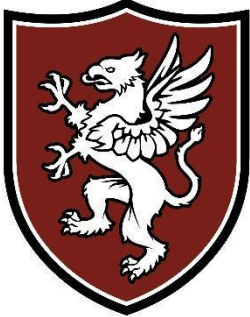


# GreatHearts

Northern Oaks



## Supplemental Resources Packet

April 27 – May 1, 2020

### 1st Grade

Mrs. Albertson

Mrs. Borden

Mrs. Brogan

Mrs. McIntosh

Student Name: \_\_\_\_\_ Section: \_\_\_\_\_

## Windy Nights

By Robert Louis Stevenson

---

**Monday** Whenever the moon and stars are set,  
Whenever the wind is high,  
All night long in the dark and wet,  
A man goes riding by.

---

**Tuesday** Late in the night when the fires are out,  
Why does he gallop and gallop about?  
Whenever the trees are crying aloud,  
And ships are tossed at sea,

---

**Wednesday** By, on the highway, low and loud,  
By at the gallop goes he.  
By at the gallop he goes, and then  
By he comes back at the gallop again.

# ADJECTIVES

## DESCRIBING WORDS



LOOKS

fluffy

SOUNDS

loud

FEELS

soft

ACTS

excited



TASTES

cheesy

LOOKS

yummy

SMELLS

delicious

FEELS

greasy

I love pepperoni pizza.

My dog is fluffy and black.

## The Parts of Speech Poem

Every name is called a **NOUN**,  
As freedom, pencil, Texas, clown.



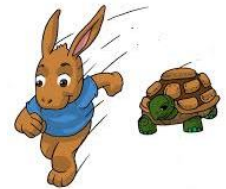
In place of a noun the **PRONOUN** stands,  
As he and she can clap their hands.

An **ADJECTIVE** describes a noun,  
Words like large, small, sad, glad, brown.



A **VERB** mean action something done,  
To read, to write, to jump, to run.

How things are done, the **ADVERB** tells,  
Quickly, slowly, badly, well.



**!** An **INTERJECTION** cries out HARK!!!  
I need an exclamation mark!!

Through poetry we learn how each,  
Of these make up the PARTS OF SPEECH.



## The Sun: Exploring Space

By: [Colleen Sexton](#)

Eager students will explore how the sun works and its relationship to Earth and the other planets.

**6-8**

Age Range

**K**

GR Level

 [Favorite](#)

 [Assign](#)

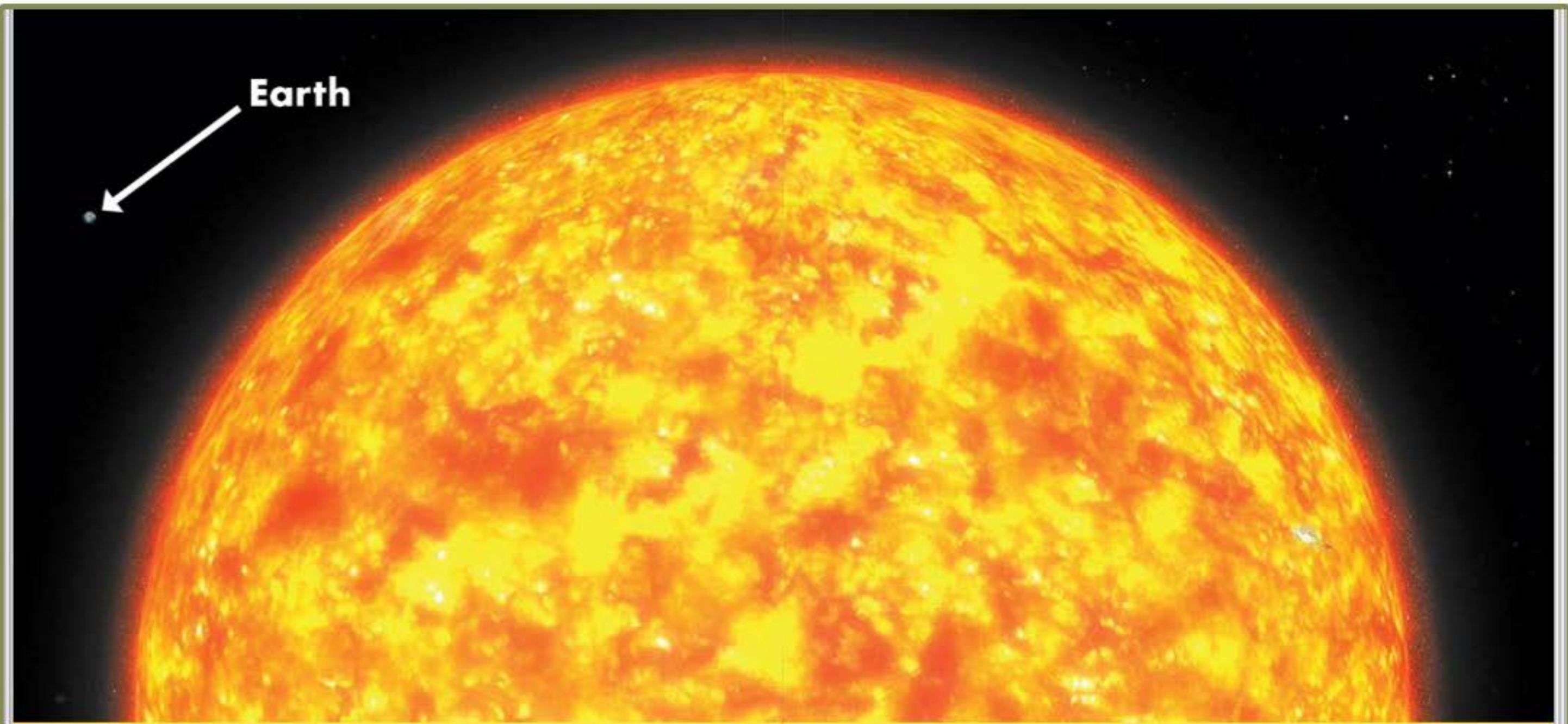
## Contents

What Is the Sun?	4
The Sun's Surface	10
The Sun and Earth	15
Glossary	22
To Learn More	23
Index	24



The sun is a **star**. It is the center of the **solar system**.

The planets and all other objects in the solar system **orbit** the sun.

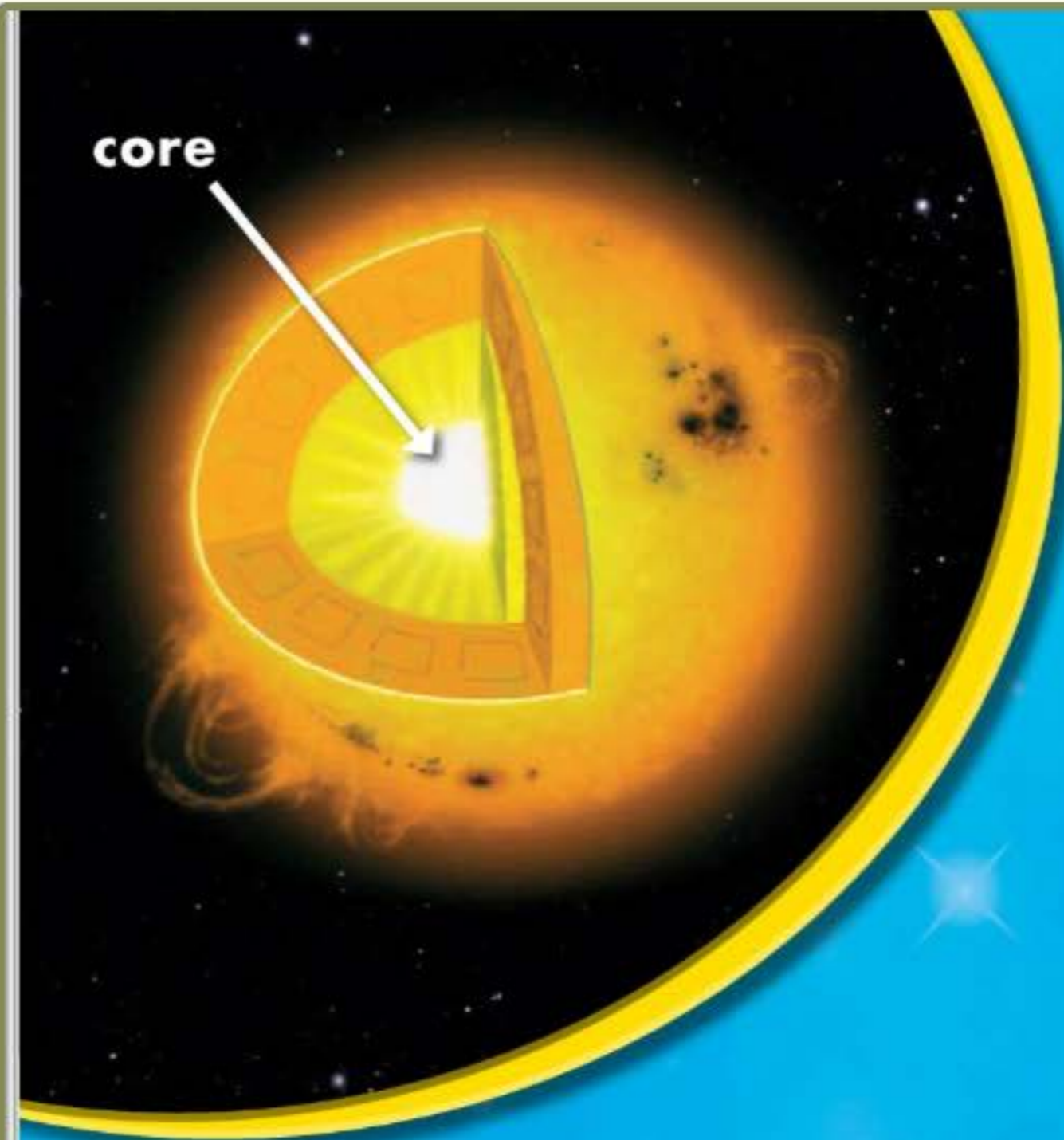


The sun is huge. More than one million Earths could fit inside the sun.

6

The sun is about 865,000 miles (1.5 million kilometers) wide. About 109 Earths could fit across the sun.

7



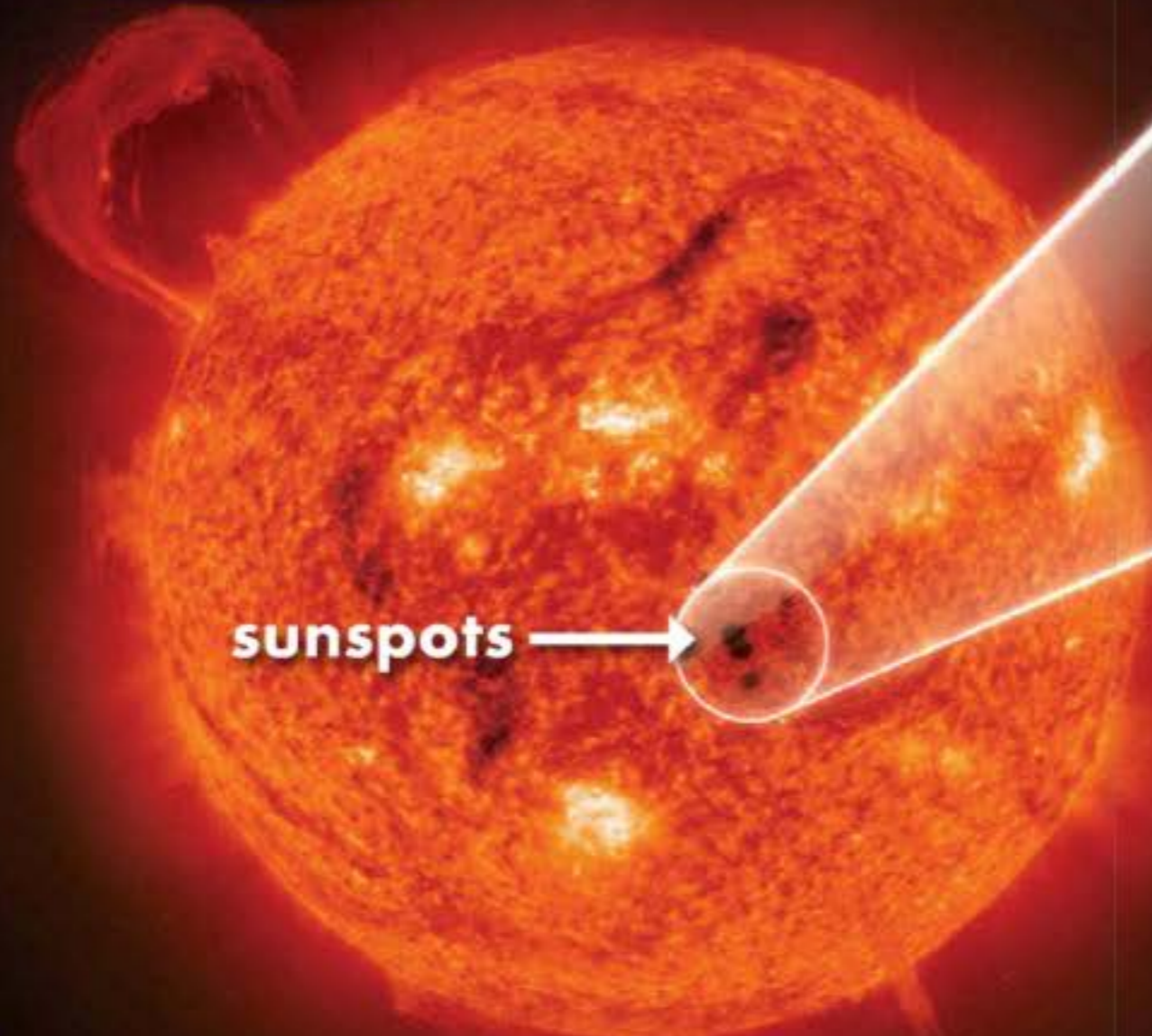
The sun is made of **gases**.  
The gases smash into each other in  
the **core** and let out **energy**.

The energy moves to the surface.  
It leaves the sun as light and heat.  
The light and heat reach Earth in  
only eight minutes!

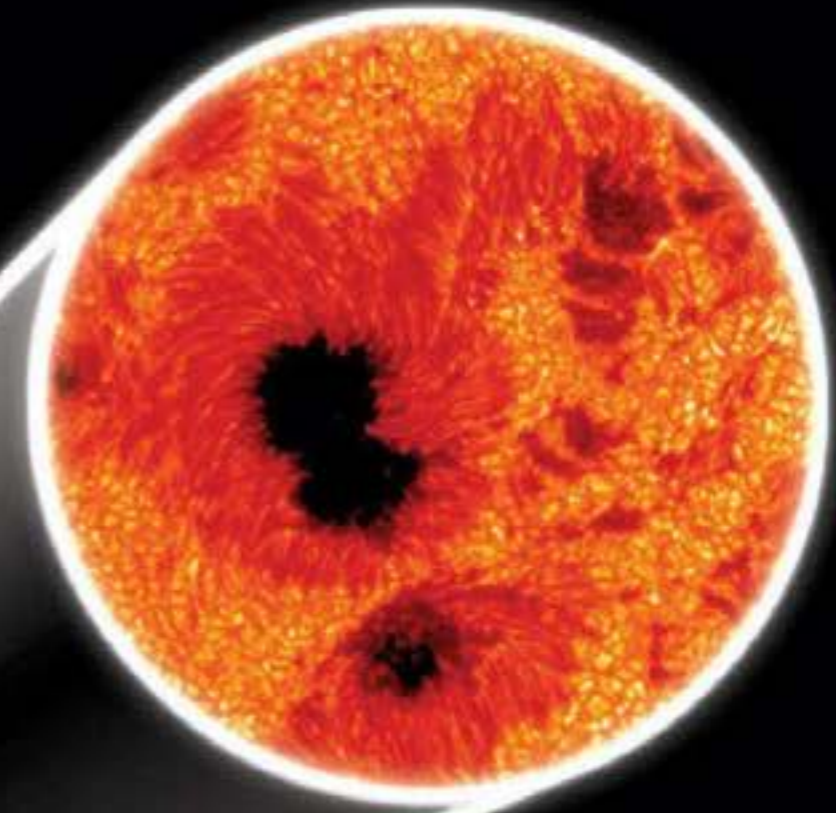




The surface of the sun is very hot. It is about 10,000° Fahrenheit (5,500° Celsius).



**sunspots** →



**Sunspots** appear on the sun. These dark patches are cooler than the rest of the surface.

The surface of the sun bubbles. Giant loops called **prominences** sometimes stretch out from the surface.



**solar flare**



Explosions above the surface make **solar flares**. Gases from solar flares shoot out into space.

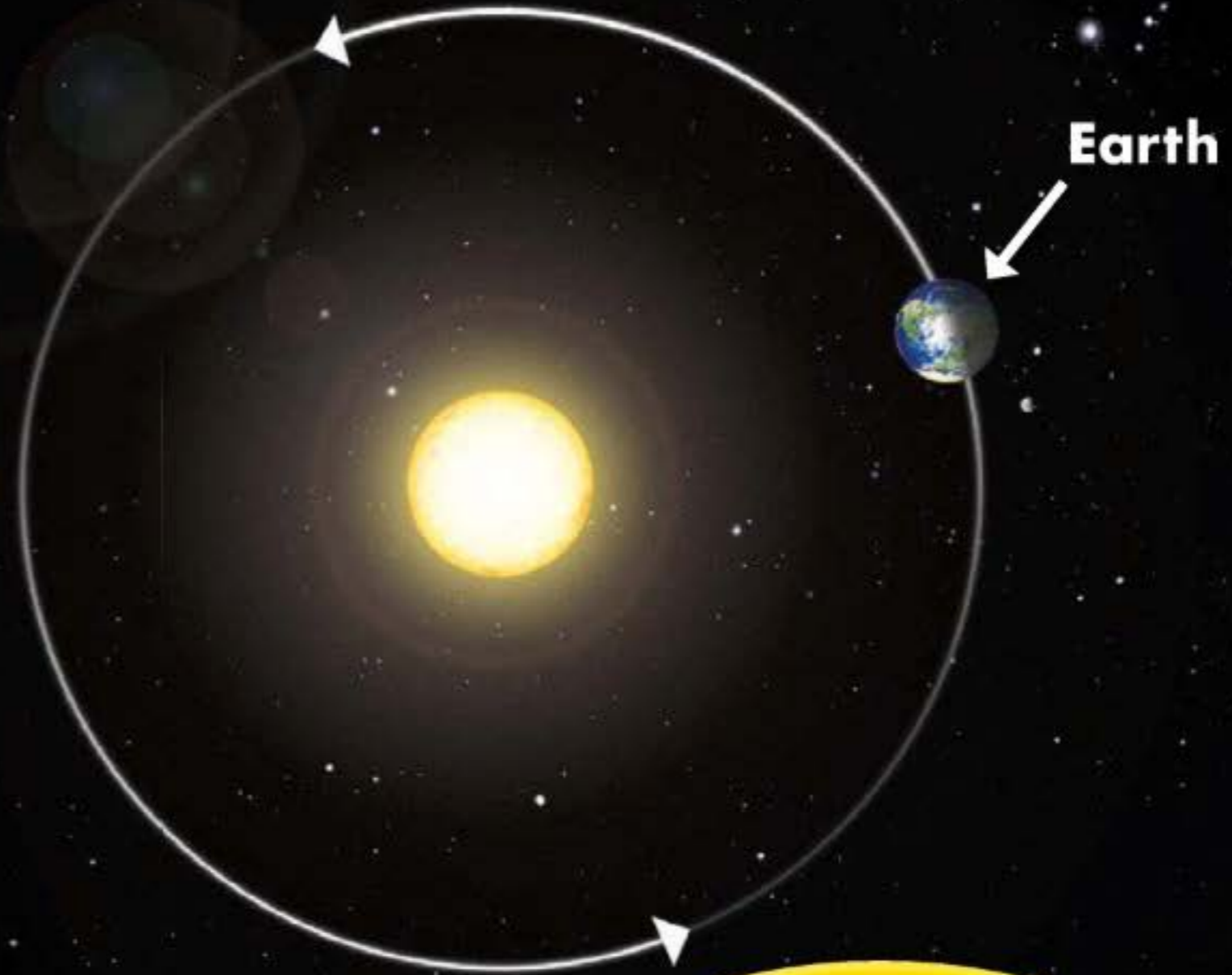


The sun sends out **solar wind**. These streams of gas flow through space.

