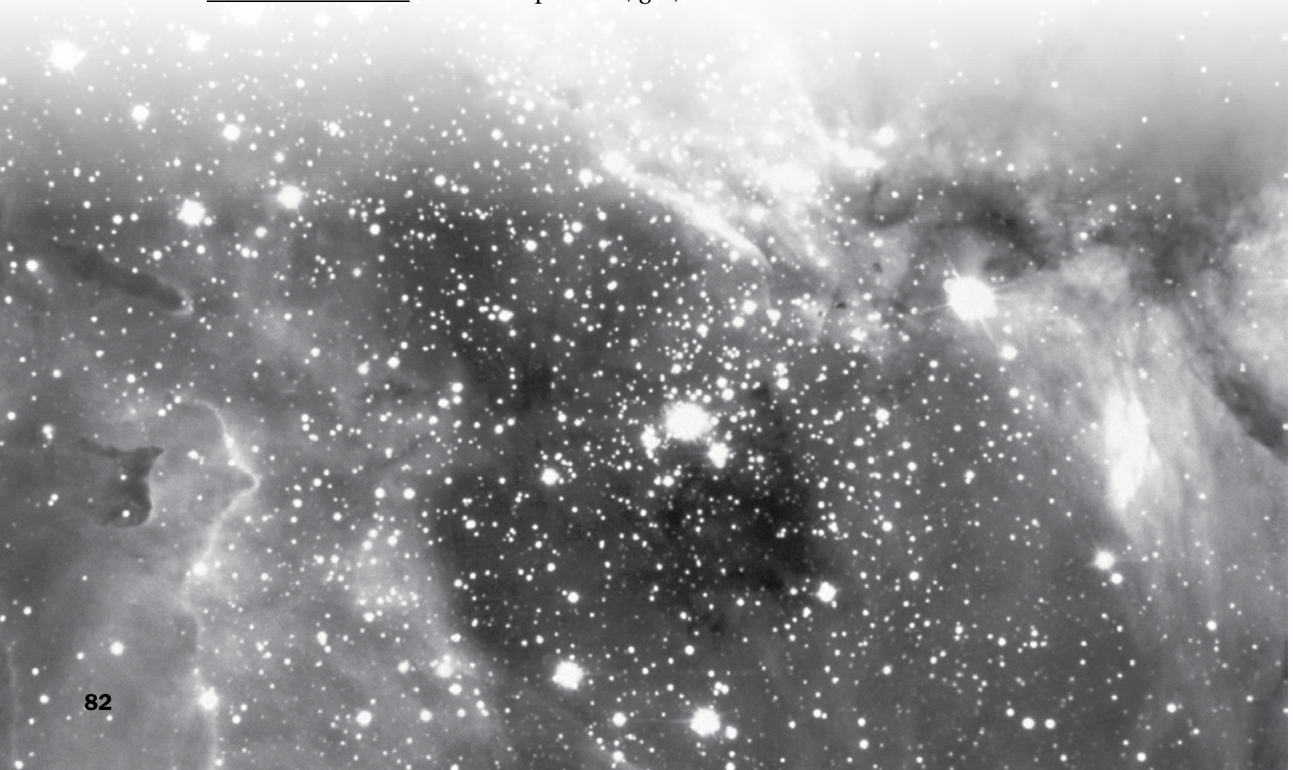
Unit 7

Amazing Space

1 Complete the sentences using the words in the box.

atmosphere	Earth	galaxies	~~journey~~	orbit	planets	space	solar system	traveled

1. A journey is when you go from one place to another.
2. NASA sends robots into space to learn about our solar system.
3. Jupiter is one of the planets in our solar system.
4. There are eight planets in our solar system.
5. Like the other planets in the solar system, Earth orbits the sun.
6. The New Horizons spacecraft traveled at more than 48,000 km (30,000 mi.) per hour.
7. Pluto's atmosphere is made up of the gases nitrogen and methane.
8. Galaxies are made up of dust, gas, and billions of stars.



2 Read about Pluto. Circle the answer you think is correct. Then listen to check. **TR: 45**

1. Pluto is a/an **icy rock** / **dwarf planet**.
2. It takes Pluto **190** / **248** Earth years to orbit the sun.
3. In **2006** / **2016**, NASA's New Horizons spacecraft set off for Pluto.
4. New Horizons **traveled** / **orbited** 5 billion km (3.1 billion mi.) to reach Pluto.
5. Gases make Pluto's atmosphere look **red** / **blue**.
6. It's unlikely that **spacecraft** / **astronauts** will ever visit Pluto.

