



### Lesson Plan: Our Solar System and Beyond

**Grade Level:** 4

**Subject:** Earth Science

**Duration:** 45–60

**NGSS 4-ESS1-1:** Earth's Place in the Universe: Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.

### Learning Objectives

By the end of this lesson, students will be able to:

- **Identify** the components of the solar system, including the Sun, eight planets, asteroids, comets, and meteors
- **Describe** the movements of the Earth, including rotation and revolution, and how they



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### Materials Needed: (all links are included in this PDF)

- Printed copies of the Study Guide (<https://newpathworksheets.com/api/guide/study-guide-science-grade-4-our-solar-system-and-beyond.pdf>)
- General Practice Worksheet (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-our-solar-system-and-beyond-0.pdf>)



- Moon Phases Worksheet (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-our-solar-system-and-beyond-1.pdf>)
- Solar System Quiz (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-our-solar-system-and-beyond-2.pdf>)
- Vocabulary Matching Worksheet 1 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-our-solar-system-and-beyond-1.pdf>)
- Vocabulary Matching Worksheet 2 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-our-solar-system-and-beyond-2.pdf>)
- Vocabulary Worksheet 3 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-our-solar-system-and-beyond-3.pdf>)

### Lesson Procedure



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### Step 3: Guided Practice (10 minutes)

- Distribute Vocabulary Worksheet 1 and have students match terms like 'Planet', 'Orbit', and 'Asteroid' to their definitions. (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-our-solar-system-and-beyond-1.pdf>)
- Review the answers as a class to ensure understanding of key terminology.
- Ask students to describe the difference between a 'waxing' and 'waning' moon based on the definitions found in Vocabulary Worksheet 2. (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-our-solar-system-and-beyond-2.pdf>)



#### Step 4: Independent Practice (10 minutes)

- Have students complete the General Practice Worksheet to reinforce facts about planets and celestial bodies. (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-our-solar-system-and-beyond-0.pdf>)
- Assign the Moon Phases Worksheet for students to identify specific phases and orbital mechanics. (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-our-solar-system-and-beyond-1.pdf>)

#### Step 5: Assessment (10 minutes)

- Administer the Solar System Quiz to evaluate student retention of the lesson concepts. (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-our-solar-system-and-beyond-2.pdf>)
- Review the quiz answers to clarify any remaining misconceptions about eclipses or planetary order.



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- Create a physical model of the solar system using foam balls or clay.
- Write a short creative story from the perspective of an alien visiting Earth.
- Track the moon's phases in a journal over the next month.

#### Complete List of Available Resources:

- NewPathWorksheets: Our Solar System and Beyond (<https://newpathworksheets.com/science/grade-4/our-solar-system-and-beyond>)



- Study Guide PDF (<https://newpathworksheets.com/api/guide/study-guide-science-grade-4-our-solar-system-and-beyond.pdf>)
- General Practice Worksheet PDF (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-our-solar-system-and-beyond-0.pdf>)
- Moon Phases Worksheet PDF (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-our-solar-system-and-beyond-1.pdf>)
- Solar System Quiz PDF (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-our-solar-system-and-beyond-2.pdf>)
- Vocabulary Matching Worksheet 1 PDF (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-our-solar-system-and-beyond-1.pdf>)
- Vocabulary Matching Worksheet 2 PDF (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-our-solar-system-and-beyond-2.pdf>)



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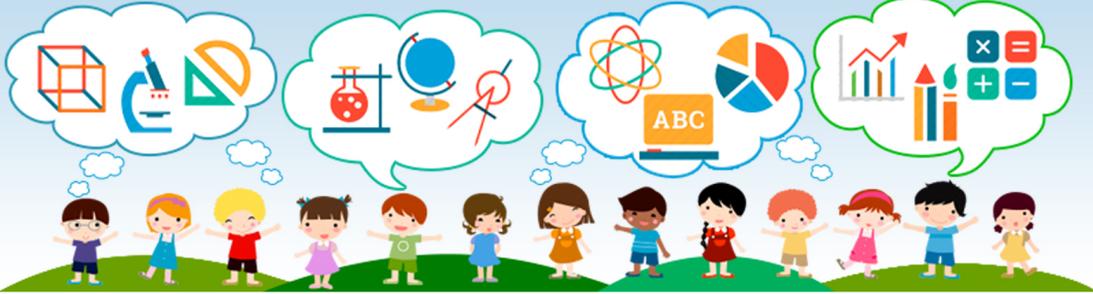
# NEW PATH LEARNING

## OUR SOLAR SYSTEM AND BEYOND

### What Can Be Found in the Solar System?

#### Planets

A **planet** is a large body that revolves around the Sun. All planets rotate and revolve around the Sun.