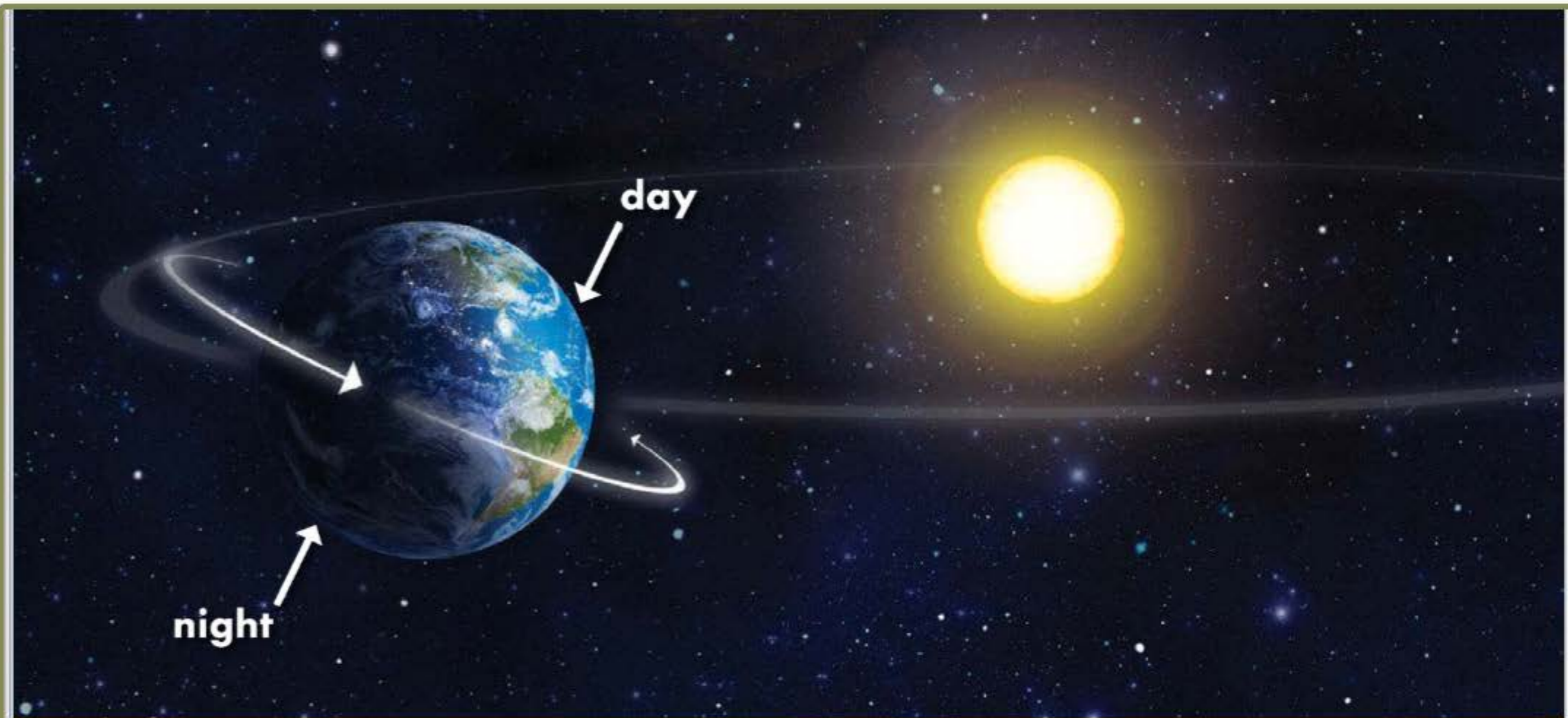
Solar wind can make **auroras** in the night sky on Earth. Auroras are often bands of green, red, or purple light.



The sun is 93 million miles (150 million kilometers) from Earth. That is just the right distance. Earth is not too hot or too cold. People, animals, and plants can live there.




It takes Earth one year to orbit the sun. The seasons change as Earth circles the sun.



Earth spins around once in a day.  
From Earth, the sun appears to  
move across the sky.

The sun's light only shines on half  
of Earth at a time. It is day where  
the sun shines. It is night where the  
sun does not shine.



The sun gives Earth heat and light. Its energy stirs Earth's **atmosphere** to make the weather. It gives us food by helping plants grow.

Without the sun, Earth would be a cold, dark place. The sun gives us the energy we need to live!

## Glossary

**atmosphere**—the gases around an object in space

**auroras**—colorful lights in the night sky that appear when solar wind hits Earth; auroras can be seen most often in the far north and far south; they are also called northern lights and southern lights.

**core**—the center of the sun or a planet

**energy**—power that can be used; the sun's energy gives us the heat and light we need to live and work.

**gases**—matter that floats freely; the matter is close together at the core of the sun and it spreads out as it gets farther away from the core.

**orbit**—to travel around the sun or other object in space

**prominences**—giant loops of burning gases that shoot out from the sun's surface

**solar flares**—bursts of light and energy that explode from the surface of the sun

**solar system**—the sun and the objects that orbit it; the solar system has planets, moons, comets, and asteroids.

**solar wind**—matter from the sun's gases that flows out into space

**star**—a large ball of burning gases in space; the sun is a star.

**sunspots**—dark patches on the surface of the sun that are cooler than the rest of the sun's surface

Almost Done! 

Turn the page to finish this book.

### Sun Do Now

Directions: Circle the correct answers in questions 1 and 2, using the “The Sun: Exploring Space” text resource. Draw a picture of the Earth spinning around the Sun in question 3.

1. What is the center of solar system?

a. The Moon

b. The Earth

c. The Sun

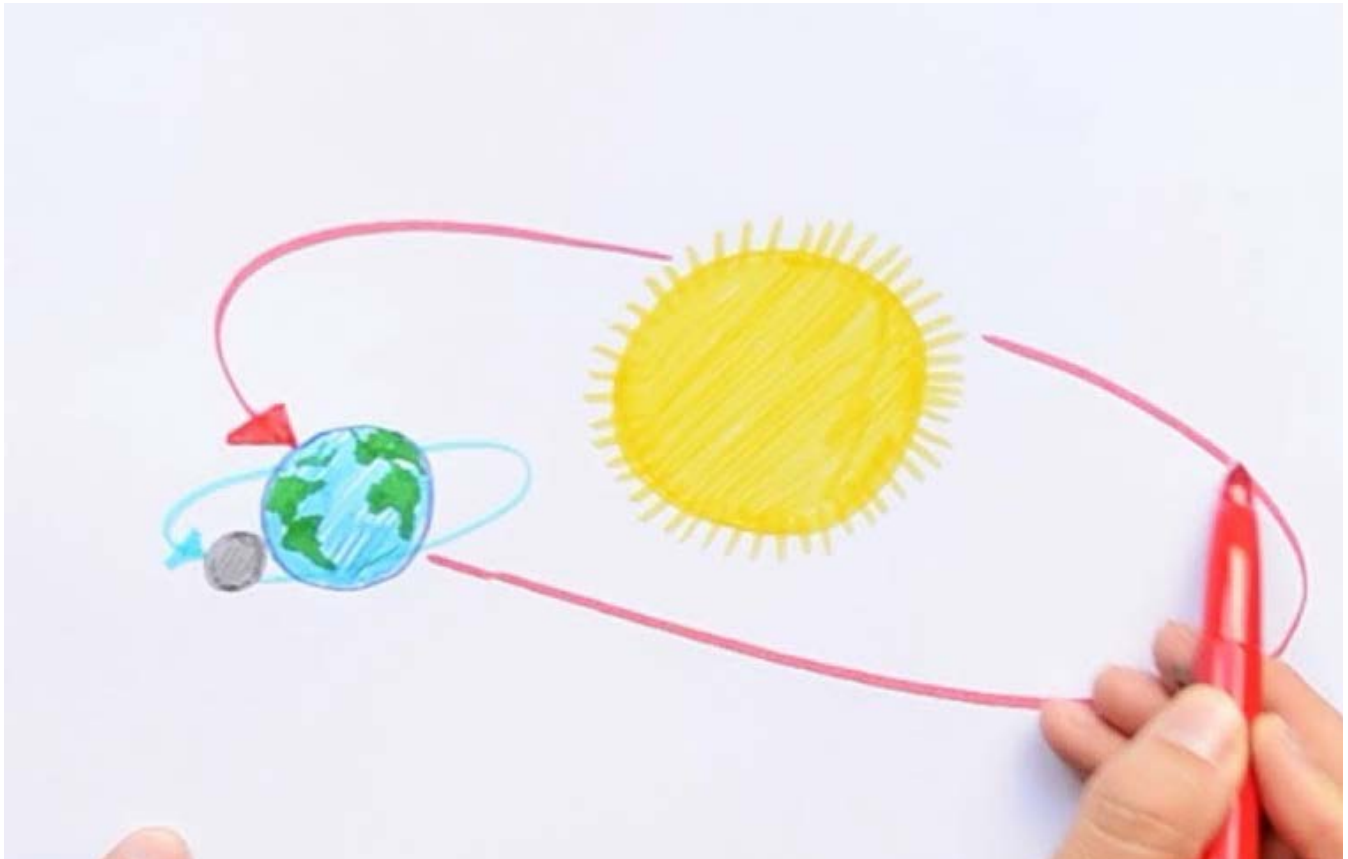
2. What is the sun made out of?

a. The sun is made out of hot gases.

b. The sun is made out of a giant rock.

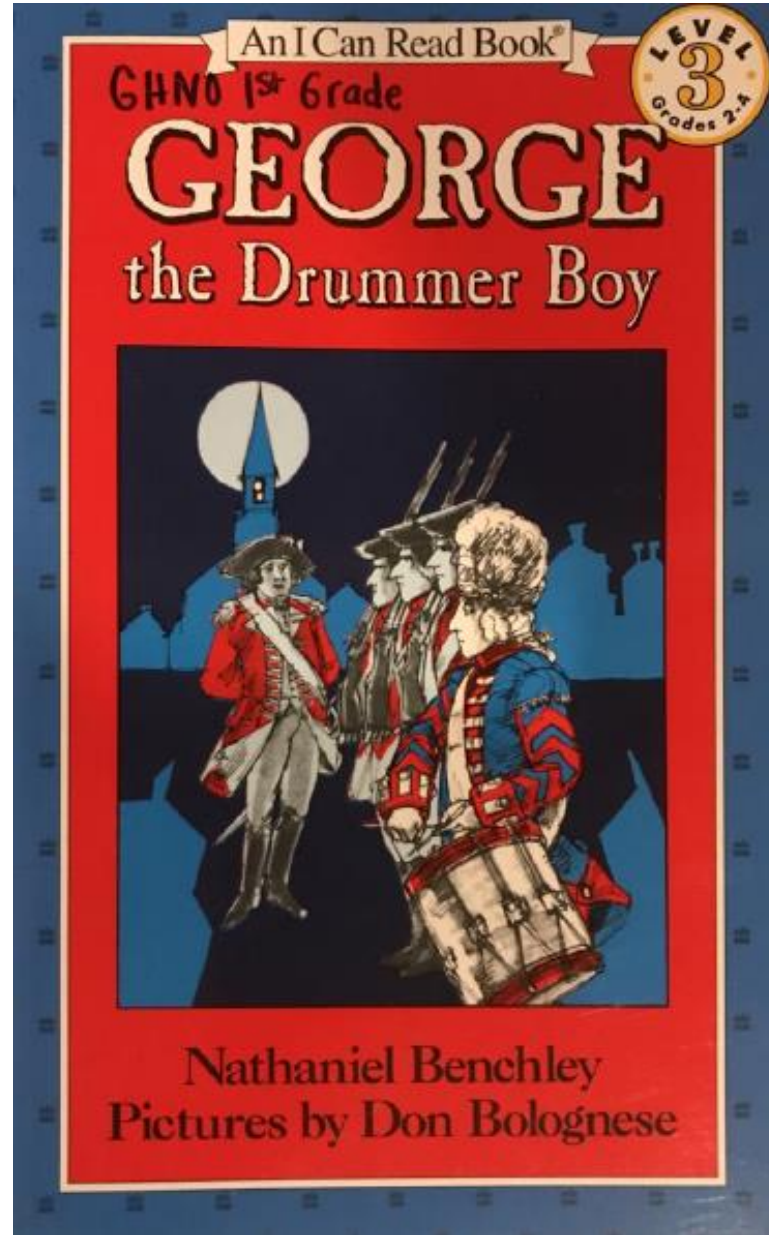
c. The sun is made out of a liquid ocean.

3. Draw a picture of the Earth spinning around the Sun.





# George the Drummer Boy – Part I





George was a drummer boy  
with the King's soldiers.  
They were stationed in Boston.  
Two hundred years ago,  
Boston belonged to England.



The Boston people  
did not like the taxes  
the King made them pay.  
Since they could not show their anger  
to the King,  
they showed it to his soldiers.



George wanted to be friends  
with the people.  
But it was hard to be friends.  
All they did was shout  
and throw things  
at the soldiers.



A spy told the British commander,  
“People are hiding cannon  
and gunpowder in Concord.”  
Concord was a town  
about twenty miles from Boston.

The commander, General Gage,  
decided to send troops out  
to capture all the cannon and powder  
they could find.  
He made his plans in secret,  
so the people  
would be taken by surprise.





First,  
he picked two companies of soldiers,  
and said they were going to have  
special training.  
George's company was one of these.  
When he heard the news,  
he went to see his friend Fred.



"What does it mean?" he asked.

"No idea," Fred replied.

"Why not ask someone?" said George.



"In the Army you don't ask questions,"

Fred said.

"You do as they tell you."



Next, General Gage had men fix the barges and long boats.

"Maybe this means we go to sea," George said.

"I hope not," said Fred.

"Unless, of course, they take us home."





Three nights later,  
after the soldiers had gone to bed,  
they were awakened,  
and told to get dressed.

“What kind of training is this?”

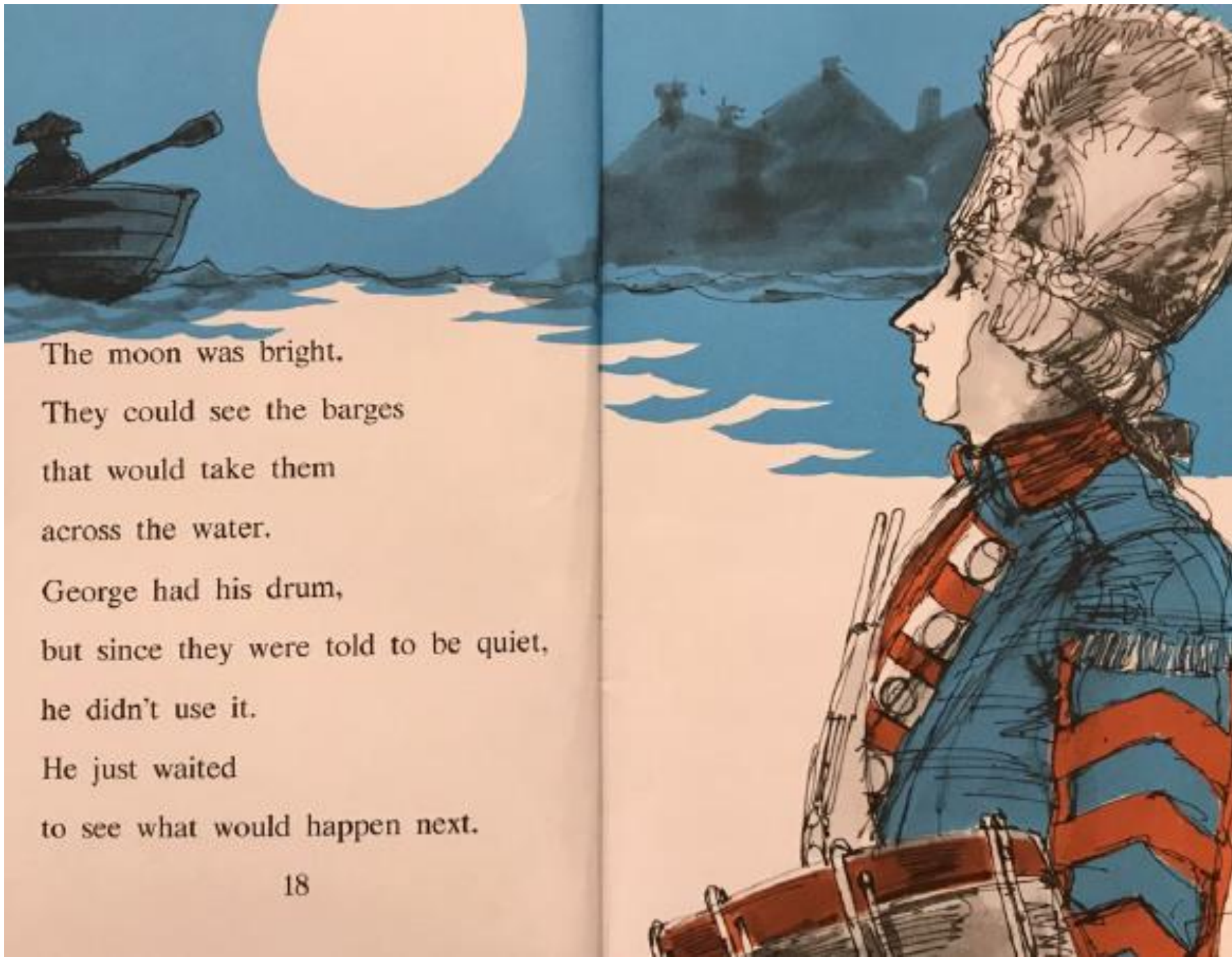
George asked.

“Do they want us to play owls?”