3 Explain the relationship between Earth and the universe. Answers will vary.

Earth is a planet. It's part of the solar system. The solar system . . .

GRAMMAR

Comparatives: Comparing two things

Adjective + *er* + *than*	Pluto is **smaller than** Saturn. Saturn is **bigger than** Pluto.
more + adjective + *than*	The surface of Earth is **more beautiful than** the surface of Pluto. The new images are **more important than** any others.

We use comparatives to compare two or more things.

For most **one-syllable** adjectives, we add ***–er***: *small* → *small**er***.
For adjectives ending in a consonant and *e*, we add ***–r***: *safe* → *safe**r***.

For adjectives ending in *y*, change *y* to *i* and add ***–er***: *dry* → *dr**ier***.

For adjectives ending in a consonant + vowel + consonant, double the final consonant: *big* → *bi**gger***.

For some **two-syllable** adjectives, we use the ***–er*** ending: *simple* → *simpl**er***, *icy* → *ic**ier***.

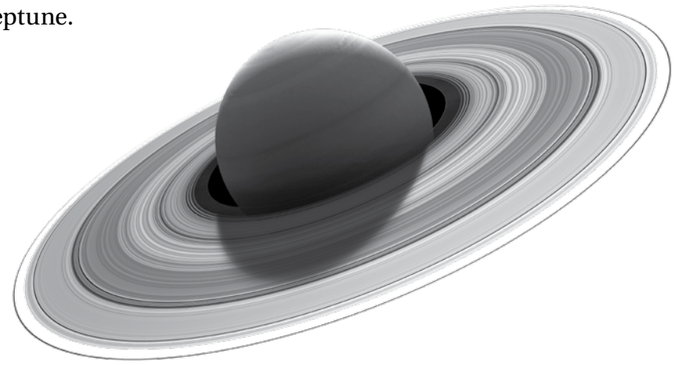
For other **two-syllable** adjectives, we don't change the adjective, but we add *more*: ***more polite***, ***more careful***.

For **three- (or more) syllable** adjectives, we always add *more*: ***more interesting***, ***more beautiful***, ***more important***.

Some adjectives are irregular. You need to learn the comparative form: *good* → ***better***, *bad* → ***worse***, *far* → ***farther***.

4 **Listen and read.** Write the words you hear. **TR: 46**

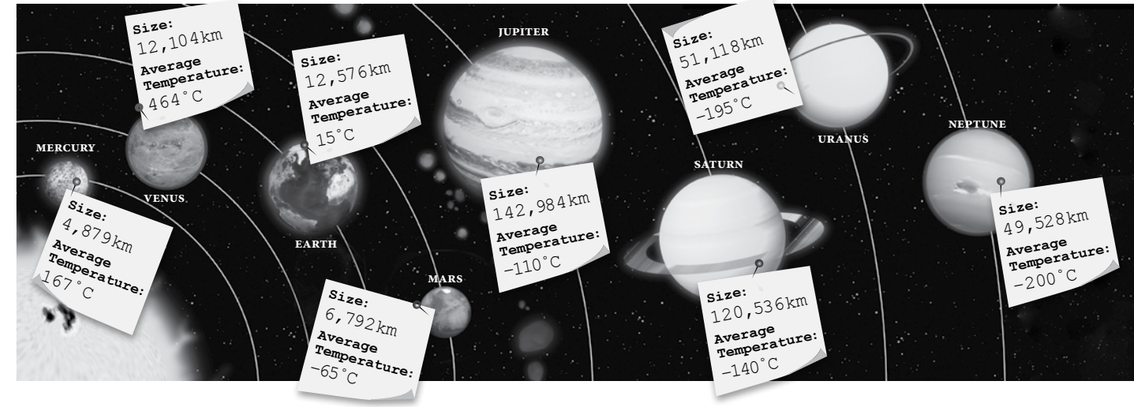
1. The storms on Jupiter are stronger than the storms on Earth.
2. Earth is bigger than Pluto.
3. Mars is smaller than Neptune.
4. Mars is farther from the sun than Earth.
5. It takes Earth longer to orbit the sun than Mercury.
6. Saturn is hotter than Neptune.



