

Words

A Decode the words.

astronomer space probe ~~core~~ gravity orbit matter
diameter unique surface craters distance

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

1 c o r e

3 15 18 5

2 — — — — —

7 18 1 22 9 20 25

3 — — — — —

21 14 9 17 21 5

4 — — — — —

19 21 18 6 1 3 5

5 — — — — —

4 9 1 13 5 20 5 18

6 — — — — —

15 18 2 9 20

7 — — — — —
19 16 1 3 5 16 18 15 2 5

8 — — — — —
1 19 20 18 15 14 15 13 5 18

9 — — — — —
4 9 19 20 1 14 3 5

10 — — — — —
13 1 20 20 5 18

11 — — — — —
3 18 1 20 5 18 19

B Read and number.

1 orbit

3 surface

5 astronomer

7 craters

2 core

4 space probe

6 diameter

8 distance

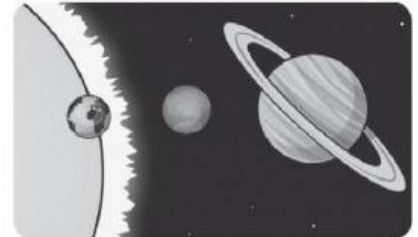


C Circle the correct word to complete each sentence.

- 1 Our Earth is one example of **distance** **matter** **astronomer** in the universe.



- 2 Every planet in the solar system is **diameter** **core** **unique**.



- 3 We couldn't stand on the ground without **gravity** **craters** **orbit**.



D Complete the sentences using the words in the box.

astronomer spaceprobes core gravity orbit matter
diameters unique surface craters distance

- 1 With a telescope, you can easily see _____ on the moon.
- 2 An _____ knows a lot of information about the solar system.
- 3 The moon has weaker _____ than Earth, so astronauts weigh less there.
- 4 It takes Earth one year to complete one _____ around the sun.
- 5 Earth and Venus are close in size. They have similar _____.
- 6 The _____ from Earth to the moon is about 384,000 kilometers.
- 7 _____ travel through space and send information to Earth.
- 8 The moon's _____ is very gray, rocky, and full of craters.
- 9 The sun has the most _____ in the solar system.
- 10 It is very hot in Earth's _____.
- 11 Each planet in the solar system is _____ in different ways.

Read

A Read. What makes Ganymede special?

B Read again. How are Ganymede and Earth's moon alike and different?

Ganymede, Jupiter's Giant Moon

Earth has only one moon. It moves in an **orbit** around our planet. It often shines brightly in the night sky. However, did you know that the planet Jupiter has 49 moons? Ganymede is Jupiter's largest moon.

Ganymede is also the largest moon in the solar system. Earth's moon is the fifth largest moon in the solar system. Ganymede's **diameter** is much larger than our moon's diameter. Also, Ganymede is quite far from Jupiter. Earth's moon is closer to Earth. Ganymede goes around Jupiter in just seven days. Earth's moon goes around Earth in 27 days.

Galileo was a famous **astronomer**.

He discovered Ganymede in 1610.

Today, we understand much more about this giant moon. The Pioneer 10 **space probe** gave us information about Ganymede.

The Voyager and Galileo space probes gave us more information. Scientists now know that Ganymede has rocks and ice. Its **surface** has **craters** like Earth's moon. The **core** of Ganymede is hot and made of metal. The core of Earth's moon is similar. Some scientists think that Ganymede has an ocean. It is 200 kilometers below the surface. Earth's moon has no ocean.

Astronauts walked on Earth's moon. However, they can't walk on Ganymede yet. It is too far away. If astronauts go to Ganymede someday, they will be able to jump very high. The **gravity** on Ganymede is like the gravity on Earth's moon. Scientists know a lot about Ganymede. However, they hope to learn more in the future.



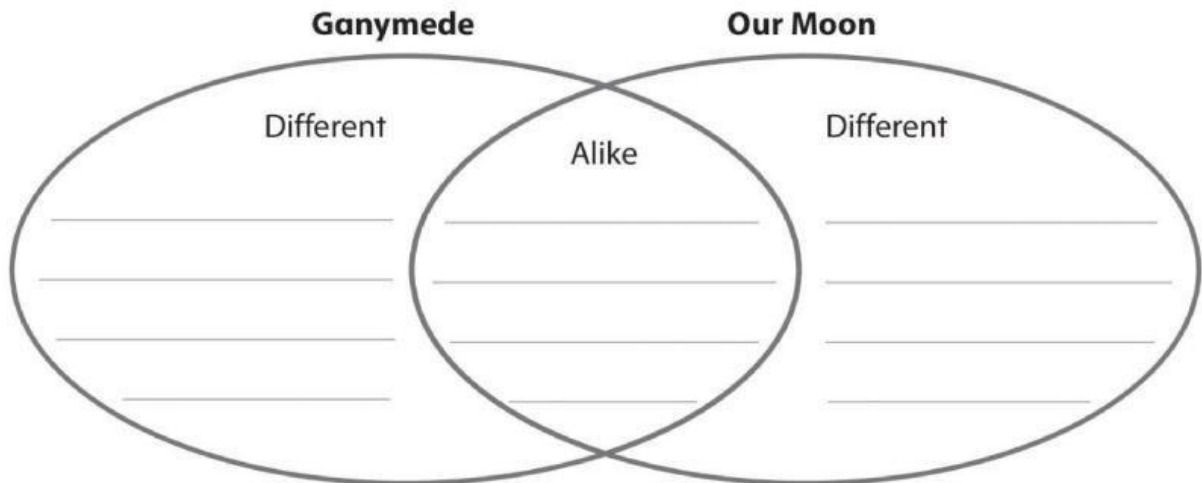
Think How are Ganymede and our moon different?