“Don’t ask,” said Fred.

“Just dress.”





The moon was bright,  
They could see the barges  
that would take them  
across the water,  
George had his drum,  
but since they were told to be quiet,  
he didn't use it.  
He just waited  
to see what would happen next.





They crowded  
into the boats and barges,  
and were rowed  
across the Charles River  
to Charlestown.



It was early spring,  
and the wind from the east was cold.  
George sat close to Fred,  
to keep warm.

In Charlestown, they waded ashore  
through water up to their knees,  
and then they waited.

They waited for two hours,  
standing around shivering  
in the cold.





Behind them, in Boston,  
George saw two lights in the spire  
of the Old North Church.  
“I wonder what they mean,” he said.  
“Most likely they’re a signal,”  
said Fred.  
“What for?” asked George.  
“The General hasn’t told me,”  
Fred said.  
George was too cold to laugh.



At last, they started to march.  
Major Pitcairn was in charge  
of George's company.  
He told them  
they were going to Concord,  
to look for hidden guns and powder.

George sneezed.

"Shh," said Fred.

"You'll wake the countryside."

After a while, they could hear  
the boom of cannon in the distance.





Far-off church bells were ringing.  
Dim shapes of running men  
went by them in the dark.  
They heard  
the thud of horses' hooves.





"I think they know we're coming,"  
George said.

"I told you not to sneeze so loud,"  
said Fred.

"Big joke," said George.

"I'm scared."

"Those lights we saw," said George.

"They must have been a signal  
we were on our way."

"That's right," Fred replied.

"This may turn out  
to be a long day."

## Amazingly Awesome Adjectives 1

Directions: Circle the noun(s) with a RED crayon and highlight the adjective with a YELLOW crayon.

Example: The **tree** is **tall**.

1. I love **pepperoni** **pizza**.

2. Your **blue** **coat** is **fluffy**.

3. **Snow** is **cold** and **wet**.

### Optional Additional Practice

4. The **bright** **sun** is **hot**.

5. I like **sweet** **pie**.

SPACE

Great Hearts  
Northern Oaks  
First Grade Team

# Planets





# Planets

Contents



Planets are in space.



Space is up above the sky.

# What Are Planets Like?



Planets are giant objects in space.



Planets are shaped like balls.



Some planets are made of rock.

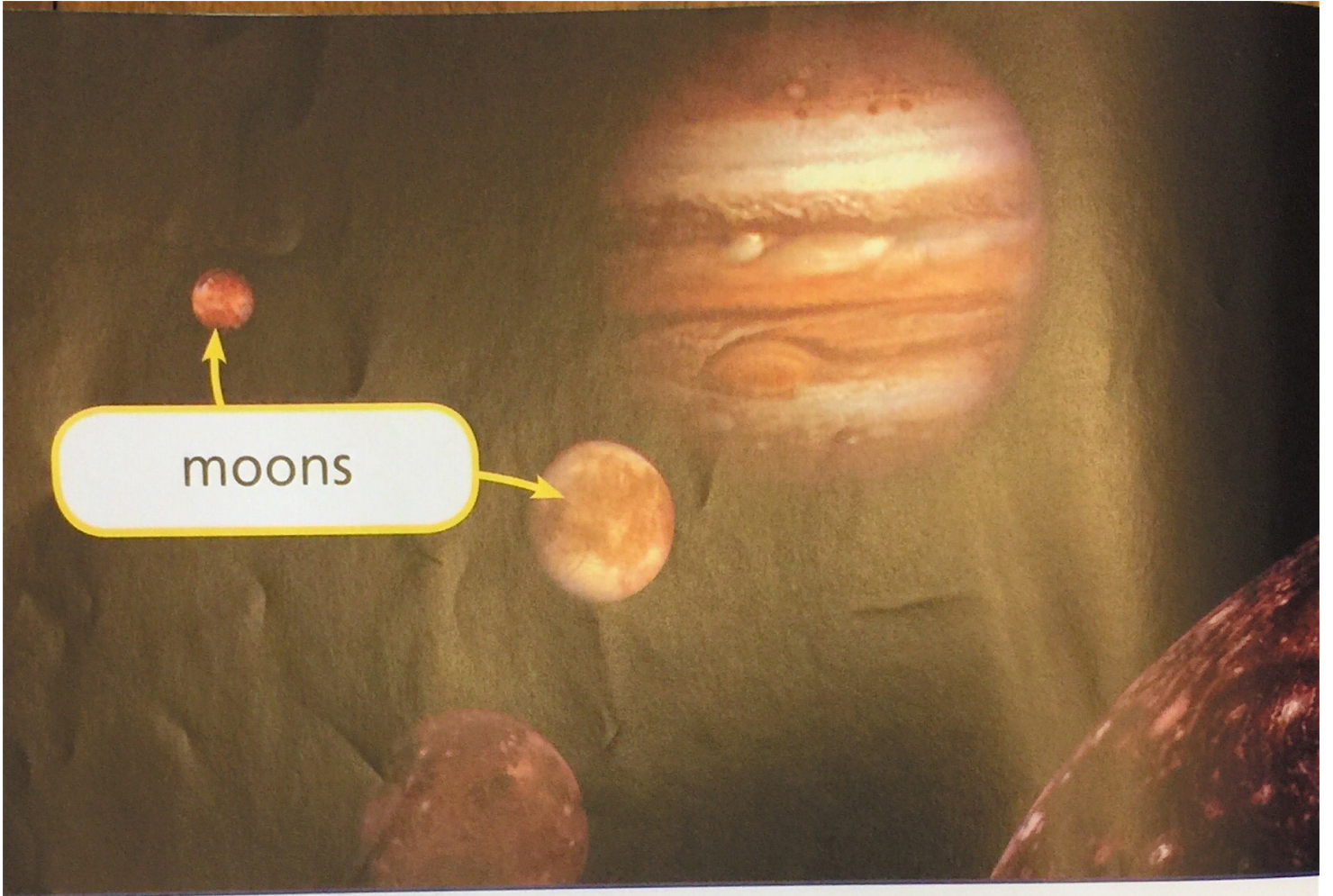
Mercury, Venus, Earth, and Mars are



made of rock.



Some planets are made of gas.  
Jupiter, Saturn, Uranus, and Neptune  
are made of gas.



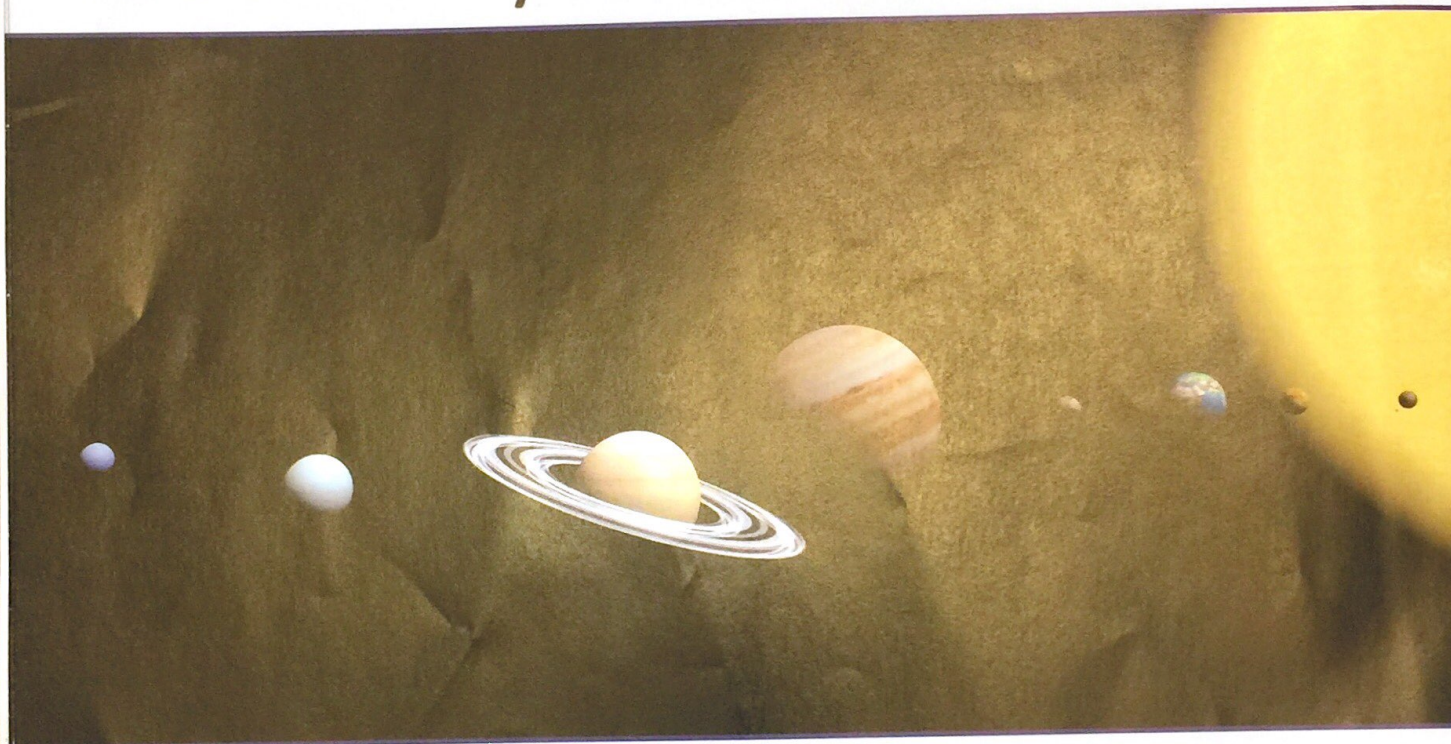
Some planets have moons. Jupiter has many moons.



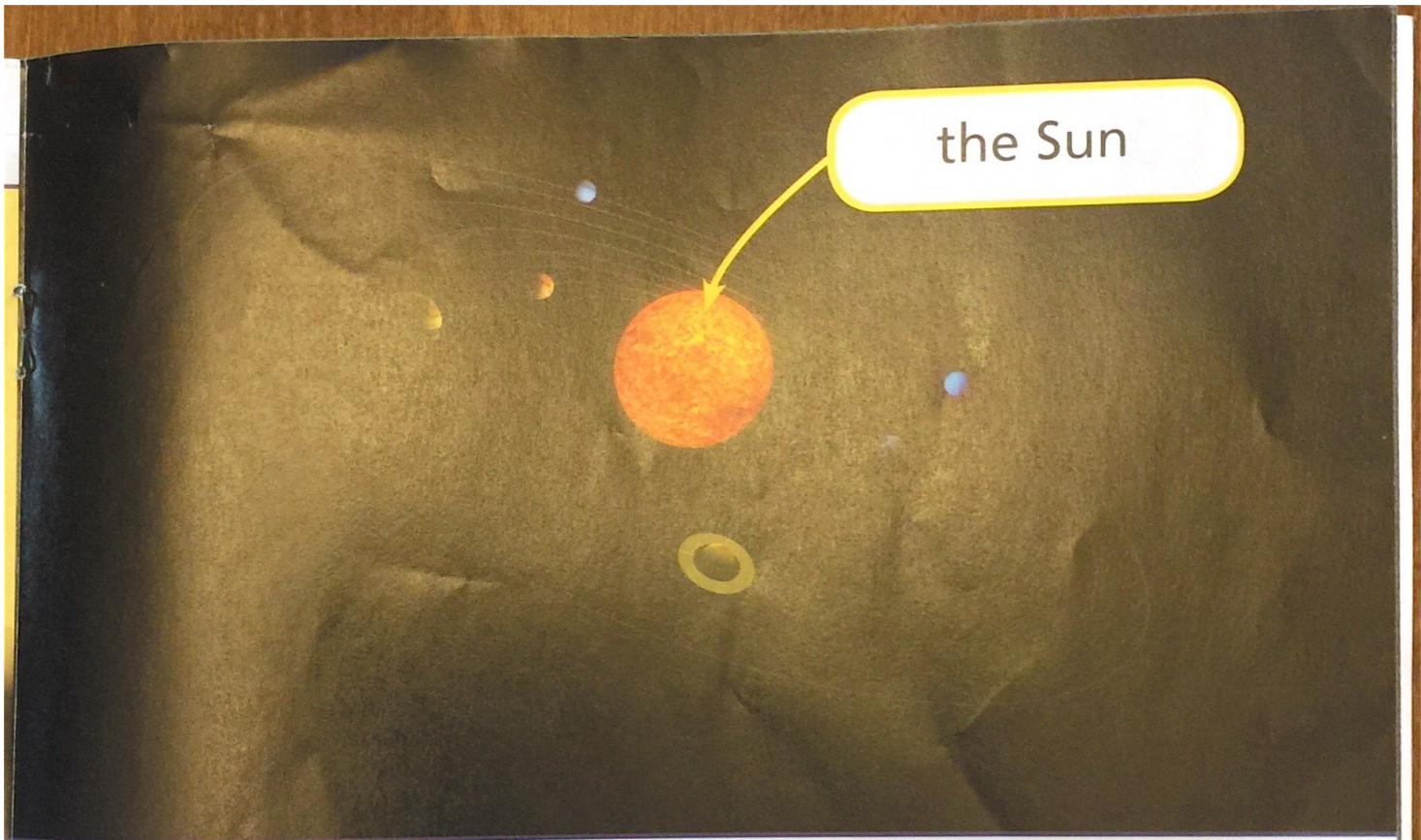
Some planets have rings. Saturn has rings.



# The Solar System



There are eight planets in the Solar System.

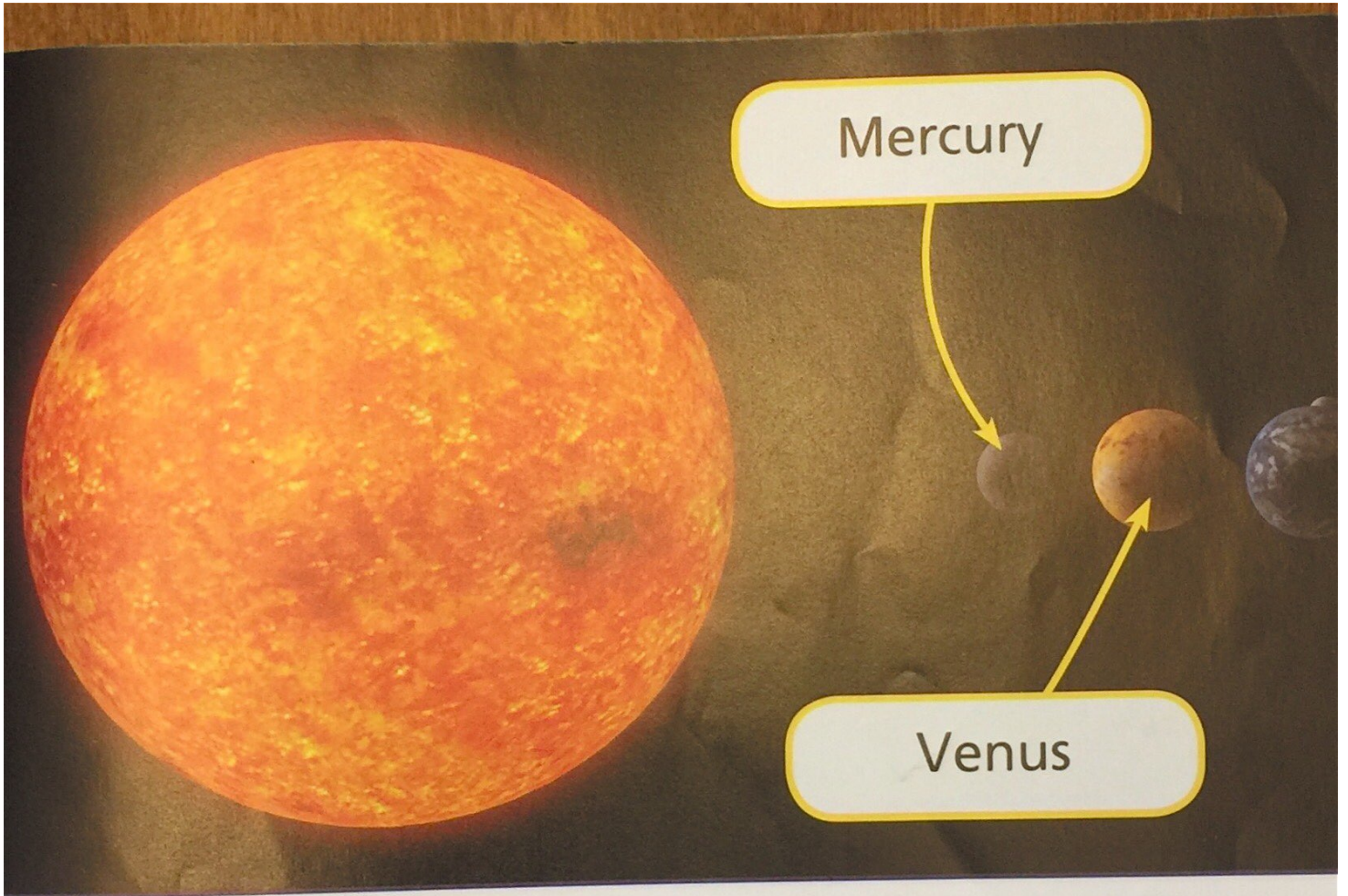


the Sun

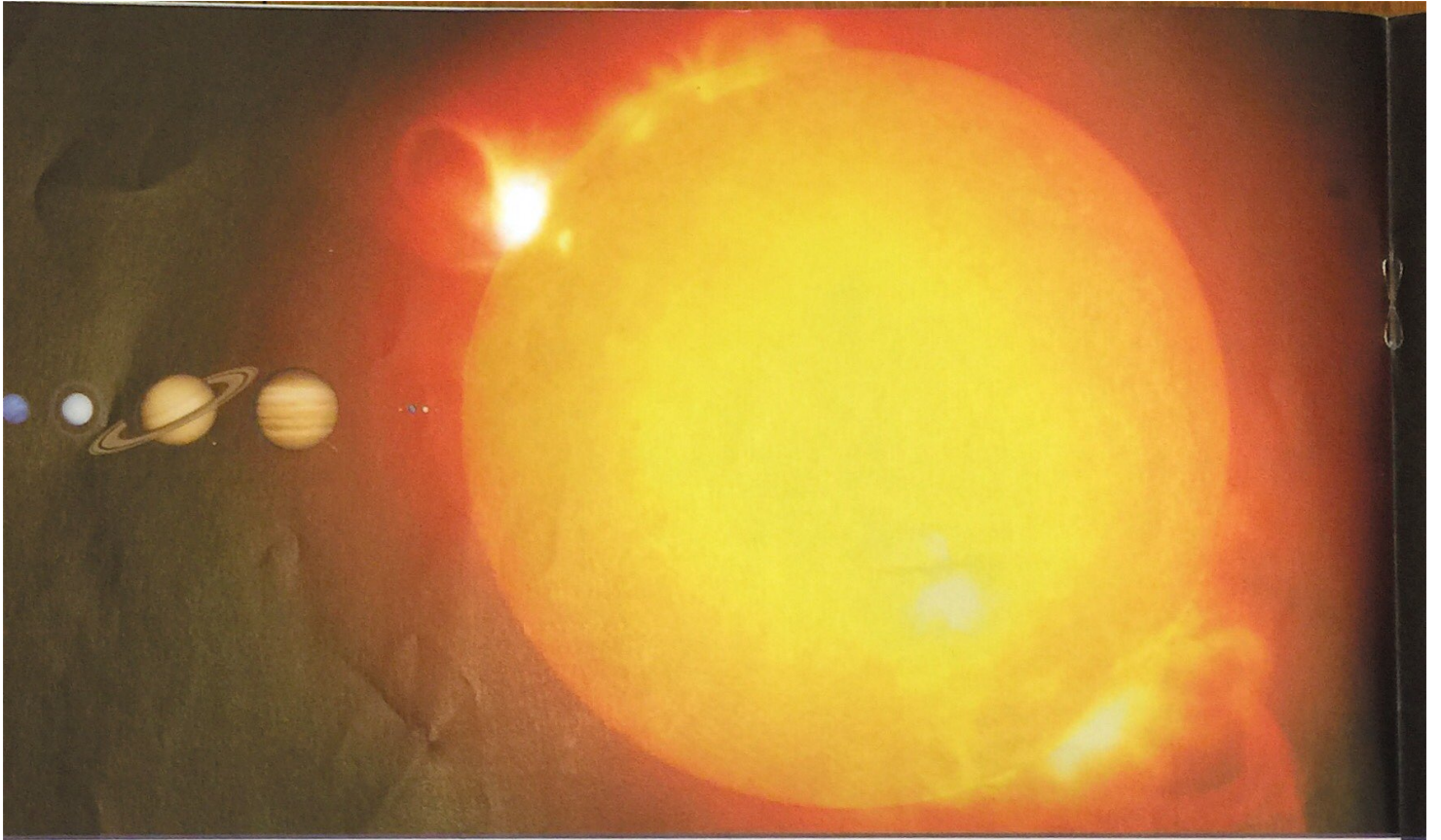
The planets move around, or orbit,  
the Sun.