5 **Complete the sentences using comparatives.**

1. I think that Saturn is more beautiful (beautiful) than the other planets because of its rings.
2. Pluto is much farther (far) from the sun than Earth. It's also much smaller (small) and colder (cold).
3. Earth is more colorful (colorful) than Mars.
4. Venus is hotter (hot) than Mercury, and Mercury is closer (close) to the sun than Venus.
5. Voyager 2 sent back better (good) images than Voyager 1. The pictures are clearer (clear).
6. The spacecraft Juno can travel nearly five hundred times faster (fast) than a high-speed train.

6 **Look at the diagram.** Write sentences using the comparative forms of *big*, *small*, *hot*, and *cold*.



1. (Size: Mars / Earth) Mars is smaller than Earth.
2. (Temperature: Saturn / Mercury) Saturn is colder than Mercury.
3. (Size: Neptune / Venus) Neptune is bigger than Venus.
4. (Temperature: Earth / Uranus) Earth is hotter than Uranus.
5. (Size: Venus / Earth) Venus is smaller than Earth.
6. (Temperature: Jupiter / Saturn) Jupiter is hotter than Saturn.

7 Listen and read. As you read, look for ways that satellites can help people. **TR: 47**

Help from Above

Mozambique is a beautiful country in southern Africa. However, for a long time, scientists didn't know a lot about it.

In 2005, conservationist Julian Bayliss looked at pictures of Mozambique on Google Earth mapping services. Google uses satellites in space to take photos of Earth. Julian noticed a small area of dark green in northern Mozambique. He zoomed in to take a closer look and discovered Mount Mabu. This was a very exciting discovery for him. He started to plan an expedition to the mountain to learn more about it and Mozambique.

When Julian and his team arrived in 2008, they found that the green area on the satellite images was thick, dense forest. The forest, the heat, and the environment made the expedition difficult, but it was worth it. Julian and his team discovered three new species of butterfly and a new species of snake. We only know about the existence of these animals because Julian spotted the patch of green on his computer screen.

Now, Google's imagery is much more powerful. "People say there is nothing left to be discovered in this world," said Julian. "But there are new species to be discovered. Lost worlds to be found." Perhaps, the best way to find what's on this beautiful planet of ours is to look at it from space.

8 Circle the best ending to complete the sentence.

Satellites can help people by _____.

a. confirming that there's nothing left to be discovered

(b.) taking photographs of Earth for scientists to analyze

c. discovering new species of animals and plants

d. sending signals to watch TV shows

9 Read the sentences. Write **T** for *True* or **F** for *False*.

1. There are mountains and forests in Mozambique. T
2. Julian discovered Mount Mabu when he was in Mozambique. F
3. Scientists didn't go to the forests of Mozambique before 2008. T
4. The area of green on the satellite image was a new species of butterfly. F
5. Julian thinks there's nothing left to be discovered. F

10 Read the text again. Answer the questions.

1. When did Julian discover Mount Mabu?
in 2005

2. Give three reasons why the expedition was difficult.
the forest, the heat, the environment

3. Name two animals that the team of scientists found in the forest.
butterflies and snakes

4. Name three things satellite data can tell us. (You can choose examples from this text and from p. 137 in your book.)
answers include: where animals go, sea temperatures, where forest fires are, find places, predict the weather, make telephone calls, watch TV, discover archaeological sites

11 Use the Internet to look at satellite maps. Try to find where you live. Then identify places near you. Did you discover something new? Answers will vary.

GRAMMAR

Superlatives: Comparing three or more things

the + adjective + *est*	The sun is **the biggest** star in our solar system. Ganymede is **the largest** of Jupiter's moons. Astronomers believe that S/2010 J2 is Jupiter's **smallest** moon.
the most + adjective	The images are **the most detailed** to date. This is **the most important** document.

When we want to compare three or more things, we use superlatives. Superlatives always take *the*.

For most **one-syllable** adjectives, we add ***–est***: *old* → *old**est**, safe* → *saf**est**, big* → *bigg**est**, dry* → *dri**est***. (Remember to follow the same spelling rules for comparatives.)

For some **two-syllable** adjectives, we add ***–est***: *simple* → *simpl**est**, icy* → *ici**est***.

For other **two-syllable** adjectives, we don't change the adjective, but we add *most*: ***most polite***, ***most careful***.

For **three- (or more) syllable** adjectives, we add *most*: ***most interesting***, ***most beautiful***.

Some adjectives are irregular. You need to learn the superlative form:
good → ***best***, *bad* → ***worst***, *far* → ***farthest***.

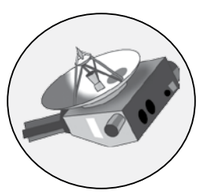
12 Complete the sentences with superlatives.