Think How are Ganymede and our moon alike?

Understand

Comprehension

A How are the two moons below alike and different? Write.



B Circle *True* or *False*.

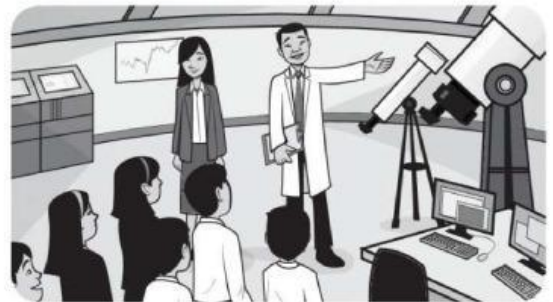
- 1 Ganymede has a larger diameter than Earth's moon.
- 2 The core of Earth's moon is icy and cold.
- 3 Ganymede moves faster through space than Earth's moon.
- 4 Ganymede's gravity is stronger than Earth's gravity.

True	False
True	False
True	False
True	False

C **Words in Context** Read and write.

explored bodies inner outer

- 1 Asteroids are _____ that orbit the sun between Mars and Jupiter.
- 2 Planets in the _____ part of the solar system are much colder than Earth.
- 3 The _____ planets are smaller than Jupiter and Saturn.
- 4 The students _____ the observatory with their teacher and the astronomer.



D **About You** Would you rather visit the moon or Ganymede? Why?

Grammar in Use



A Study the grammar.



Learn Grammar

Future Real Conditional

If he **becomes** an astronaut, he **will explore** the solar system.
If he **doesn't become** an astronaut, he **won't explore** the solar system.

They **will fail** the astronomy test if they **don't study** hard.
They **won't fail** the astronomy test if they **study** hard.

If I **don't repair** the telescope, I **won't be able to see** Ganymede.
If I **repair** the telescope, I **will be able to see** Ganymede.

If the sky **is** clear, **will** she **go** to the observatory? Yes, she **will**.
Will she **go** to the observatory if the sky **isn't** clear? No, she **won't**.

What **will** he **see** if he **looks** at the sky? **He'll see** the moon.
If he **looks** at the sky, what **will** he **see**?

Tip

won't = will not

B Read each sentence. Underline what may happen in the future. Circle what will happen as a result.

- 1 If scientists continue to study Ganymede, they will learn much more about it.
- 2 If scientists don't find water on Ganymede, they will be disappointed.
- 3 People will travel through the solar system if we create fast spacecraft.
- 4 Kenan will build a model solar system if he finds the right materials.
- 5 If Jackie doesn't finish her homework, she won't use her telescope tonight.
- 6 If the space probe continues at this speed, it will fly by Ganymede next month.
- 7 The large meteorite will make a big crater if it hits the moon.
- 8 If the sky is clear tonight, we will see Venus, Mars, and Jupiter.



C Match.

- | | |
|---|---|
| 1 Where will astronauts go first ● | ● a what will you look at through the telescope? |
| 2 If astronauts find water on Ganymede someday, ● | ● b if they can travel outside of the solar system? |
| 3 Where will the space probe be in one year ● | ● c will they be able to drink it? |
| 4 If we go to an observatory, ● | ● d if it continues at this speed? |

D Write future real conditional sentences. Use *you* as the subject.

- not study science / not become an astronaut
If you don't study science, you won't become an astronaut.
- look at the sky tonight / see Venus and Mars
- read about Ganymede / learn many interesting facts
- not look through the telescope / miss seeing Jupiter's moons



E Answer the questions. Write future real conditional sentences.

- If the sky is clear tonight, which planet will you look for?
If the sky is clear tonight, I will look for Venus in the western sky.
- What will you do if it rains this weekend?
- If you have a test next week, what will you do the day before?
- What will your parents do if you get good grades this month?