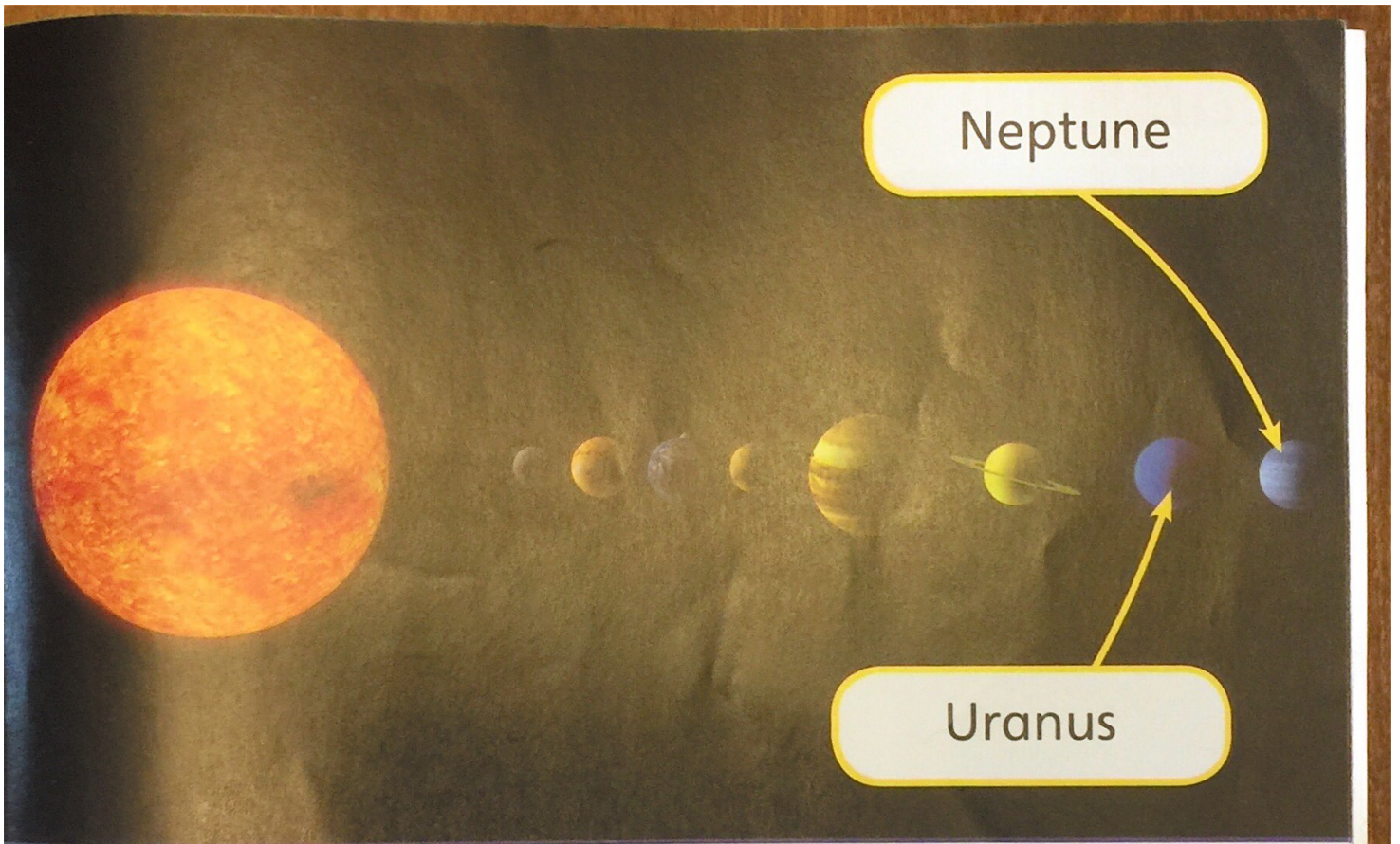
Some planets are close to the Sun.



Mercury and Venus are planets close to the Sun.

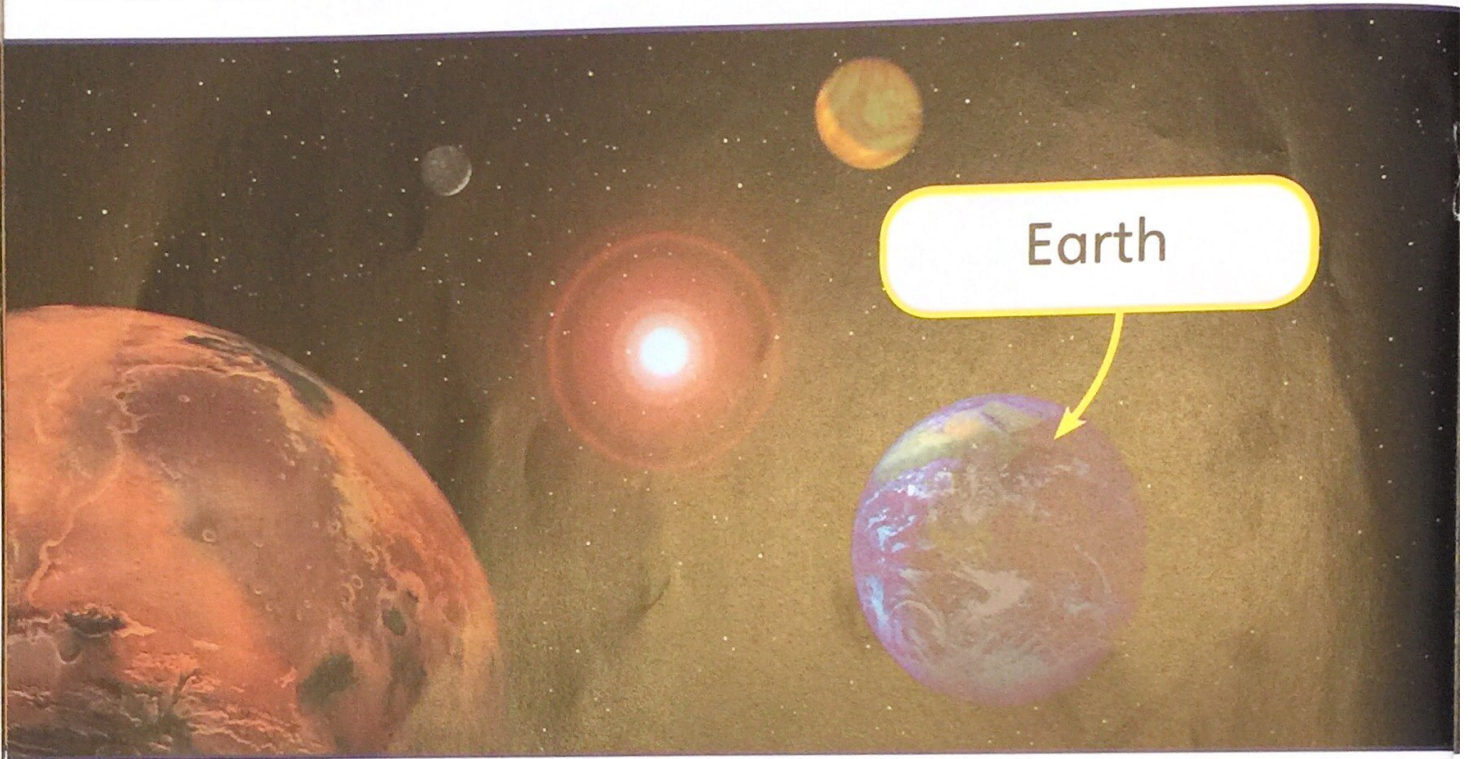


Some planets are far away from the Sun.



Uranus and Neptune are planets far away from the Sun.

# Earth



Earth is a planet.  
We live on planet Earth.

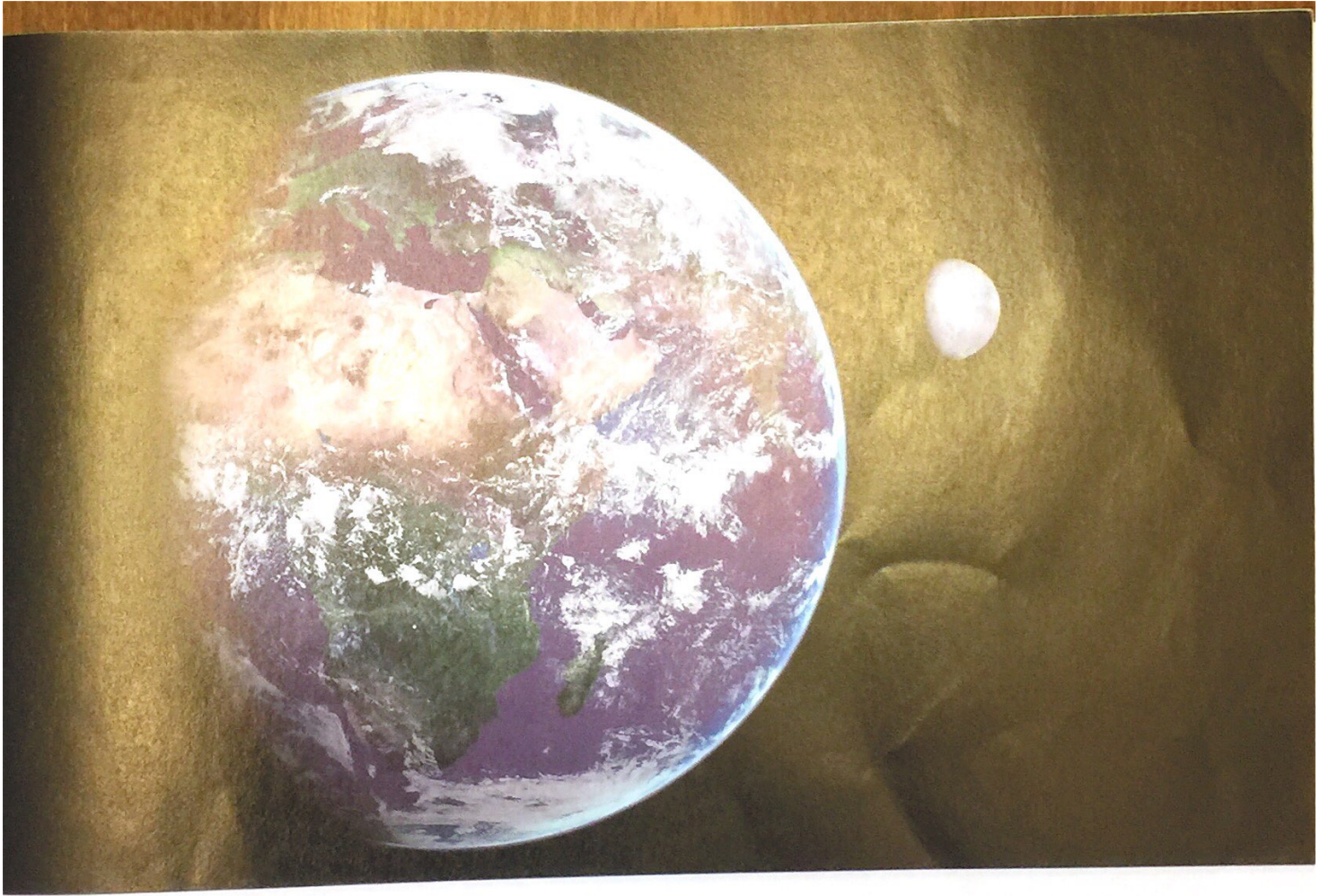


Earth is in space.



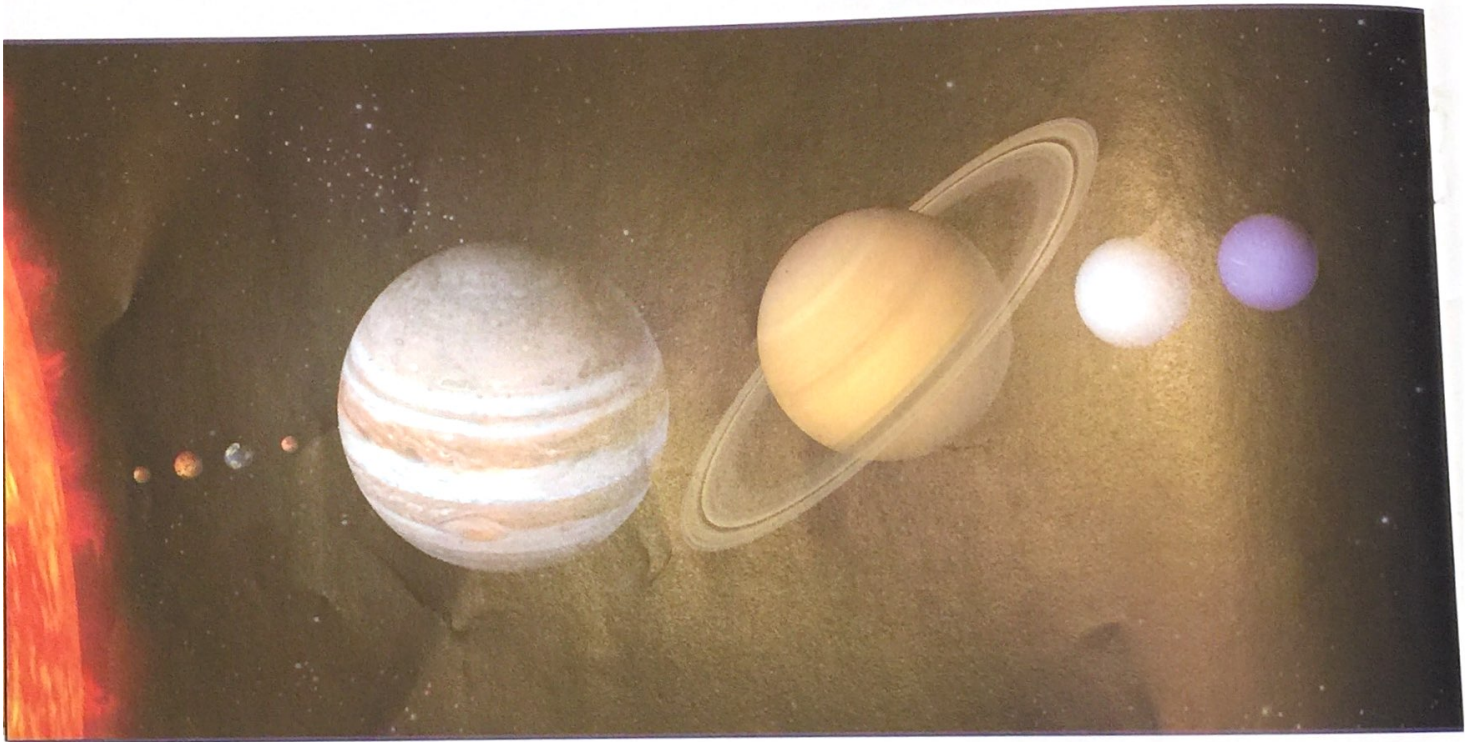


Earth orbits the Sun.



Earth has a moon.

## Can You Remember?



How many planets are there in the Solar System?

22

Answer on p. 24



# The Planets Song

Sung to the tune of "The Ants Go Marching One-by-One"

The planets revolve around the sun, hoo-rah, hoo-rah!

The planets revolve around the sun, hoo-rah, hoo-rah!

The planets revolve around the sun

Rotate on their axis every one

And they all go orbiting, 'round and around they go!

Mercury, Venus, Earth, and Mars, hoo-rah, hoo-rah!

Mercury, Venus, Earth, and Mars, hoo-rah, hoo-rah!

Mercury, Venus, Earth, and Mars

All whirling and twirling among the stars

And they all go orbiting, 'round and around they go!

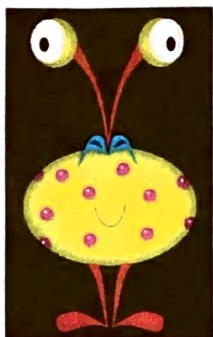
Jupiter, Saturn are next in line, hoo-rah, hoo-rah!

Jupiter, Saturn are next in line, hoo-rah, hoo-rah!

Uranus and Neptune make eight

Isn't our solar system great?

And they all go orbiting, 'round and around they go!



Name: Mrs. Brogan # 3 Date: 4-28-20

There are helpful ways to remember the order of the planets by using the first letters of the planets and putting them into a sentence. This is called a "mnemonic."

Here is an example:

My very excited mother just served us noodles.

Directions: Write planets in the order starting with the planet closest to the sun.

