alternative title for the reading?
- a. Deep-Sea Discoveries b. Saving Sea Creatures c. Underwater Earthquakes

UNDERSTANDING DETAILS

- B** Complete the notes about the reading passage.

(Paras A and B) Oceans = mystery
cover 71% of Earth
expl'd Only 5% of it has been explored
we know more about some areas of Mars than about some other parts of the world's oceans
(Paras C and D) New tech. → explore more
vehicle called Deepse
went to Las Gemelas near Costa Rica
(Paras E and F) Deepest place in ocean = Marianas Trench
2012: James Cameron explored alone
he took photos and collected underwater samples
deep-sea exploration helps us understand how life in our planet began
also learn about how earthquakes cause tsunamis

CRITICAL THINKING: GUESSING MEANING FROM CONTEXT

- C** The words below are synonyms—words with similar meanings—of words in the reading passage. Scan the reading to find the correct synonyms.

- (Paragraph A) dreamed imagined
- (Paragraph C) unseen hidden
- (Paragraph F) findings discoverings

CRITICAL THINKING: ANALYZING AN ARGUMENT

- D** Note answers to the questions below using information from the reading passage.

- What do ocean scientists and explorers study underwater?
The ocean scientists study a new animal species and exploring underwater terrain.
- Why is their work useful? (What are some possible benefits?)
Researching new animals species may lead to the discovering of chemicals that can help people fight illnesses.

CRITICAL THINKING: SYNTHESIZING

- E** Look back at your answer to question 1 on page 129. Has your opinion changed? Complete the sentence and list two reasons. Share your ideas in a small group.

I think the ocean exploration is more interesting.

Reason 1: Because some species can help with illnesses like cancer

Reason 2: Because the oceans have a variety of species have never been see before.

Writing

EXPLORING WRITTEN ENGLISH

A Read the information below.

LANGUAGE FOR WRITING Introducing Your Opinion

You can use the verbs *think* and *believe* to introduce an opinion about something.

I think we can reach Mars someday.

I don't think we can ever reach Mars.

I believe we can learn a lot by studying space.

I don't believe we can learn much by studying space.

You can also use the phrase *in my opinion*. Remember to use a comma after *in my opinion*.

In my opinion, humans will need to move to another planet one day.

In my opinion, humans won't be able to live on Earth forever.

Now complete the sentences (1–6). Use positive or negative forms to give your own opinion. Use the correct forms of the words in parentheses in the last two sentences (5–6).

think / don't think

1. I don't think many humans will live on another planet 50 years from now.
2. I don't think scientists will discover life on Mars.

believe / don't believe

3. I don't believe it's important to spend a lot of money on space exploration.
4. I don't believe governments should spend more money on exploration than on education.

In my opinion, / In my opinion, ... not

5. In my opinion, space exploration (be) is important.
6. In my opinion, astronomers (have) not have a more interesting job than ocean explorers.

NASA's Curiosity rover captured this image from the surface of Mars.

- B** Write your opinion about each of the ideas below. In each sentence, use a different phrase to introduce your opinion.

Example: Space exploration can help us learn about our own planet.

I believe space exploration can help us learn about our own planet.

1. Studying the ocean is a waste of time and money.

In my opinion studying the oceans can help with the health of people.

2. Life forms from other planets are looking for us.

I don't think there is life on other planets.

3. People will live on an exoplanet 100 years from now.

I don't believe that people will live on an exoplanet since today with so much technology they have not been able to return to the moon for 50 years.

- C** Read the information below.

LANGUAGE FOR WRITING Using Modal Verbs to Make Predictions

You can use modals to make predictions about the future. For example, you can use *will* to make predictions you are sure about. Use *may* and *might* to make predictions you are less sure about.

Any mission to Mars **will** be very expensive. (certain)

Underwater exploration **may** help us understand how life began. (less certain)

Traveling to another world **might** be possible in the future. (less certain)

Remember: Use the base form of the verb after a modal verb.

To make a negative statement, add *not* after the modal verb.

There **might not** be a mission to Mars before 2050.

Now unscramble the words and phrases to make sentences.

1. in tall apartment buildings / will / in the future / live / I think / most people /.

I think most people will live in tall apartment buildings in the future.

2. be / cities like / New York and Beijing / even more crowded / might /.

Cities like New York and Beijing might be even more crowded.

3. apartment buildings / people / leave / might never / their / need to /.

People might never need to leave their apartment buildings.

4. most people / in my / home / opinion, / work / from / will /.

In my opinion, most people will work from home.

D Circle the best option to complete each sentence.

1. I **will** / **might** not be able to play soccer this weekend. I'll let you know by Friday.
2. I heard it **will** / **may** snow tomorrow. The weatherman said there's a 50 percent chance.
3. There's no way that we **will** / **might** ever live on Jupiter.
4. I **will** / **may** come to the party, but I haven't decided yet.
5. Next year, my birthday **will** / **might** be on a Tuesday.

EDITING PRACTICE

Read the information. Then find and correct one mistake in each of the sentences.

In sentences with *may*, *might*, and *will*, remember:

- to use the base form of the verb.
- to use *will* for things you are sure about. Use *may* or *might* when you are not sure.

1. Robots may replaced doctors someday.
2. I think people **will** having computers inside their bodies in the future.
3. Someday, we might to build homes underground.
4. I believe new telescopes **will** finding many more exoplanets in the future.
5. We will be able to see Saturn in the sky tonight. It depends if the skies are clear.

Radio telescopes in Chile observe the night sky.



WRITING TASK

Should so much money be spent on space and ocean exploration?

In my opinion, not so much money should be spent on space exploration. I think this because in order to go to other planets you need expensive equipment and the money used for it could be used in useful things for human beings. I consider that it is an excessive expense since each trip is a new rocket that has to be built to be able to return. It seems impossible to me that with the technology that exists today since 50 years ago, we have not gone to the Moon again. Space exploration is useful to discover the changes in our planet after atmospheric events and with climate change, however, it seems excessive to use so much money to travel to other planets.

I think that spending money on ocean exploration is useful to learn about the history and organisms that live there. As the second reading of the unit informs, it is possible to find species that help fight illness such as cancer. I believe that the exploration of our oceans is more useful and necessary, as it provides knowledge that can help us learn about how the world has changed and about cities that no longer exist. However, one should always be conscious about the money used, since it is not necessary to make excessive expenditures on things that do not help humanity.

UNIT REVIEW

Answer the following questions.

1. What are two phrases you can use to introduce your opinion?

In my opinion / I think

2. What can people learn by studying the deepest parts of our oceans?

We are learning how underwater earthquakes cause tsunamis.

3. Do you remember the meanings of these words? Check (✓) the ones you know. Look back at the unit and review the ones you don't know.

Reading 1:

☒ discover

☒ life

☒ reach

☒ suitable

☒ distance

☒ near

☒ single

☒ excited

☒ planet

☒ star

Reading 2:

☒ beginning

☒ deep

☒ variety

☒ complete

☒ illness

☒ vehicle

☒ cover

☒ mystery