Communicate

Word Study

ignorance fragrant abundant fragrance ignorant abundance

A Z

A Read each sentence. Circle *-ance* or *-ant*. Then match.

1 The Milky Way has an abundance of stars.

• a



2 Some flowers are very fragrant, while others are not.

• b



3 Tom studies a lot because he doesn't want to be ignorant.

• c



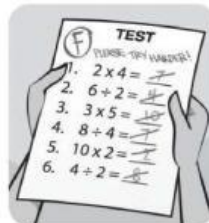
4 An orange tree in the spring can have a lovely fragrance.

• d



5 The astronauts have an abundant food supply in the spacecraft.

• e



6 Ignorance can cause low scores at school.

• f



B Complete the sentences using the words from the box above.

1 I smelled the wonderful _____ of the hot apple pie.

2 We are no longer _____ about the universe.

3 A rose garden can be very _____ in the summer.

4 The surface of the Earth has an _____ of resources.

5 Because of ancient people's _____, they believed the Earth was flat.

6 The sun is an _____ energy resource for our planet.

Writing Study

A Circle the word *or* in each question. Underline the choices. Then answer the questions.

1 Is a galaxy a star or a group of stars?

A galaxy is a group of stars.

2 Is Ganymede's orbit around Mars or Jupiter?

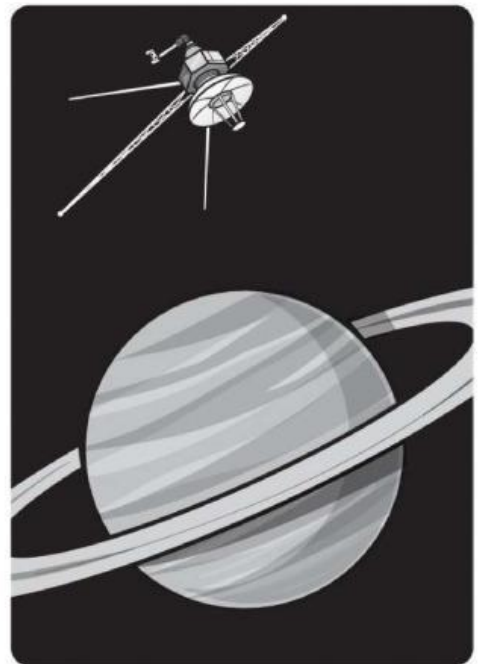
3 Does a moon go around a planet, or does a planet go around a moon?

4 Does our solar system have seven planets or eight planets?

B Write a paragraph about exploring the universe.

Read the example below. Use at least one choice question and at least one future conditional sentence in your writing.

Should astronauts explore the solar system, or should space probes explore it? Space probes don't need food or oxygen to give us information about planets. **If we have better technology someday, we will send people to other planets.** For now, space probes are an easier way to get information.



Wrap Up

Writing

- A** Read this compare and contrast report about an imaginary solar system. Label the parts of the report.



The V-18 Solar System

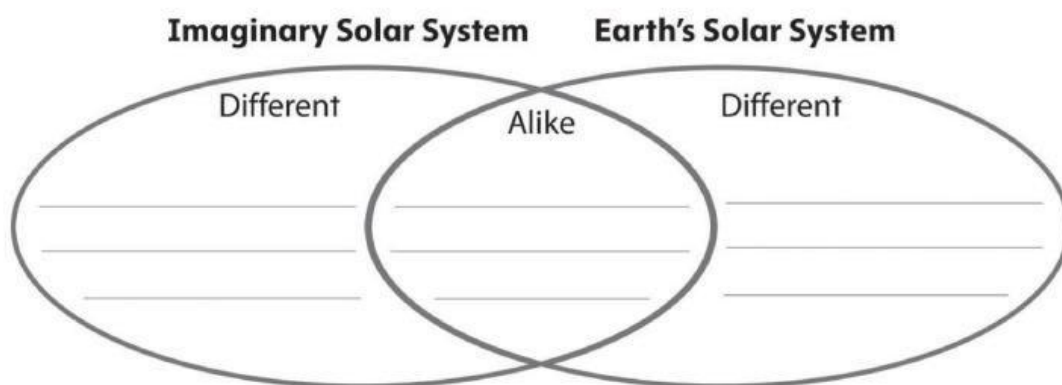
In my imagination, I took a trip in my spacecraft to the V-18 Solar System in the Misty Galaxy. I discovered that V-18 is similar to our solar system in some ways but different in other ways.

V-18 is similar to our solar system in three ways. First, its sun is a yellow star that is the same size as our sun. Next, like our solar system, some of the planets have moons, and some don't. Also, one of the planets has rings just like Saturn.

My imaginary solar system is also different from our solar system in three ways. To start with, it has nine inner planets and nine outer planets. Next, the planets Alpha and Beta have plants and animals on them, but no people. Finally, Alpha and Beta go around the sun every 100 days.