Mercury  
(My)

Venus  
(very)

Earth  
(excited)

Mars  
(mother)

Jupiter  
(just)

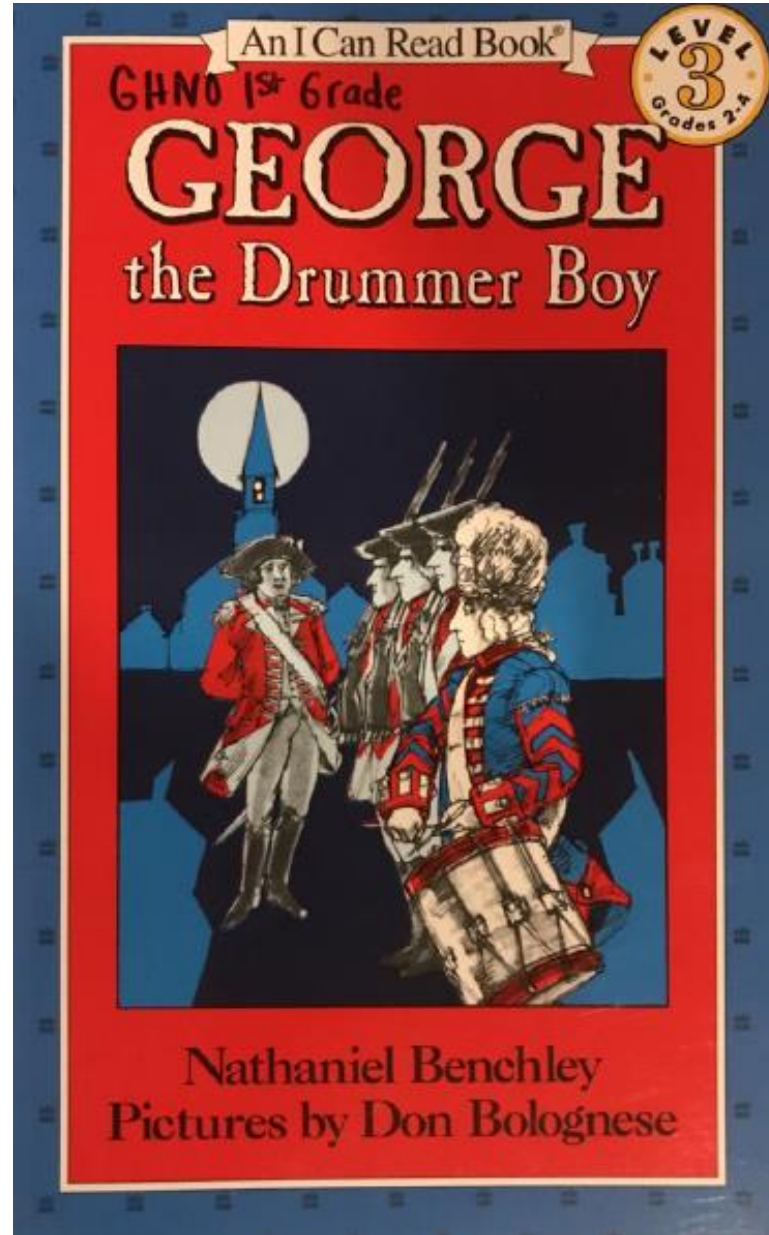
Saturn  
(served)

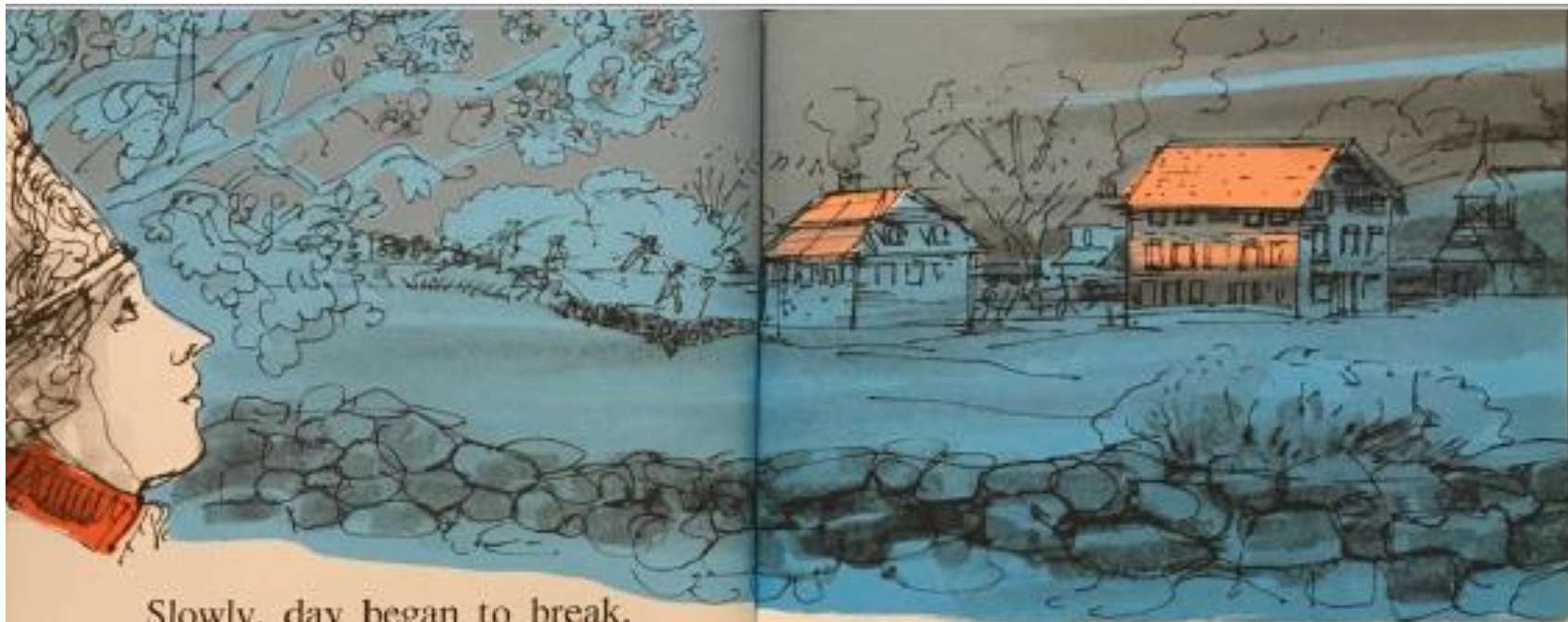
Uranus  
(us)

Neptune  
(noodles.)

Week 6 Literature – Wednesday

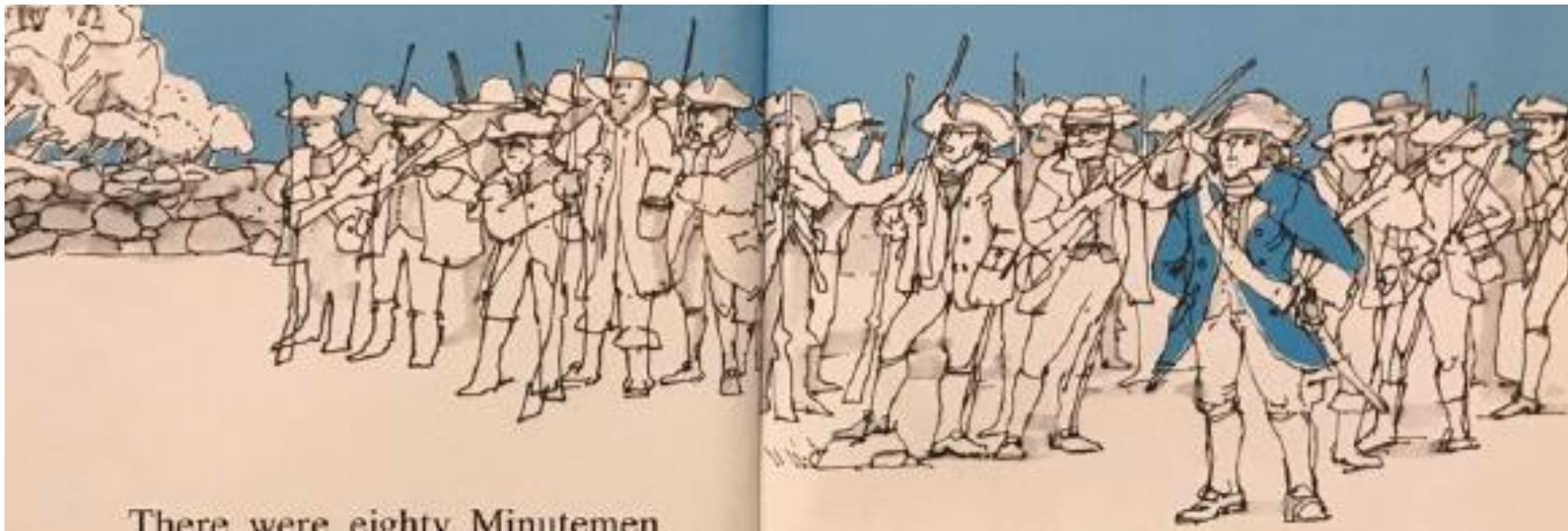
# George the Drummer Boy – Part II





Slowly, day began to break.  
Birds chirped and twittered  
in the trees.  
When it was light enough,  
George could see  
blossoms on the apple trees  
beside the road.

He could also see  
the town of Lexington,  
and men hurrying toward it  
across the fields.



There were eighty Minutemen  
on the Green.

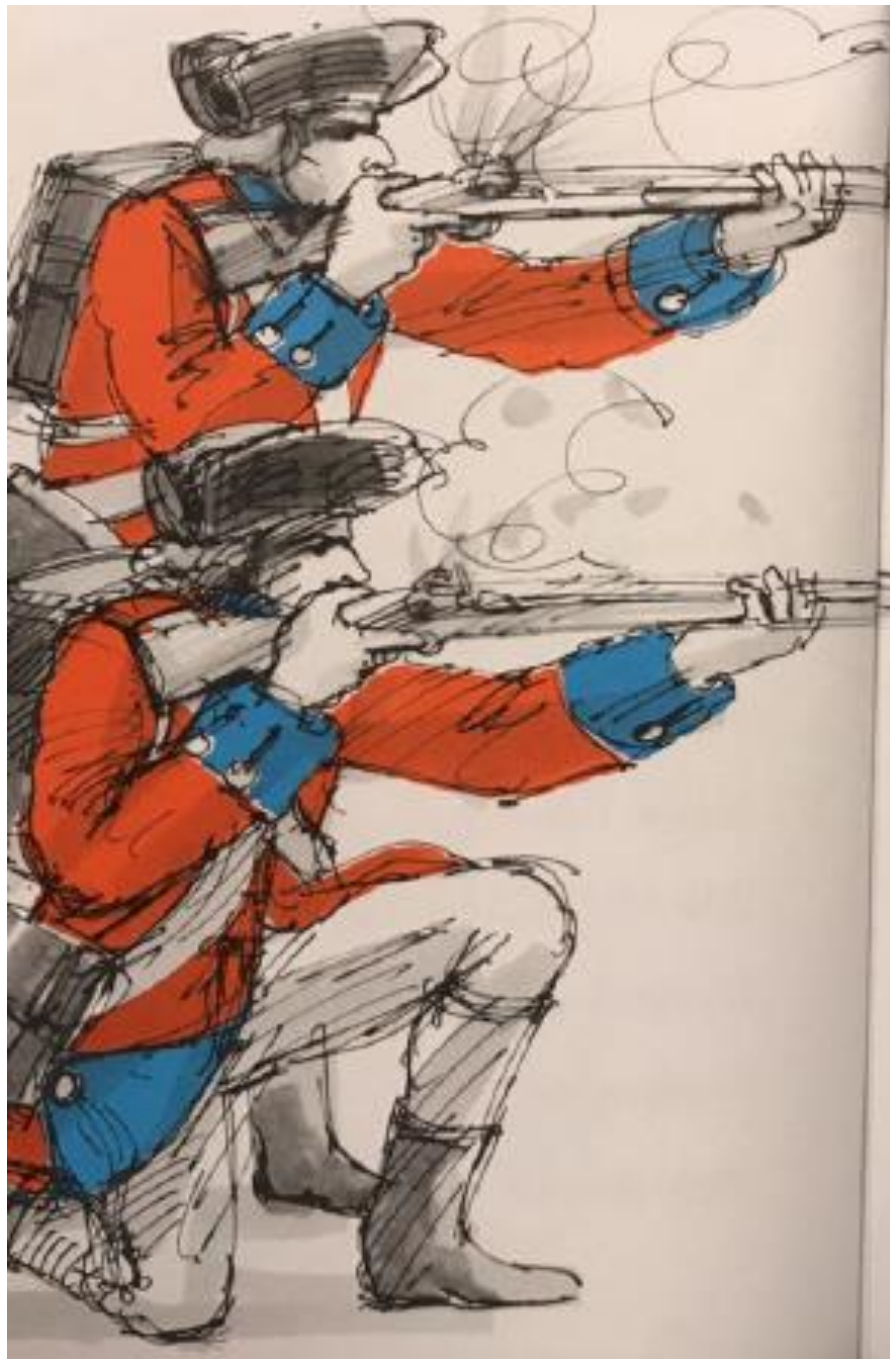


They were called Minutemen  
because they had to be ready  
at a minute's notice.  
They had guns.  
All George had was his drum.  
He hoped  
there would not be a fight.





When the Minutemen saw  
how many soldiers there were,  
they started to move away.  
Major Pitcairn  
told his soldiers not to fire.  
He shouted at the people  
to disperse,  
then moved his men in closer.



Someone, somewhere, fired a shot.  
Nobody was hit,

but it started  
the soldiers shooting.  
They fired three volleys,  
then broke ranks  
and ran at the Minutemen.



Major Pitcairn  
got his men back in order.  
He marched them off toward Concord.  
Eight Minutemen had been killed.  
It had happened so fast  
that George had no time  
to be afraid.





In Concord  
there were more Minutemen,  
waiting on a hill  
across a bridge.

There were more than at Lexington,  
and still more were coming  
every minute.



George began to wonder  
what he was doing there.  
"I wish I was back in Boston,"  
he told Fred.



"Me, too," said Fred.  
"I don't like this place  
one little bit."  
All the guns and powder  
had been taken out of Concord,  
and hidden someplace else.

George saw some soldiers  
setting a fire.

"What are they doing that for?"  
he asked.

"They have to do something,"  
Fred replied.

"They can't come all this way  
for nothing."



"It seems pretty silly to me,"  
said George.



The Minutemen saw the smoke,  
and thought  
the town was being burned.  
They charged down the hill  
at the soldiers,  
and the soldiers turned and fled.



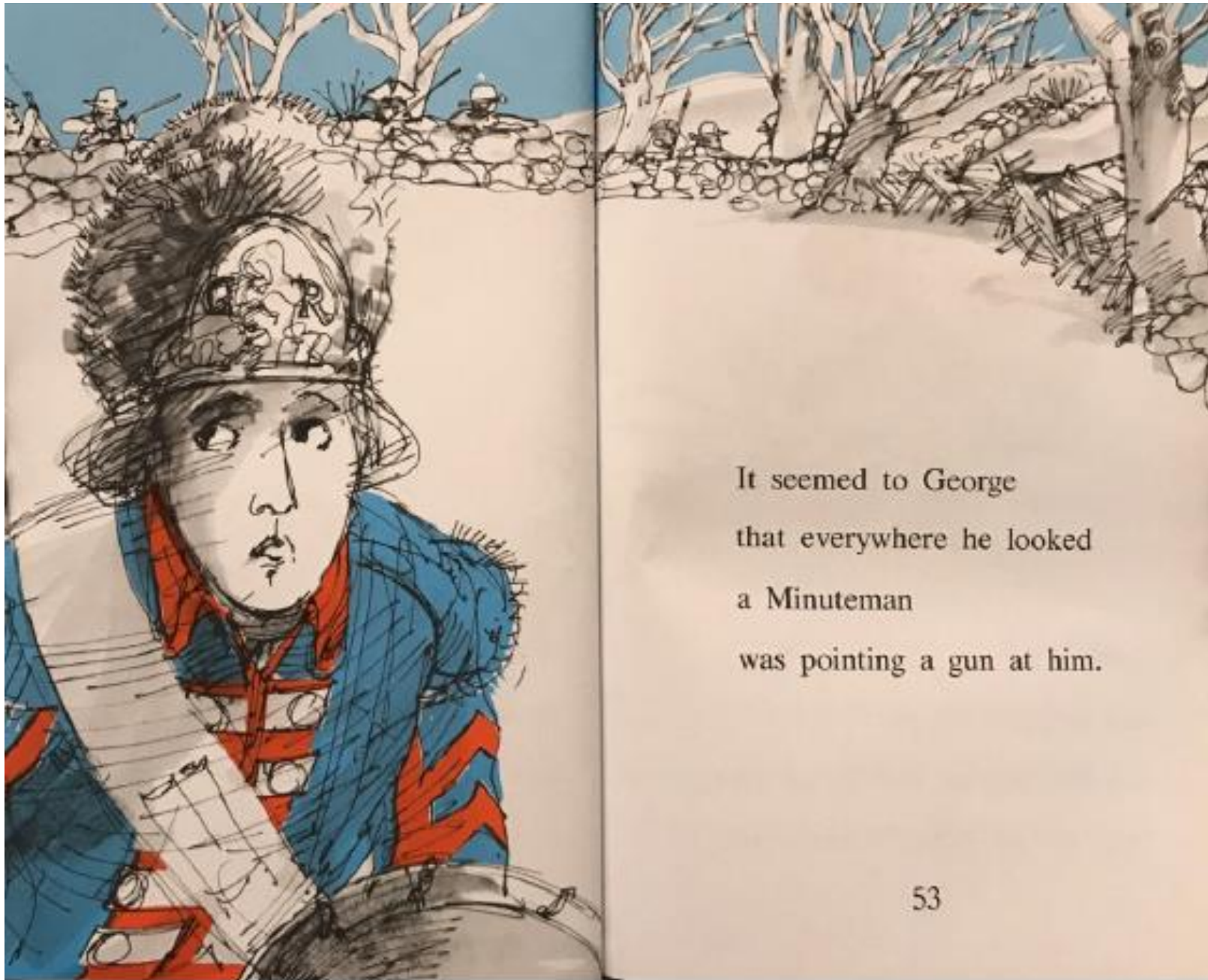
"I knew that was a bad idea,"  
George said, as he ran.  
"Look what they started."



By now the Minutemen  
were all around.

They fired  
from behind fences and stone walls,  
and picked the soldiers off  
as they ran.





It seemed to George  
that everywhere he looked  
a Minuteman  
was pointing a gun at him.



Fred shouted,  
and dropped his gun.  
A bullet had hit him in the arm.  
“Are you all right?” George asked.



“Ask me later,” Fred replied.  
“This is no time for talk.”  
George picked up the gun,  
and kept on running.



At Lexington,  
they met more British soldiers,  
who had come out from Boston  
to help.



These soldiers had two cannons,  
which kept the Minutemen away  
until the others could escape.

It was dark and raining  
by the time  
they got back to Charlestown.  
Nobody knew or cared  
that this was the start  
of the Revolution.  
When it was over,  
America would be  
a country of its own.





All George and the others wanted  
was to get back safely to Boston.  
It had been,  
as Fred said it might be,  
a long day.

## Amazingly Awesome Adjectives 2

Directions: Circle the noun(s) with a RED crayon and highlight the adjective with a YELLOW crayon.

Example: The **tree** is **tall**.

