

Adapting to Desert Life

Fill in the circle to complete the sentence. Then answer questions 3, 4, and 5.

1. A jumping cholla is _____.
Ⓐ a mouse
Ⓑ a desert plant
Ⓒ an owl
2. Light-colored mice survive _____.
Ⓐ without camouflage
Ⓑ in sandy-colored places
Ⓒ in lava rock habitats
3. How are the roots of a barrel cactus related to its habitat?

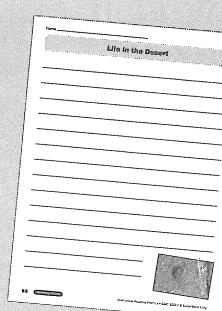
4. Can you explain how an animal's color helps it survive?

5. What is the main idea of this text?

Write About the Topic

Use the Writing Form to write about what you read.

You are a hungry desert owl. Write a narrative about the rock pocket mouse that got away. Explain why.



Pluto

Level 1 ■■■

Words to Know list, Reading Selection, and Reading Comprehension questions

Pluto, a Dwarf Planet

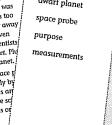
Pluto is a large object in our solar system that orbits around the sun. People didn't know that there were other planets in our solar system until they learned about Earth, Mars, Venus, Mercury, Jupiter, and Saturn. They thought that these planets were the only ones in the solar system because they could not spot other planets.

Sky watchers had stronger telescopes by 1781. They found two more planets. They called it Uranus. Some people thought that there were more planets to be found. In 1846, Neptune was discovered. That made eight planets.

The American astronomer Percival Lowell, an astronomer in Arizona, in 1905, he believed something was missing from his observatory. Planet X. He looked at the night sky from his observatory without finding Planet X. But Clyde Tombaugh, who worked at the Lowell Observatory, discovered it in 1930. Planet X became known as Pluto.

Pluto was called the ninth planet for 76 years. In 2006, some people said that Pluto was not a planet. Some people said that Pluto was very different from other planets. It is even smaller than Earth's moon. In 2006, some people said that Pluto was a dwarf planet. Now it is known that Pluto is now called a dwarf planet.

Kenneth S. Edgett sent the New Horizons space probe to Pluto in 2006. In 2015, the probe took pictures of Pluto. It is the first probe taking pictures of the dwarf planet. New Horizons may give us a look at other objects. It is the first probe to look out of our solar system in a new way, heading out of our solar system.

Photo A 
Photo B 

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Level 2 ■■■

Words to Know list, Reading Selection, and Reading Comprehension questions

Pluto, Not a Planet Anymore

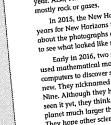
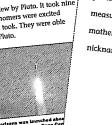
Pluto is a small, icy world. For 76 years, people thought that it was a ninth planet. Then in 2006, some people made a new definition of the word planet. Pluto didn't fit the new definition. So it did not match the characteristics of a dwarf planet.

A dwarf planet has much in common with a regular planet. Both orbit the sun. Both also appear much larger than a star. Both have moons and have many objects regular planets have. It is no way as it travels around the sun. It is surrounded by many objects. Pluto is surrounded by many objects. So it is considered to be a planet.

For many years there were confusions about Pluto. It is very much smaller than the eight planets. It is closer to the sun than the Earth and the Moon. It only takes the Earth one year to orbit the sun. The eight planets are made up of mostly rock or gas.

In 2015, the New Horizons space probe flew by Pluto. It took nine years to travel to get to Pluto. The scientists were excited to see what took place on the ice of Pluto.

Early in 2006, two scientists used mathematical models and computers to discover something new. They called it the Plutoid. Since then, although they have not seen it yet, they think it is a dwarf planet, not a planet. They hope other scientists will help them search the night sky for the new planet.

Photo A 
Photo B 

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Level 3 ■■■■■

Words to Know list, Reading Selection, and Reading Comprehension questions

Pluto, Once a Planet

For 76 years, schoolchildren learned that there were nine planets. When new definitions came up with the new definition, was it true that Pluto was not a ninth planet? It didn't shrink in size, but it did change its classification. It is still a dwarf planet. In standing, Pluto is not a planet.

Pluto's planetary classification was not a planetary astronomer. Pluto had always been viewed as a different kind of object. It is much smaller and farther away from the sun. It has an unusual orbital path. The eight planets orbit the sun on the same plane. Some meant that the objects were a planet. CD's orbit the sun on the same plane. The eight planets orbit the sun on the same plane. Pluto isn't on the same plane. It moves on a different plane.