I really enjoyed visiting my imaginary solar system. If I have a spaceship someday, I will explore a real solar system. I would love to explore our solar system or one like V-18.

- B** Plan your imaginary solar system. Include the name of your solar system and galaxy and the number of planets. Then add details in the Venn diagram.



- C** Now go to your notebook to write your own compare and contrast report. Then read and revise it.

My writing checklist:

☐ I included an interesting idea in the introduction paragraph.	☐ I wrote about differences in the third paragraph.
☐ I wrote about similarities in the second paragraph.	☐ I included an interesting idea in the conclusion paragraph.

BIG QUESTION 1

Where are we in the universe?

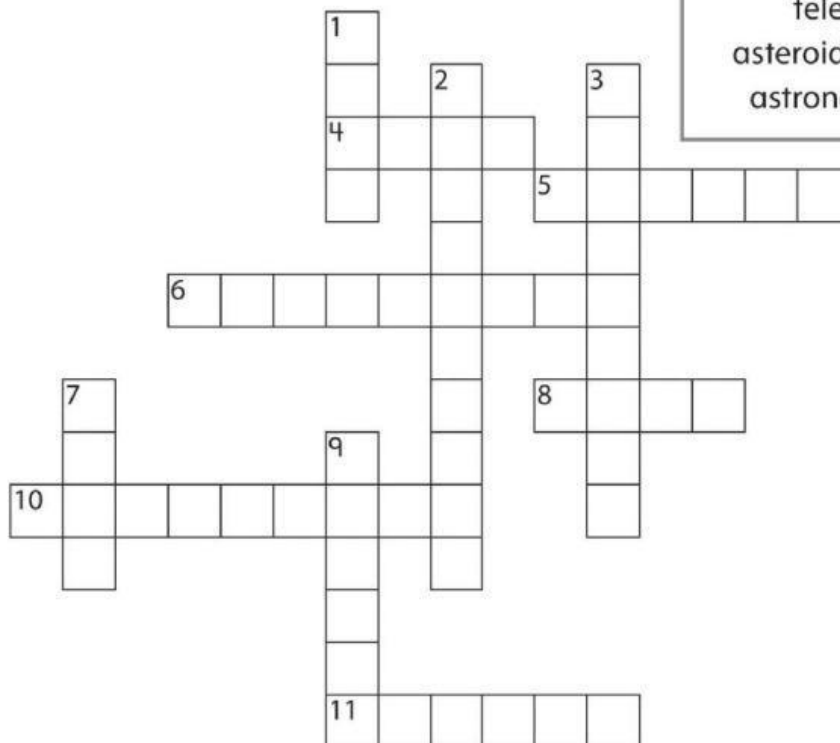
Look back through Units 1 and 2:

Which reading text did you find the most interesting? Why?

Write down three new things that you learned.

Write down one question that you still have about space.

Review

A Complete the puzzle.

telescope	unique	eighty
asteroids	fragrance	moon core
astronomer	body	disk sleigh

Down ↓

- 1** Any large object in space
- 2** This person studies planets and stars.
- 3** You look through this.
- 7** The center of something
- 9** Special

Across →

- 4** This is flat and round.
- 5** This travels through snow easily.
- 6** There are many of these between Mars and Jupiter.
- 8** This goes around Earth.
- 10** A very nice smell
- 11** This is the answer to 8 x 10.

Review **Units 1-2 19**

B Complete the sentences with the words in the box.

if will solar system space probes

_____ ₁ will continue to give us information about Mars.

_____ ₂ scientists build a fast spacecraft, astronauts _____ ₃
travel to Mars, too. In fact, they will travel through the whole _____ ₄.

matter inner observatory diameter outer

Is Saturn a(n) _____ ₅ planet or an
outer planet? It is a(n) _____ ₆ planet,
which means its _____ ₇ is much larger

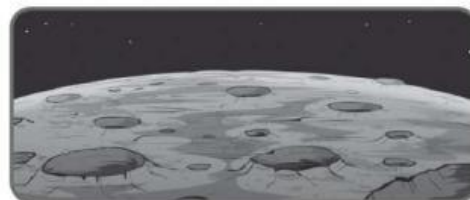
than those of the inner planets. It has rings that you can see easily from a telescope
in a(n) _____ ₈. Saturn is a "gas giant," so most of its _____ ₉ is gas.



C Underline the incomplete sentences.
Then rewrite them to make them complete.

- 1 The moon has a lot of craters. Thousands of craters!
Asteroids and meteorites caused these craters.

- 2 Someday I want to travel to Mars. Or to Ganymede. I'm not sure. If I go, will you go with me?



D Answer the questions.

- 1 What interesting fact will you remember about the universe?

- 2 Would you prefer to be an astronomer or an astronaut? Why?