1. I saw a **black** **cat**.

2. The **puppy** is **cuddly** and **cute**.

3. I like **juicy**, **red** **strawberries**.

Optional Additional Practice

4. This is a **warm**, **red** **hat**.

5. My **brother** is **silly**.



## Rocky Planets

By: [Kyla Steinkraus](#)

All four planets, Mercury, Venus, Earth, and Mars are described with information about their atmosphere, landscape, orbits, and Fun Facts.

**5-7**

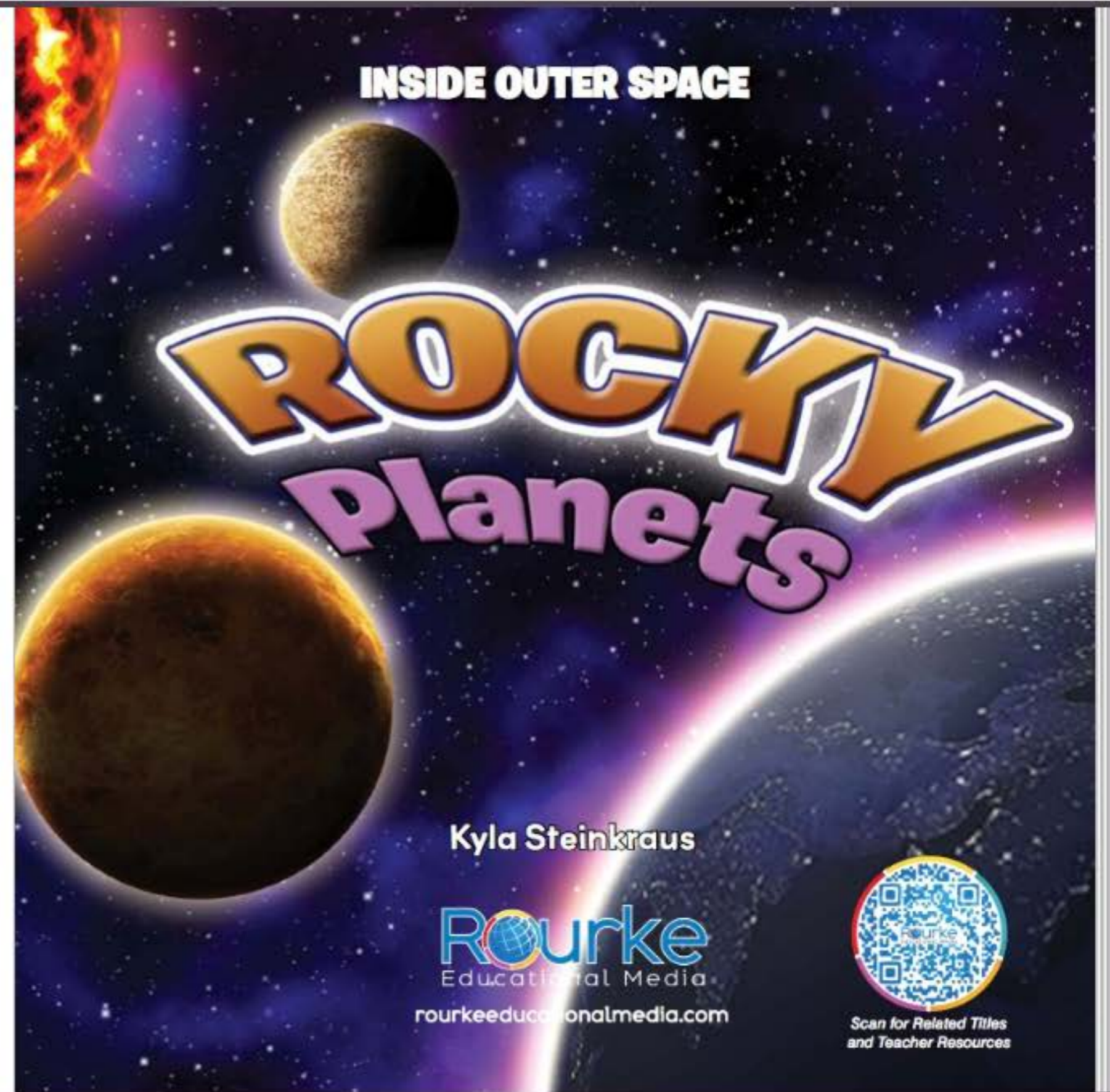
Age Range

**Q**

GR Level

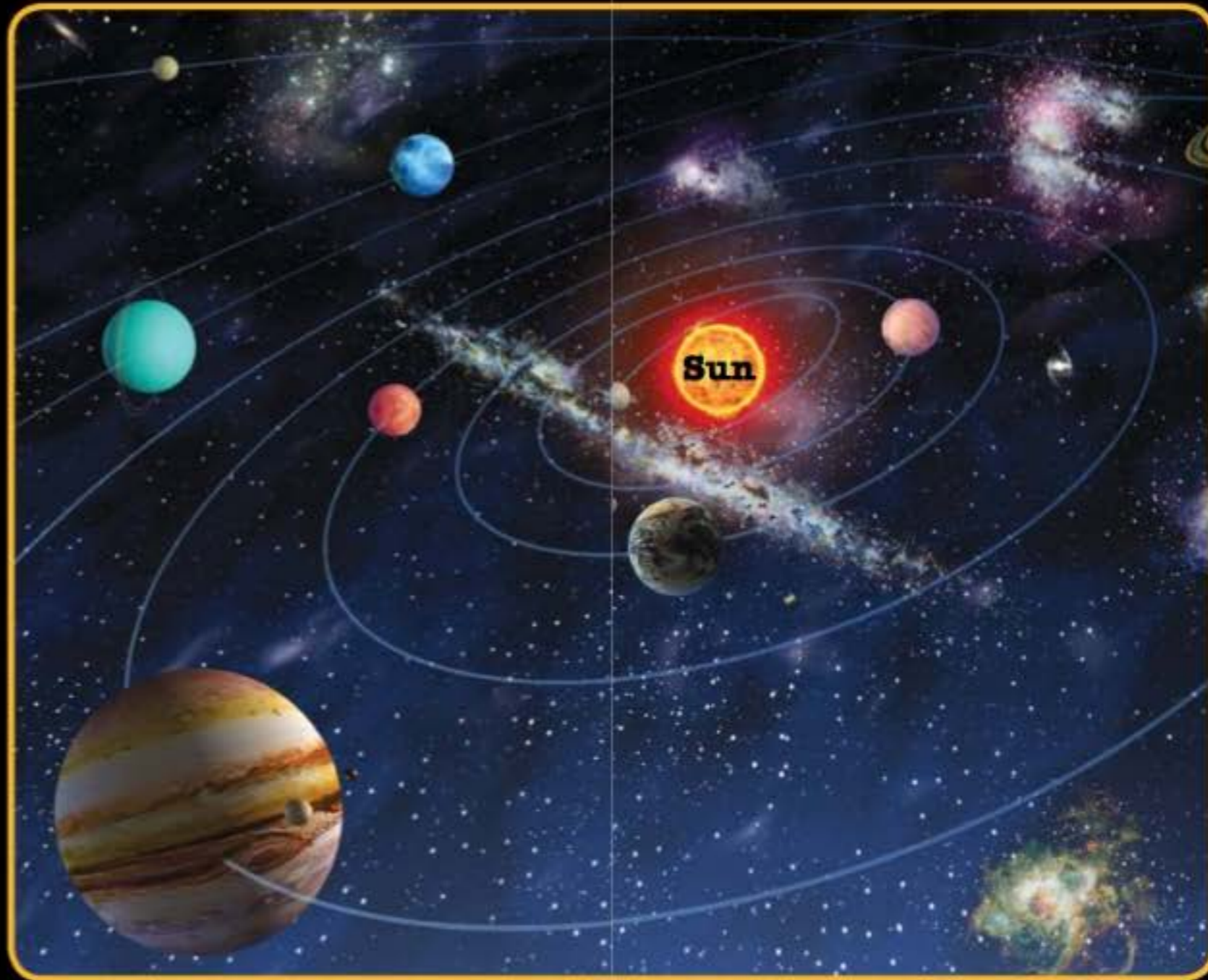
 **Favorite**

 **Assign**



## Welcome to the Planets

When you look up into the sky at night, what do you see? Our **solar system** is made up of the millions of objects in the sky above us. These include the Sun, Moon, stars, and planets.



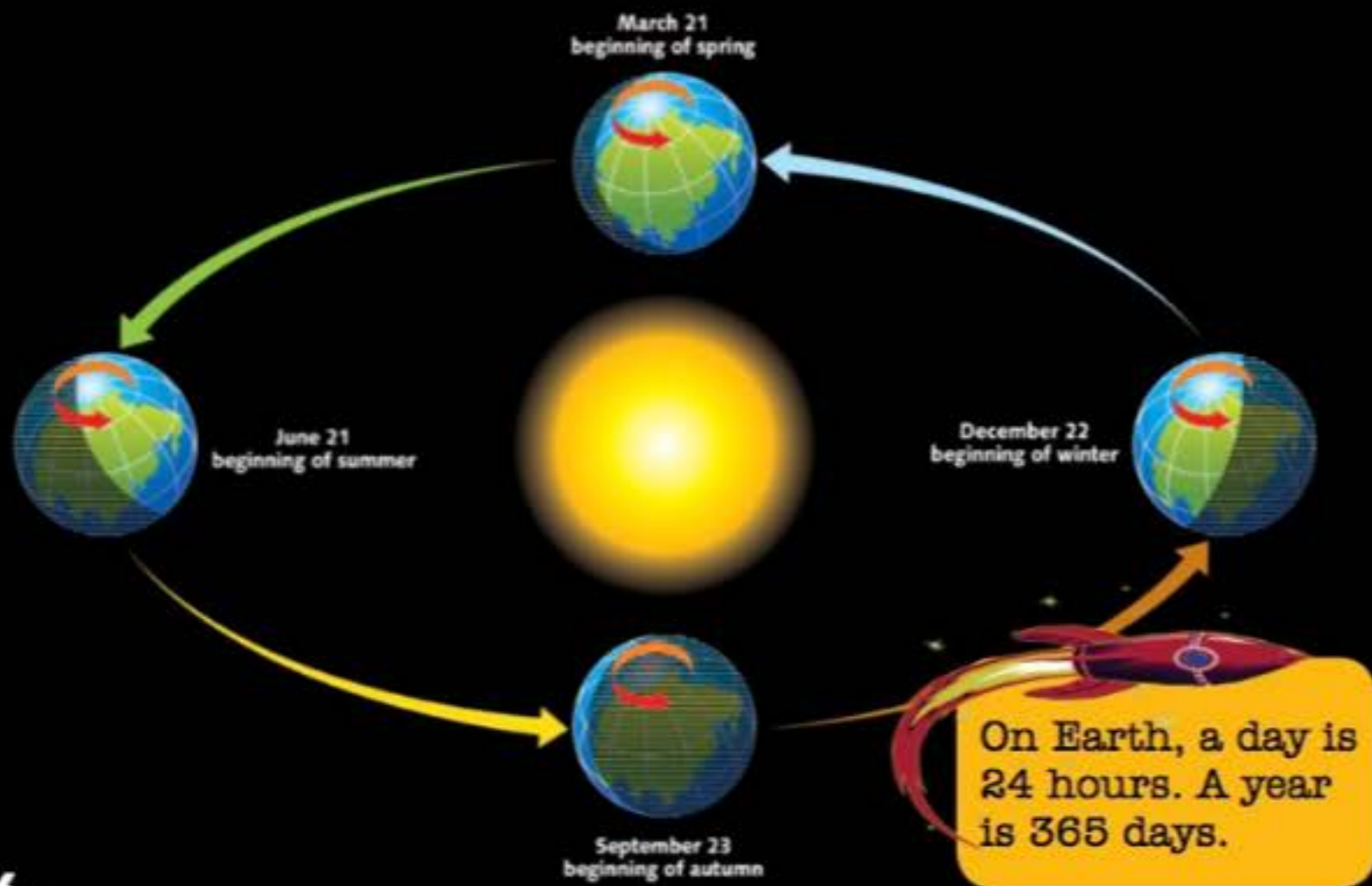
A planet is a round body in space that circles, or **orbits**, the Sun. A planet also **rotates**, or spins, on its **axis**.

The Earth's axis is tilted on its orbital plane. This is what causes the seasons.

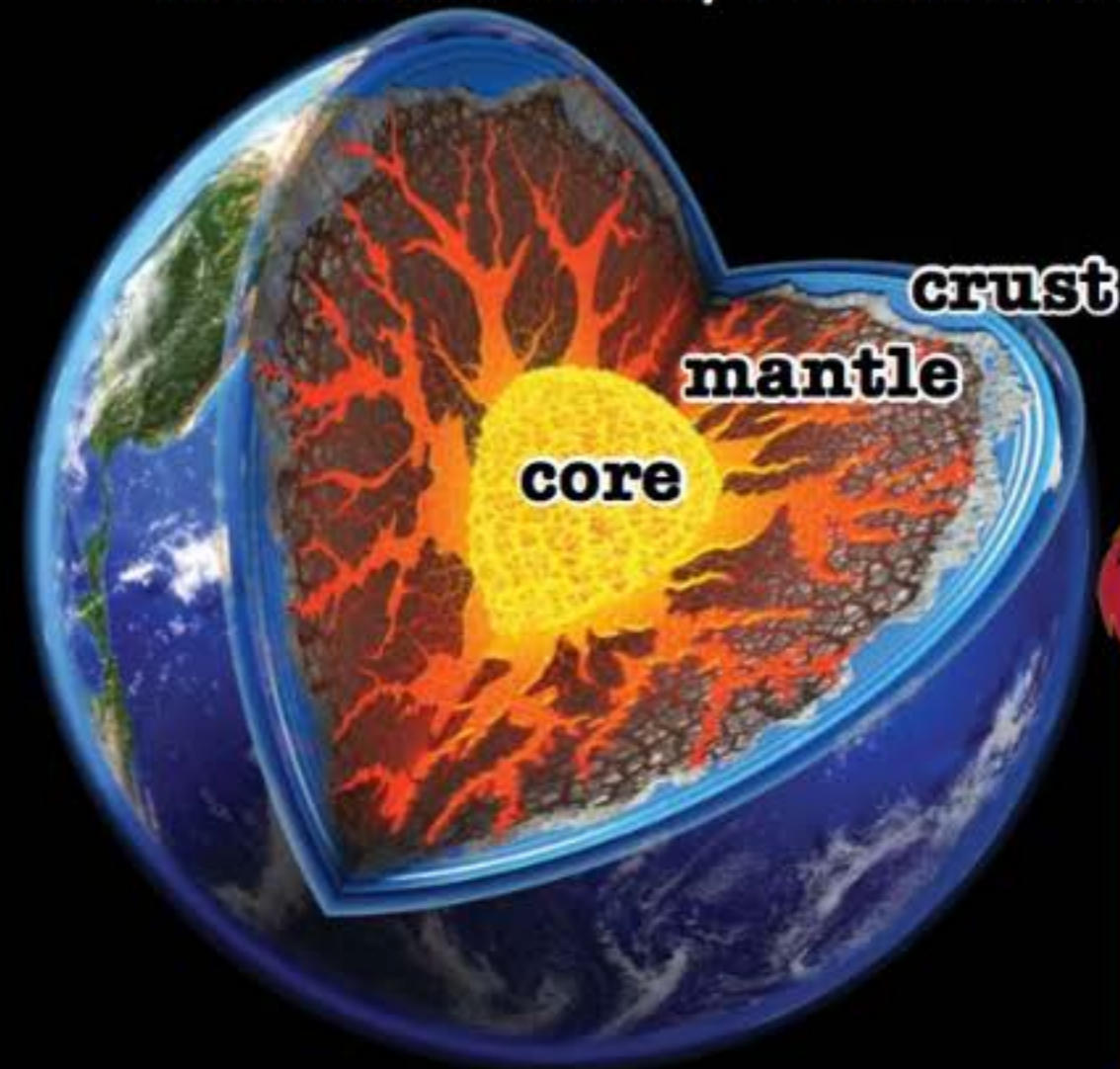




Every planet moves at a different speed. A year is the amount of time it takes a planet to orbit the Sun once. A day is the amount of time it takes for a planet to rotate once. Years and days are different for each planet.



There are eight planets in our solar system. The four planets closest to the Sun are known as the rocky planets. They are Mercury, Venus, Earth, and Mars. They are made mostly of rock with an iron core.



A red rocket ship with a white nose cone and a blue window is shown flying from left to right, leaving a white smoke trail. It is positioned above a yellow speech bubble.

A rocky planet has three layers. The crust is the outer layer. The mantle is the middle layer. The core is the planet's center.

## Up Close with Mercury

Mercury is closest to the Sun, so it is extremely hot and dry. Because it has no **atmosphere**, or air, there are no clouds or wind.



Mercury is the smallest planet.



Mercury has many plains and craters, just like our Moon. It also takes a shorter time to orbit the Sun. An entire year on Mercury lasts only 88 days.

## Lovely Venus

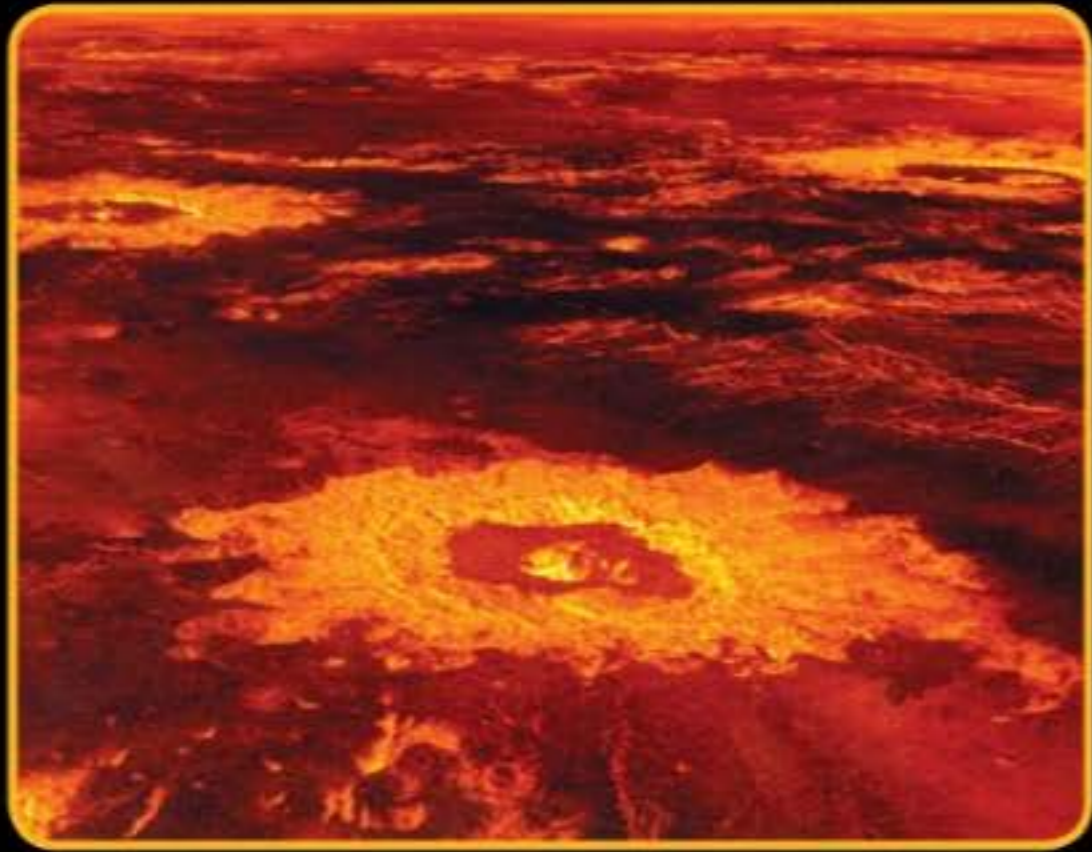
Venus is dry, rocky, and covered with volcanoes. Solid lava covers 85 percent of the planet's surface.