In order for something to be classified as a planet, it also must be round in shape. Lastly, it cannot be close to other objects or neighbors. It must be able to move on its own. The solar system objects make up this belt ringed with objects. Some KBOs (large bodies) are as big as Pluto. If Pluto were to fall into this belt, it would have to be very careful. In 2016, two scientists of the California Institute of Technology discovered something else. Their mathematical model told them there was a giant gas planet much larger than Pluto. They called it the ninth planet. They calculated that it would take 20,000 years to orbit the sun. Earth orbits the sun in one year. They named it the Kuiper Belt. However, no one has observed it in the sky yet. So for now, scientists recognize eight planets.

Photo A 
Photo B 

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Assemble the Unit

Reproduce and distribute one copy for each student:

- Visual Literacy page: Our Solar System, page 91
- Level 1, 2, or 3 Reading Selection and Reading Comprehension page and the corresponding Words to Know list
- Graphic Organizer of your choosing, provided on pages 180–186
- Writing Form: Pluto, page 92

Introduce the Topic

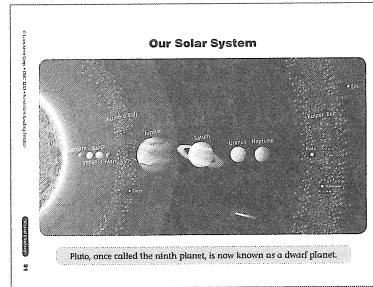
Review the diagram of the solar system with students. Explain that Pluto was once thought to be a planet, but today it is known as a dwarf planet. Scientists continue to make exciting new discoveries about what lies in the solar system and beyond.

Read and Respond

Form leveled groups and review the Words to Know lists with each group of students. Instruct each group to read their selection individually, in pairs, or as a group. Have students complete the Reading Comprehension page for their selection.

Write About the Topic

Read aloud the leveled writing prompt for each group. Tell students to use the Graphic Organizer to plan their writing. Direct students to use their Writing Form to respond to their prompt.



Visual Literacy

Pluto

Page 92

Graphic organizer for writing about Pluto.