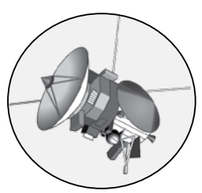
1. Jupiter is the fifth farthest (far) planet from the sun.
2. Jupiter's moon, Ganymede, is the largest (large) in the solar system.
3. Callisto is one of the rockiest (rocky) moons.
4. Io is one of the closest (close) moons to Jupiter.
5. Europa is the brightest (bright) of Jupiter's moons.
6. It's one of the smoothest (smooth) of Jupiter's moons.
7. New Horizons has given scientists the best (good) images of Jupiter's moons to date.
8. Pioneer 10 made the earliest (early) journey to explore Jupiter and its moons in 1973.

13 Read about the missions to Mars. Use the words to write sentences.

1. (early) Mariner 4 was the earliest.
2. (long) Viking 1 was the longest.
3. (short) Mariner 6 was the shortest.
4. (recent) Curiosity Lander was the most recent.

14 Listen. Put the space missions in order by cost, with *1* being the most expensive. **TR: 48**


3 NEW HORIZONS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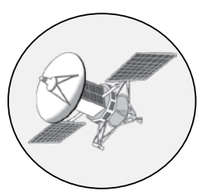
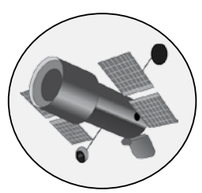

4 MAGELLAN


1 HUBBLE

15 Listen again. Complete the sentences with superlatives. **TR: 49**

1. Hubble was the most expensive mission.
2. Magellan was the cheapest mission.

WRITING

When we write a paragraph to compare and contrast two things, we write about what's the same and what's different. To compare things, use words such as *and* and *both*. To contrast things, use words such as *but, however,* and *although*.

16 Organize.

1. Compare and contrast Saturn and Mars. Look through your book and this workbook to find some facts about each planet. You can also find information in the library or on the Internet. Make notes in the chart.

Answers will vary.

	Saturn	Mars
Type of planet		
Size		
Distance from sun		
Average temperature		
Length of one day		
What surrounds it		
Other facts		

2. Plan your writing. You'll need to start your paragraph with a sentence which introduces the two things you're going to compare and contrast. Write your introductory sentence here.

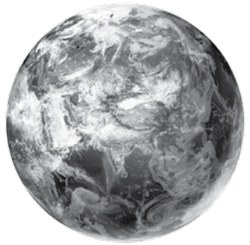
Answers will vary.

Now, organize the points you noted in the chart above. Remember to use comparatives and superlatives where appropriate.

17 Write.

1. Go to p. 141 in your book. Reread the model text.
2. Write your first draft. Check for organization, content, punctuation, capitalization, and spelling.
3. Write your final draft. Share it with your teacher and classmates.

Now I Can . . .



· talk about space.

☐ Yes, I can!
☐ I think I can.
☐ I need more practice.

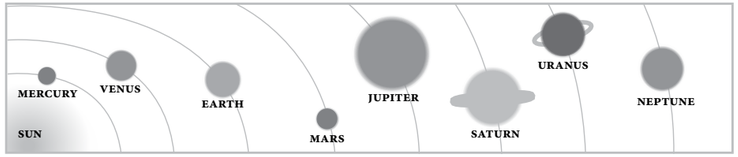
Answer the questions.

1. What's the Milky Way? our galaxy
2. What do all the galaxies form? the universe
3. What's the name of the air that surrounds a planet? atmosphere

· use comparatives to compare things.

☐ Yes, I can!
☐ I think I can.
☐ I need more practice.

Complete the sentences about the solar system.



1. Jupiter is bigger than (big) Earth.
2. Mars is farther (far) from the sun than Mercury.
3. Mercury is closer (close) to the sun than Venus.

· use superlatives to compare three or more things.

☐ Yes, I can!
☐ I think I can.
☐ I need more practice.

Write sentences.

1. close to sun
   Mercury / Venus / Earth Venus and Earth are close to the sun, but Mercury is the closest.
2. hot
   Mercury / Venus / Earth Mercury and Earth are hot, but Venus is the hottest.
3. far from sun
   Saturn / Uranus / Neptune Saturn and Uranus are far from the sun, but Neptune is the farthest.

· write a paragraph to compare and contrast two things.

☐ Yes, I can!
☐ I think I can.
☐ I need more practice.

Choose two spacecraft from this unit and write two sentences to compare and contrast them.

Answers will vary.

Choose an activity. Go to p. 110.