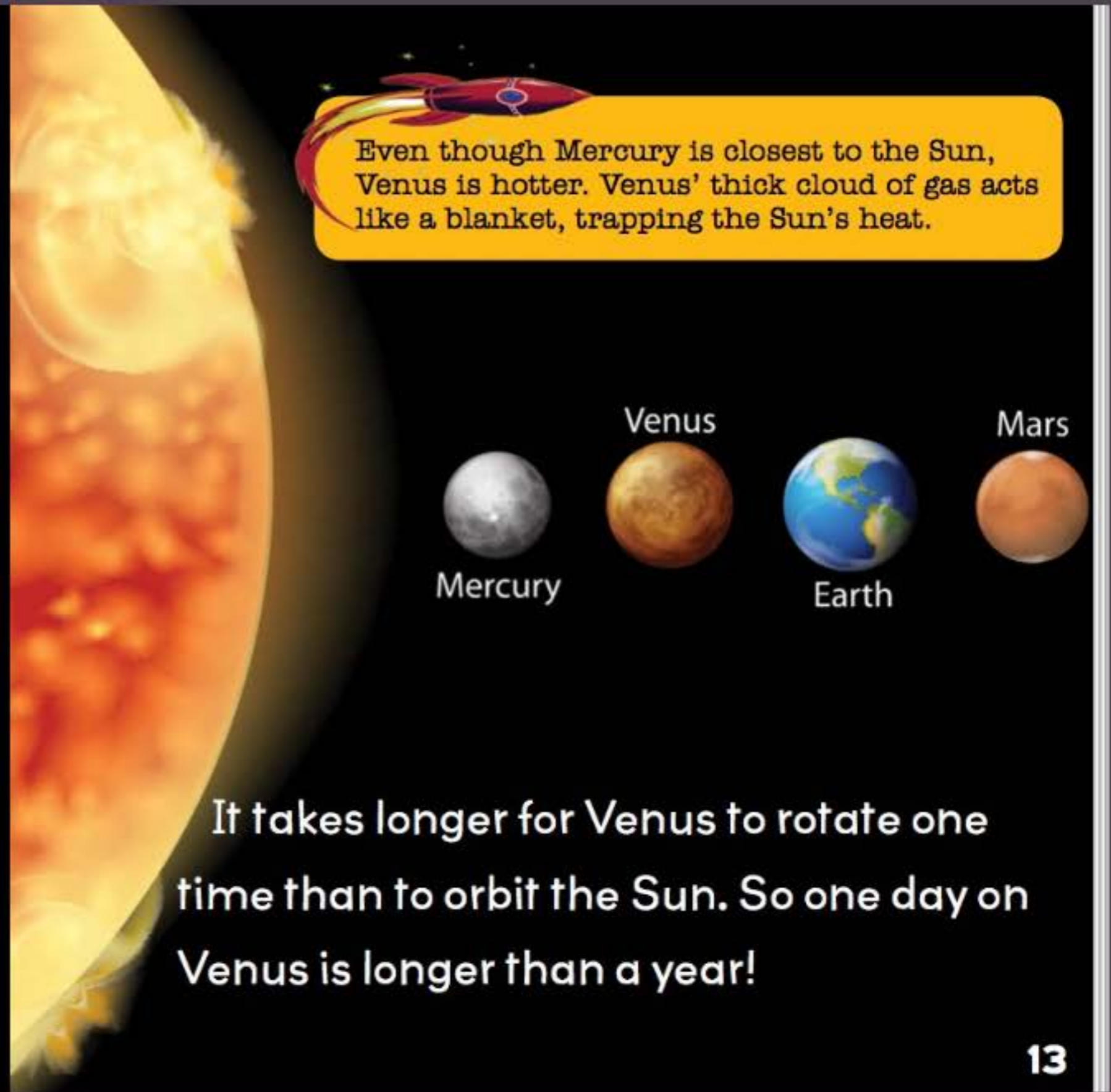
Thick, poisonous orange clouds make Venus dark and gloomy. The atmosphere is so heavy, it could crush you in seconds.



Venus is also the hottest planet, much hotter than your oven at home!



The planet Venus has extremely high temperatures that reach almost 900° Fahrenheit (480° Celsius).



Even though Mercury is closest to the Sun, Venus is hotter. Venus' thick cloud of gas acts like a blanket, trapping the Sun's heat.



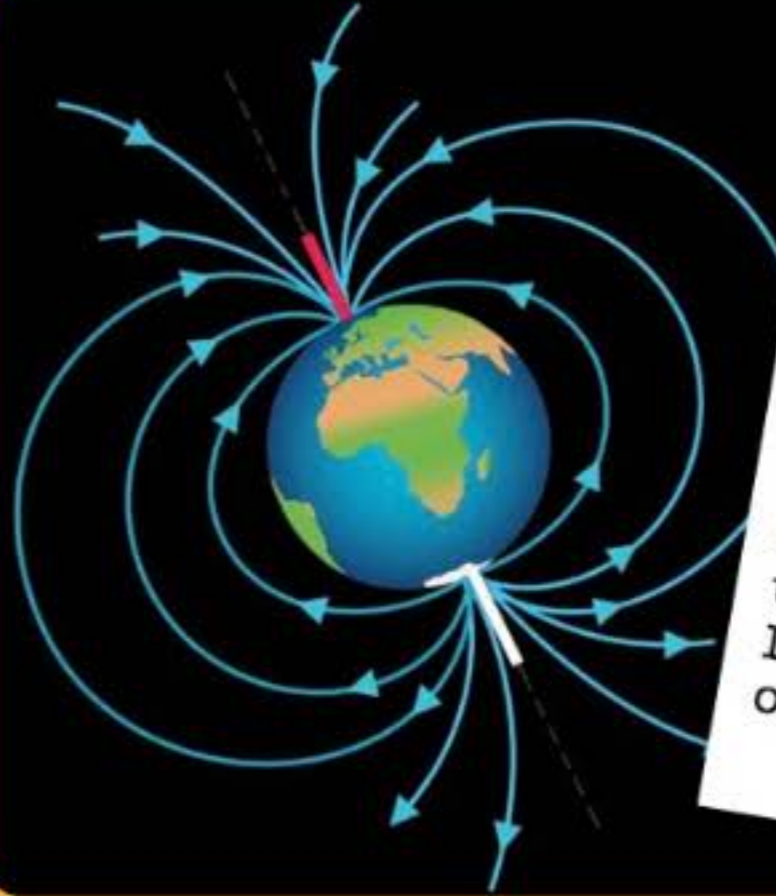
It takes longer for Venus to rotate one time than to orbit the Sun. So one day on Venus is longer than a year!

## Home, Sweet Home

Earth's distance from the Sun is just right, not too hot or too cold. Earth is the only planet with the right atmosphere and enough water to support life.



Earth is known as the blue planet because it appears blue from space. This is because 70 percent of the Earth's surface is water!



Earth is like a giant magnet, with poles at the top and bottom of the planet. Earth's molten iron core creates a magnetic field. A compass uses a small magnetic needle that always points toward Earth's top, or North, pole. Using Earth's magnetic field, the compass tells us whether we are facing North, South, East, or West.



## The Red Planet

While Venus and Mercury are very hot, Mars is extremely cold. It is a freezing desert with wild, whirling dust storms.



Mars is called the red planet because of the rusty red rock and sand covering its surface.



An average day on Mars is colder than the Antarctic!

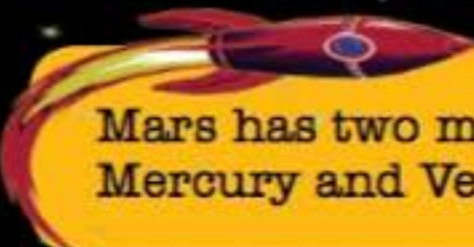
Because the **gravity** on Mars is about one-third of Earth's, you could jump three times higher on Mars!



Phobos, the biggest of the Mars' moons



Deimos, the smaller of Mars' moons



Mars has two moons. Earth has one. Mercury and Venus have none.



Scientists have sent four rovers to explore Mars' surface. Remote-controlled from Earth, they spend years collecting data and pictures for scientists to study.

# Neighbors in Space

The more we study the rocky planets, the more we are able to learn about our fascinating neighbors in space.

Mercury

Venus

Earth

Mars

Someday, we may even be able to visit the planets. Which one would you visit?

## Backyard Astronomy

With a parent to help you, gather the needed supplies. First, tape the red cellophane over the top of the flashlight. The red light will allow you to see the sky chart and compass without impairing your night vision.

Now you can read the sky chart to identify the planets and stars and direct you where to look in the sky. Use the compass to help you face the correct direction. Finally, use your binoculars or telescope to see the planets close up!

### Equipment Needed:

- binoculars or telescope
- sky chart
- compass
- flashlight
- red cellophane



## Photo Glossary



**atmosphere** (AT-muhs-feer): The air around us.



**axis** (AK-siss): An imaginary line through the center of a planet.



**gravity** (GRAV-uh-tee): The force that presses down on objects, keeping them from floating into space.



**orbits** (OR-bits): The path an object takes to circle the Sun or a planet.



**rotates** (ROH-tates): Spins around on an axis or center.



**solar system** (SOH-lur SISS-tuhm): The Sun and all the objects that orbit around it, including Earth.

# The Red Planet

While Venus and Mercury are very hot, Mars is extremely cold. It is a freezing desert with wild, whirling dust storms.



## Before & After Reading Activities

Level: K Word Count: 440

100th word: *and* page 6

### Teaching Focus:

*Concepts of Print:* Have students find capital letters and punctuation in a sentence. Ask students to explain the purpose for using them in a sentence.

### Before Reading:

#### Building Academic Vocabulary and Background Knowledge

Before reading a book, it is important to set the stage for your child or student by using pre-reading strategies. This will help them develop their vocabulary, increase their reading comprehension, and make connections across the curriculum.

1. Read the title and look at the cover. *Let's make predictions about what this book will be about.*
2. Take a picture walk by talking about the pictures/photographs in the book. Implant the vocabulary as you take the picture walk. Be sure to talk about the text features such as headings, Table of Contents, glossary, bolded words, captions, charts/diagrams, or Index.
3. Have students read the first page of text with you then have students read the remaining text.
4. Strategy Talk – use to assist students while reading.
  - Get your mouth ready
  - Look at the picture
  - Think...does it make sense
  - Think...does it look right
  - Think...does it sound right
  - Chunk it – by looking for a part you know
5. Read it again.
6. After reading the book complete the activities below.

#### Content Area Vocabulary

*Use glossary words in a sentence.*

atmosphere  
axis  
gravity  
orbits  
rotates  
solar system

### After Reading:

#### Comprehension and Extension Activity

After reading the book, work on the following questions with your child or students in order to check their level of reading comprehension and content mastery.

1. *How many planets are in our solar system? (Summarize)*
2. *What planet do we live on? (Text to self connection)*
3. *Which planets are the rocky planets? (Summarize)*
4. *Why do scientists send rovers to other planets? (Asking questions)*

#### Extension Activity

Create a poster of the four rocky planets! Draw each planet and provide at least two bullet points that describe each planet. Don't forget to label each planet and create a title for your poster.

Name: Mrs. Brogan

Date: 04/29/20

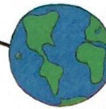
# Label the Planets!



1. Mercury

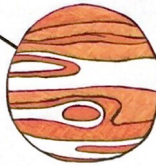


3. Earth



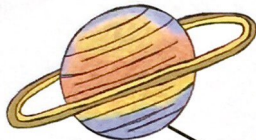
2. Venus

5. Jupiter



4. Mars

7. Uranus



6. Saturn



8. Neptune

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Uranus	Mars	Jupiter	Saturn
Mercury	Earth	Neptune	Venus

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Compare and Contrast Venn Diagram: Sam the Minuteman and George the Drummer Boy

Directions: Use this Venn diagram to think about the differences between Sam the Minuteman and George the Drummer Boy.

*Contrast:* How is Sam the Minuteman different?

- Colonist
- Fought for freedom
- Lived in Lexington

*Compare:* How are Sam the Minuteman and George the Drummer Boy alike?

- Afraid
- Young men
- Had good friends

- British Soldier
- Forced to fight by the King
- Came from England

*Contrast:* How is George the Drummer Boy different?

## Amazingly Awesome Adjectives 3

Directions: Circle the noun(s) with a RED crayon and highlight the adjective with a YELLOW crayon.

Example: The **tree** is **tall**.

1. That is a **slimy**, **green** **frog**.

2. You are a **noisy** **puppy**!

3. Is that **chocolate** **cake**?

### Optional Additional Practice

4. **Popcorn** is **buttery** and **salty**.

5. The **flower** is **purple**.



## Giant Gas Planets

By: [Kyla Steinkraus](#)

Four planets farthest from the Sun are called gas giants. Learn facts about climate, gases, size, and other things each planet possesses.

**5-7**

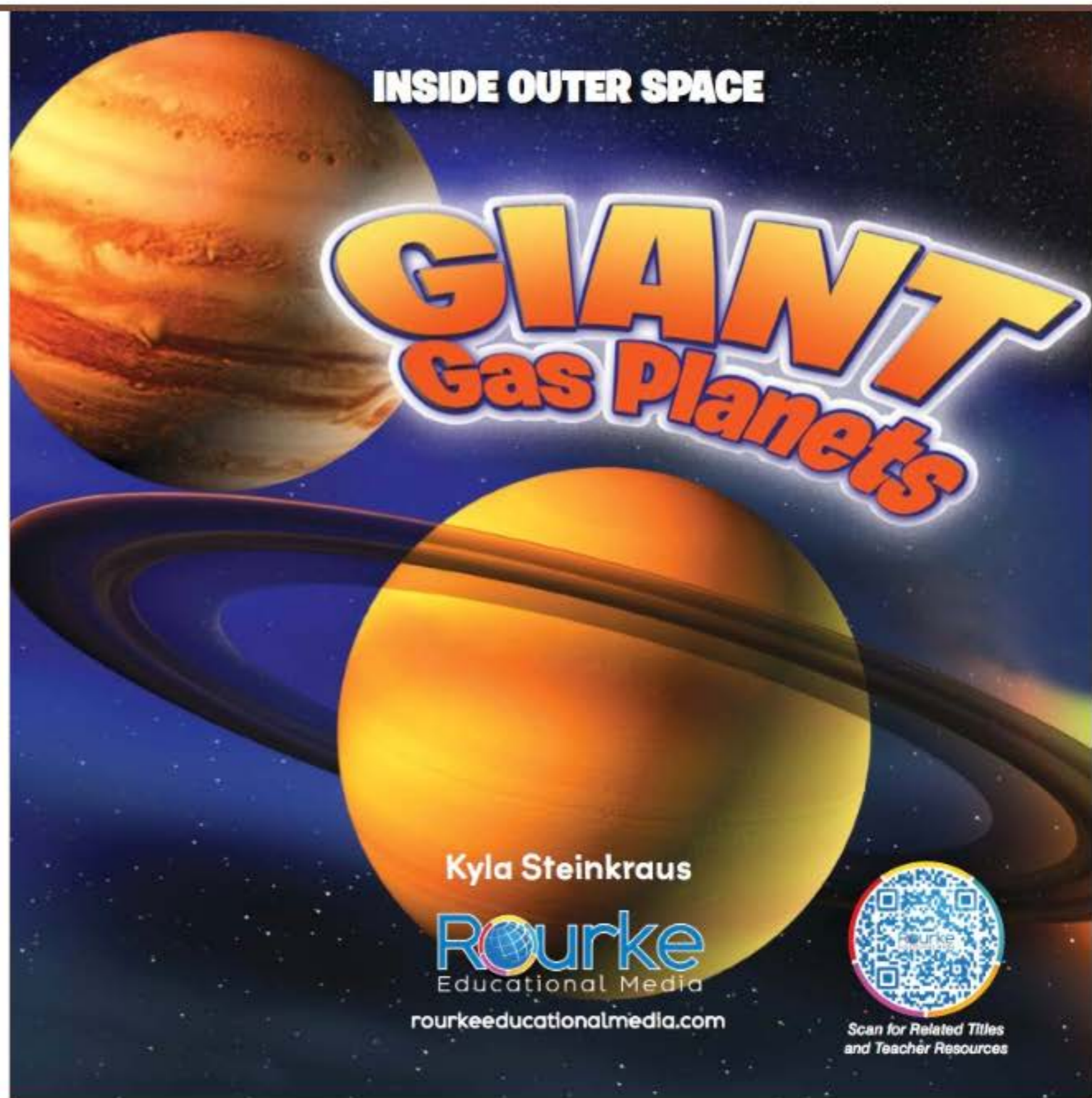
Age Range

**T**

GR Level

 **Favorite**

 **Assign**

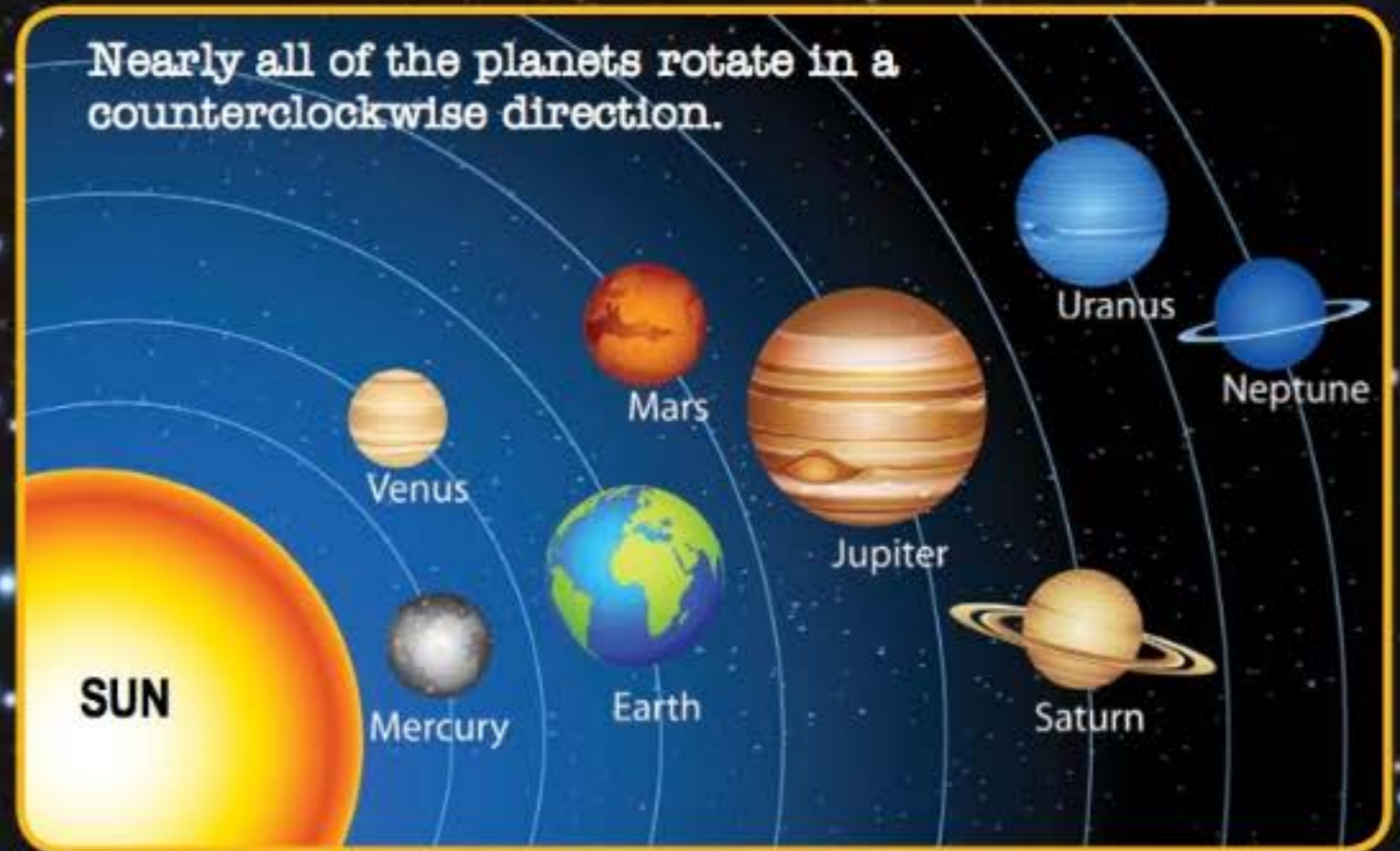


## Gas Giants

What are all those lights twinkling above us at night? Most are stars, but a few of them are planets.