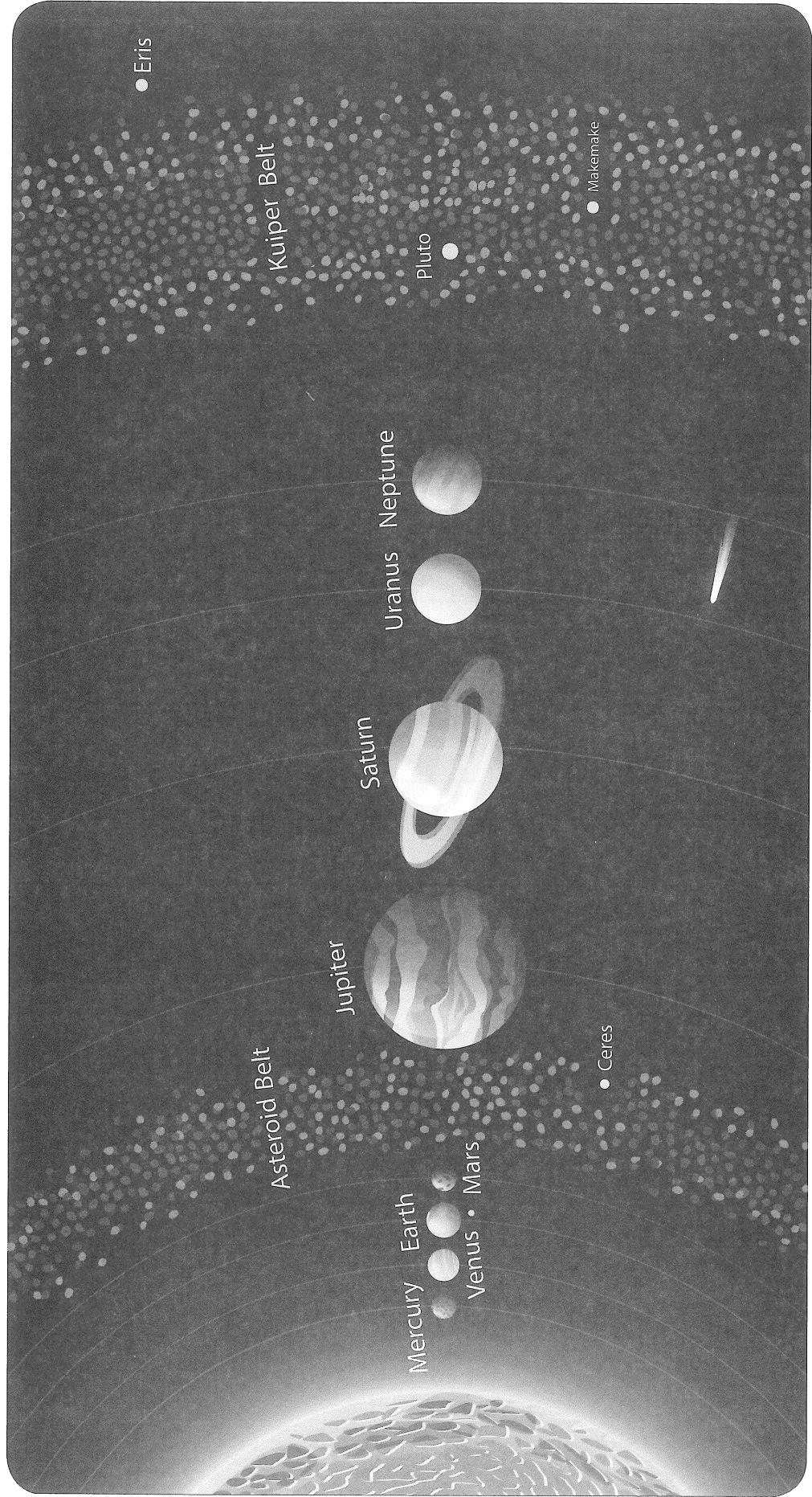
Graphic Organizer

Pluto is a dwarf planet. It is the ninth planet from the sun. It is smaller than Earth. It is made of rock and ice. It has a thin atmosphere. It has a large moon named Charon. It has several smaller moons. It is located in the Kuiper Belt. It is a cold, dark place. It is far from the sun. It takes 248 years to orbit the sun. It is smaller than Earth. It is made of rock and ice. It has a thin atmosphere. It has a large moon named Charon. It has several smaller moons. It is located in the Kuiper Belt. It is a cold, dark place. It is far from the sun. It takes 248 years to orbit the sun.

Writing Form

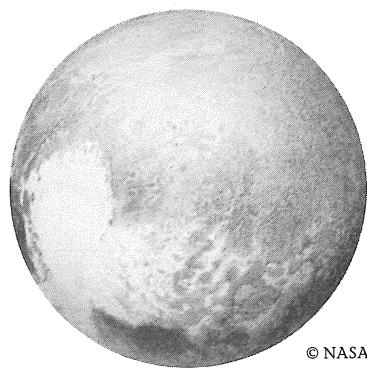
Nonfiction Reading Practice • EMC 3233 • © Evan-Moor Corp.

Our Solar System



Pluto, once called the ninth planet, is now known as a dwarf planet.

Pluto



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Words to Know

Pluto, a Dwarf Planet

orbited
telescopes
focus
astronomer
observatory
photographed
definition
dwarf planet
space probe
purpose
measurements

Pluto ■



Words to Know

Pluto, Not a Planet Anymore

definition
dwarf planet
orbit
surrounded
confusion
space probe
astronomers
photographs
measurements
mathematical
nicknamed

Pluto ■ ■

Words to Know

Pluto, Once a Planet

definition
dwarf planet
classification
astronomers
orbit
tilted
surrounded
mathematical
simulations
calculated
nicknamed
observed

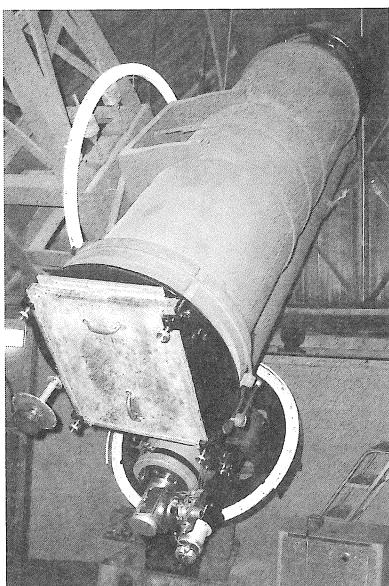
Pluto ■ ■ ■

Pluto, a Dwarf Planet

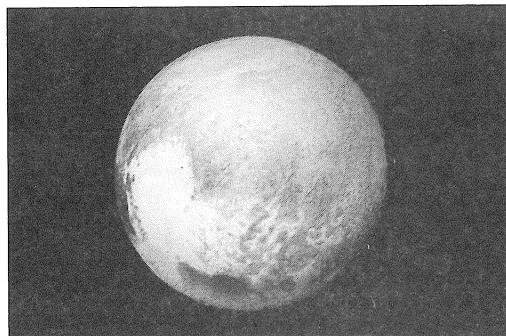
Planets are large objects that travel around the sun. People once thought that six planets orbited our sun. They knew about Earth, Mars, Venus, Mercury, Jupiter, and Saturn. They could see these planets with their eyes. Early telescopes could not spot other planets.

Sky watchers had stronger telescopes by 1781. They spotted a seventh planet. They called it Uranus. Some people thought there were more planets to be found. They were right. In 1846, Neptune came into focus. That made eight planets.

The American astronomer Percival Lowell built an observatory in Arizona. In 1906, he began searching for something he called Planet X. He photographed the night sky from his observatory. Lowell died without finding Planet X. But Clyde W. Tombaugh, who worked at the Lowell Observatory, discovered it in 1930. Planet X became known as Pluto.



The telescope used in the discovery of Pluto is kept at the Lowell Observatory, Flagstaff, Arizona.



© NASA

This picture of Pluto was taken by New Horizons on July 13, 2015. It shows a heart shape.

Pluto was called the ninth planet for 76 years. But not everyone agreed that Pluto was a planet. Some people said that Pluto was too different from other planets. It is very far away from the sun. It is also very small. It is even smaller than Earth's moon. In 2006, scientists wrote a new definition for the word *planet*. Pluto lost its place! It is now called a dwarf planet.

Scientists sent the New Horizons space probe into space in 2006. Its purpose was to fly by Pluto. It flew by in 2015, taking pictures and measurements. New Horizons may give scientists a look at other objects, too. It continues on its way, heading out of our solar system.

Pluto, a Dwarf Planet

Fill in the circle to complete the sentence. Then answer questions 3, 4, and 5.

1. Clyde W. Tombaugh discovered Pluto based on the work of _____.
Ⓐ New Horizons
Ⓑ Percival Lowell
Ⓒ a dwarf planet
2. Because Pluto is even smaller than Earth's moon, _____.
Ⓐ it is a dwarf planet
Ⓑ it is very far away from the sun
Ⓒ New Horizons flew by it
3. Why do you think it took sky watchers so long to find Pluto?

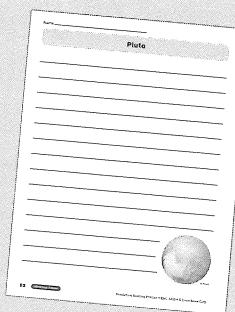
4. How long did it take New Horizons to reach Pluto? What do you conclude from this fact?

5. Do you think scientists could find a new planet? Support your answer.

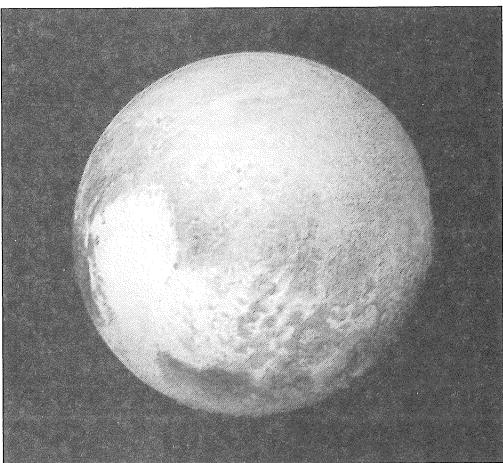
Write About the Topic

Use the Writing Form to write about what you read.

Write from the point of view of Pluto. Explain how you were found. Tell what happened after that.



Pluto, Not a Planet Anymore



© NASA

New Horizons took this photo of Pluto and sent it back to NASA scientists on Earth.

Pluto is a small, icy world. For 76 years, people thought it was a ninth planet. Then in 2006, scientists made a new definition for the word *planet*. Pluto didn't fit the new definition. But Pluto did match the definition of a dwarf planet.

A dwarf planet has much in common with a regular planet. Both orbit the sun. Both also appear nearly round. But a regular planet does not have any objects in its way as it travels around the sun. Pluto is surrounded by other icy objects. So scientists say it is not a planet.

For many years there was confusion about Pluto. It seemed much different than the eight planets. It is very small. Pluto is even smaller than the Earth's moon! It is also very far away from the sun. It takes Pluto 248 years to travel around the sun. It only takes the Earth one year. Also, Pluto is covered in ice. The eight planets are made up of mostly rock or gases.