A **planet** is a round body in space that **orbits**, or circles, the Sun. A planet also **rotates**, or spins, on its axis. An axis is an imaginary line through the center of the planet.

Nearly all of the planets rotate in a counterclockwise direction.

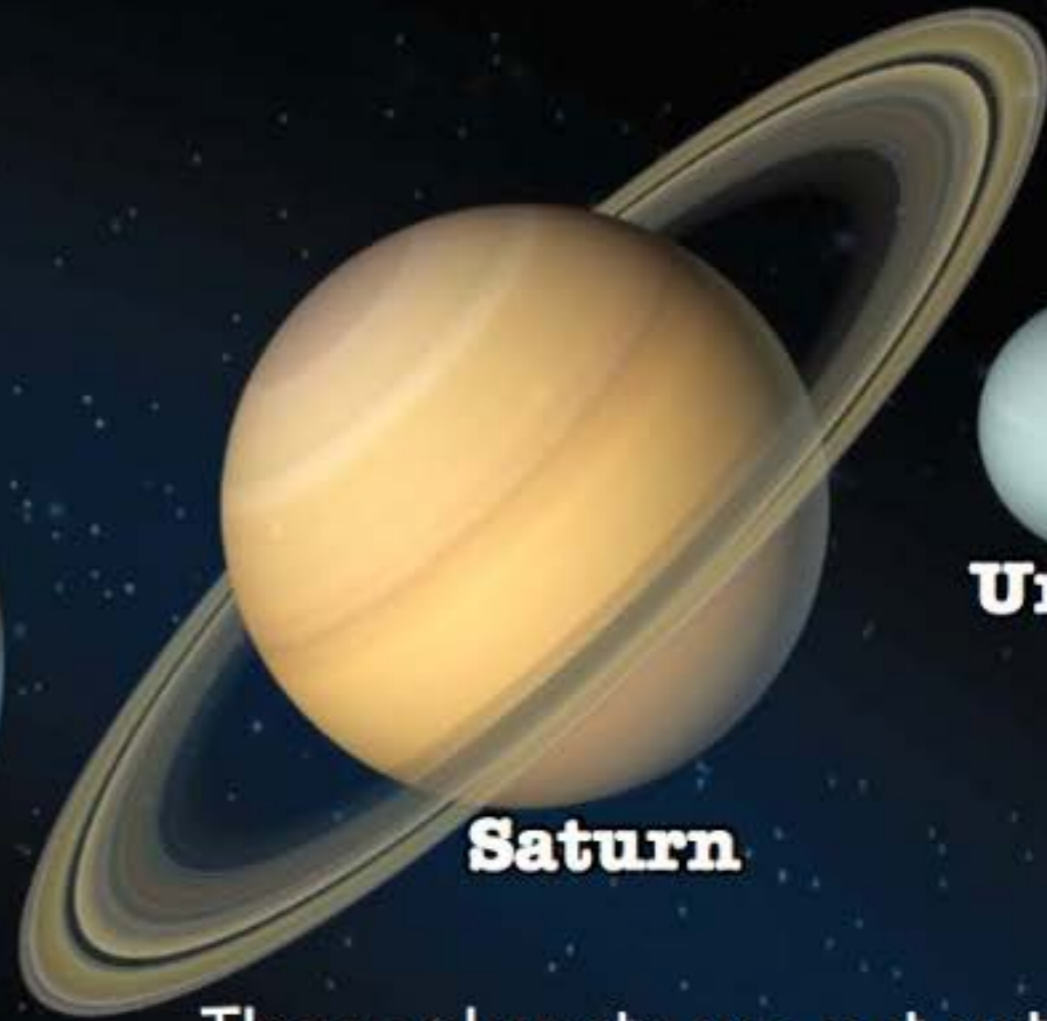


There are eight planets in our **solar system**. The four planets farthest from the Sun are the gas giants. They are Jupiter, Saturn, Uranus, and Neptune.

**Sun**



**Jupiter**



**Saturn**



**Uranus**



**Neptune**

These planets are not actually solid, but are made up of liquid and clouds of swirling gas. **Gravity** pulls the gas and liquid into a planet shape.

Gas planets have many moons as well as rings that circle around them. Some planets, especially Saturn, have very noticeable rings.



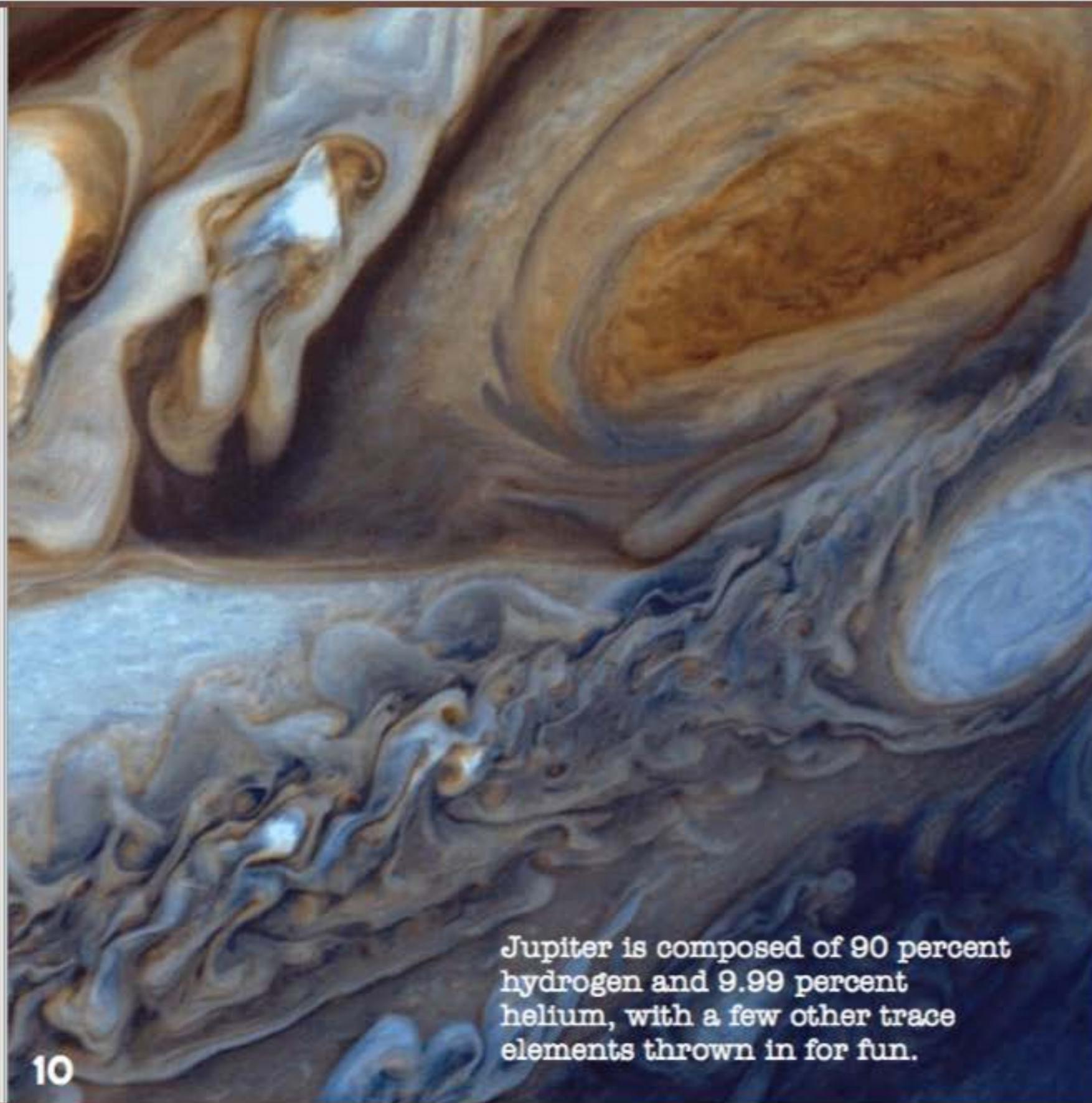
## Giant Jupiter

Jupiter is the biggest planet in our solar system. It is so big that all the other planets could fit inside it.

Jupiter is orbited by at least 67 moons, more than any other planet.



Jupiter is a superhero! Jupiter helps Earth by protecting it from space objects that would hit it. Because of its large size and strong gravitational pull, comets and asteroids are pulled toward Jupiter and away from Earth. Thousands of space objects strike Jupiter every year.



Jupiter is composed of 90 percent hydrogen and 9.99 percent helium, with a few other trace elements thrown in for fun.

It would be difficult to walk on Jupiter, since it has no solid surface at all! It is mostly made of gusting, swirling gasses that create massive, hurricane-like storms.



One of Jupiter's storms is so large that it can be seen from Earth. The Great Red Spot is a storm that began more than 300 years ago.

## The Ringed Planet

Saturn is made mostly of light hydrogen gas. If you could find a bathtub big enough to hold it, Saturn would float!



Saturn is surrounded by seven thin rings made of sparkling chunks of dust-covered ice and rock.

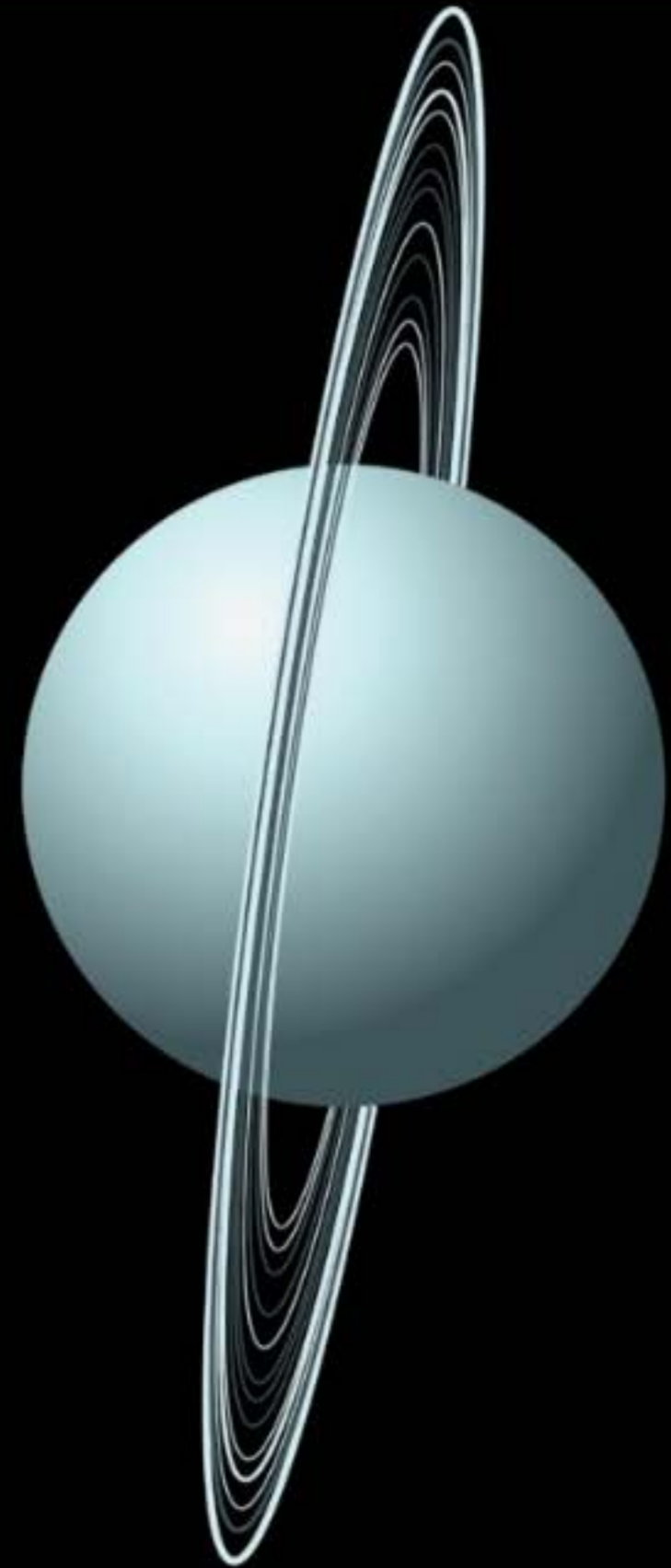


Some of the ice chunks that form Saturn's rings are as tiny as dust particles. Some are as big as houses.

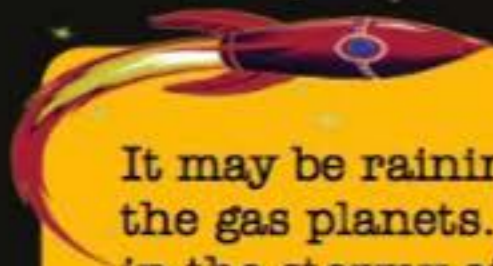
## Topsy Turvy Uranus

Uranus is tipped on its side. It rotates sideways, like a giant Ferris wheel. Its many rings and moons circle from top to bottom.

Because Uranus moves slowly and has a long way to travel, it takes 84 Earth years for Uranus to travel one time around the Sun.



Uranus is mostly made of a slushy mixture of half-frozen water, ammonia, and methane. The methane gas scatters blue light, making Uranus appear blue.



It may be raining diamonds right now on the gas planets. The carbon soot created in the stormy atmosphere turns to diamonds under the intense pressure of each planet's atmosphere.

Uranus and its sister planet, Neptune, are very similar. Neptune also appears very blue because of the methane gas in its **atmosphere**.



## Ice Planet

Because Neptune is farthest from the Sun, it is the coldest planet.



Neptune is so far away, it took the spacecraft *Voyager 2* twelve years to reach the ice planet.



Gusting winds on Neptune are the strongest in our solar system. Its winds are ten times more powerful than our strongest hurricanes on Earth.

## Planet Watching

The more we study the gas planets, the more we are able to learn about our fascinating neighbors in space.

There is an amazing universe to discover just above your head!



Five planets can be seen from Earth without any special tools: Mercury, Venus, Mars, Jupiter, and Saturn. A sky chart can show you where to look.

The planets look like small points of light in the sky, but they don't twinkle like stars do. Stars twinkle because they make their own light, while planets reflect light from the Sun.

## Photo Glossary



**atmosphere** (AT-muhss-fih):  
Mixture of gasses that surround  
a planet.



**gravity** (GRAV-uh-tee): The force  
that presses down on objects,  
keeping them from floating into  
space.



**orbits** (OR-bits): The paths  
objects follow around a star or  
planet.



**planet** (PLAN-it): A round body in  
space that orbits the Sun.



**rotates** (ROH-tates): To spin around  
on an axis, or center.

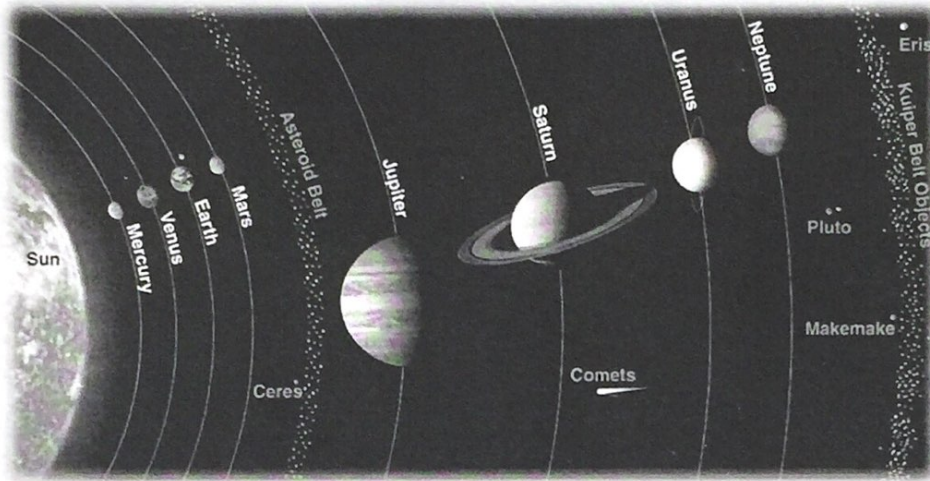


**solar system** (SOH-lur SISS-tuhm):  
The Sun and all the objects that orbit  
around it, including Earth.



Name Mrs. Brogan Inner and Outer Planets

In our Solar System, astronomers often divide the planets into two groups — the Inner Planets and the Outer Planets. The inner planets are closer to the Sun and are smaller and rockier. The outer planets are further away, larger, and made up mostly of gas. They are separated by the Asteroid Belt.



Write the names of the planets under the correct heading.

Inner Planets	Outer Planets
Mercury Venus Earth Mars	Jupiter Saturn Uranus Neptune

Jupiter    Mercury    Mars    Neptune    Uranus  
Earth    Saturn    Pluto    Venus

How would you describe the inner planets? They are made of rock.

How would you describe the outer planets? They are made of gas.