In 2015, the New Horizons space probe flew by Pluto. It took nine years for New Horizons to reach Pluto. Astronomers were excited about the photographs and measurements it took. They were able to see what looked like mountains of ice on Pluto.

Early in 2016, two scientists used mathematical models and computers to discover something new. They nicknamed it Planet Nine. Although they have not seen it yet, they think it is a planet much larger than Pluto. They hope other scientists will help them search the night sky for the new giant.



© NASA

New Horizons was launched aboard a rocket on January 19, 2006, from Cape Canaveral, Florida.

Pluto, Not a Planet Anymore

Fill in the circle to complete the sentence. Then answer questions 3, 4, and 5.

1. Pluto is different from the eight planets because _____.
Ⓐ it travels around the sun
Ⓑ it is surrounded by other objects
Ⓒ it is made up of gases

2. Pluto became a dwarf planet in _____.
Ⓐ 2016
Ⓑ 2015
Ⓒ 2006

3. In your mind, which reason is the strongest one for naming Pluto a dwarf planet?
-
-

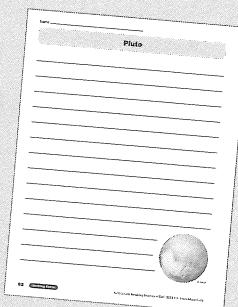
4. What is your opinion about the discovery made in 2016?
-
-

5. What is the author's purpose in writing this text?
-
-

Write About the Topic

Use the Writing Form to write about what you read.

Write from the point of view of Pluto. Explain what happened in 2006, and what has happened since then.



Pluto, Once a Planet

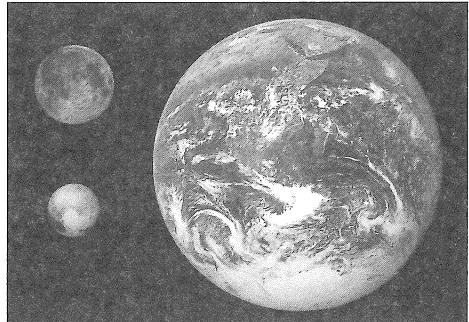
For 76 years, schoolchildren learned that there were nine planets. That changed in 2006, when scientists came up with a new definition for the word *planet*. Pluto, the ninth planet, was dwarfed. It didn't shrink in size, but it shrunk in standing! Pluto is now called a dwarf planet.

Pluto's change in classification was not a surprise to many astronomers. Pluto had always been viewed as different from the other eight planets. Besides being smaller and farther away from the sun, it also has an unusual orbit. The eight planets orbit the sun on the same plane. This means that if the solar system were a giant CD, these eight planets would be on the same disc. The sun would be the hole at its center. Pluto isn't on the same disc; it moves on a different plane. It is as if Pluto's disc were tilted.

Its orbit is one reason Pluto was pushed out of place as a planet. In the 2006 definition, a planet has to travel around the sun. It also must be round in shape. Lastly, its orbit must be clear of other objects, or neighbors. Pluto is surrounded by neighbors—its path is not clear.

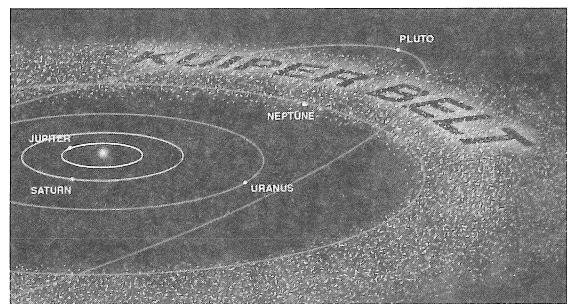
Pluto sits in the middle of the Kuiper Belt. Thousands of icy objects make up this belt ringing the outer edge of the solar system. Some KBOs (Kuiper Belt Objects) are as big as Pluto. If Pluto were called a planet, then some KBOs would have to be called planets, too.

Early in 2016, two scientists at the California Institute of Technology discovered something new. Their mathematical models and computer simulations tell them there is a giant gas planet much larger than Pluto. They calculated it would take this planet 10,000 to 20,000 years to orbit the sun. Earth orbits the sun in one year! They nicknamed their discovery Planet Nine. However, no one has observed it in the sky yet. So for now, scientists recognize eight planets.



© NASA

Compare the sizes of Earth, Earth's moon, and Pluto.



© NASA

The Kuiper Belt has dwarf planets, comets, and thousands of icy objects. The first KBO was discovered in 1992.