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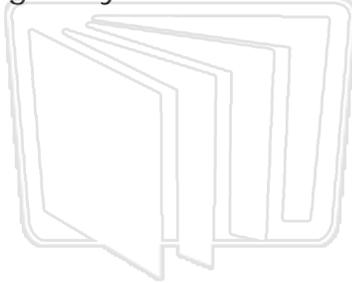


**Lesson Checkpoint:**  
*What are asteroids, comets, and meteors made of?*

## Speaking of Stars...

A star is a **hot ball of gas**. The Sun is a star that provides energy, heat, and light to living organisms on Earth. A group of stars that make a pattern in sky are known as **constellations**.

A **galaxy** is a system of dust, gas, and millions of stars held together by gravity. We live in the Milky Way galaxy.



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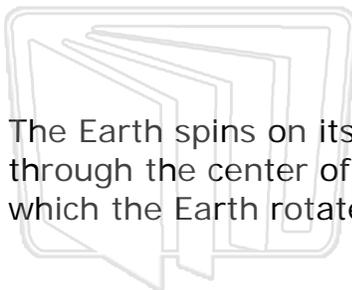


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The Earth spins on its own **axis**, which is an imaginary straight line running through the center of the Earth, from the North Pole to the South Pole, on which the Earth rotates.

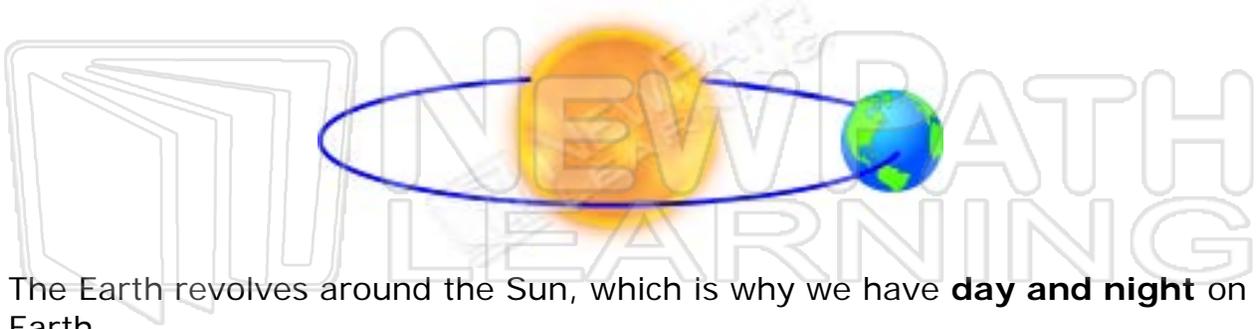


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A **revolution** is the Earth moving in a path around the Sun, which results in one year on Earth.

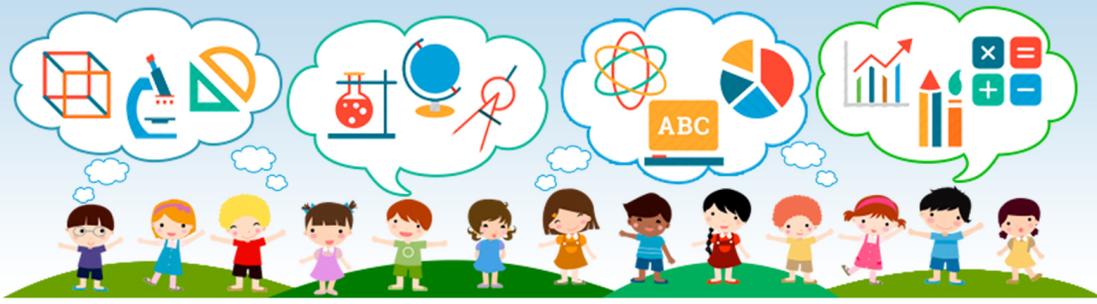
It takes the Earth about 365 days to complete one **revolution**.

The **path** that the Earth follows as it revolves around the Sun is called its **orbit**.



The Earth revolves around the Sun, which is why we have **day and night** on Earth.

Lesson Objectives

An illustration of a diverse group of children standing on a green grassy hill. Above them are four thought bubbles containing various educational icons: a cube, a microscope, a protractor, a globe, a balance scale, a red flask, a DNA helix, a pie chart, a bar graph, and mathematical symbols like multiplication, division, addition, and subtraction. One bubble also contains the letters 'ABC'.

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A partial view of a globe showing the Americas.

All of the Moon shapes that are visible on Earth are called the **Moon phases**.

As the Moon orbits the Earth, the same side of Moon always faces the Earth.

## Moon phases

When the Moon is between the Earth and the Sun, the **Moon looks dark**. This phase is called the **new Moon**, which begins a new set of Moon phases.

After the new Moon, the Moon begins to appear in its **waxing crescent phase**. The Moon looks like a sliver in the sky during this phase.



The **first quarter phase** of the Moon occurs when the side of the Moon visible to us on Earth Moon appears to be half full on its right side.



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When the Sun and Moon are on opposite sides of the Earth, the Moon appears full, because the Sun is reflecting its light completely on the half of the Moon visible to us on Earth.



This is a picture of the Moon in its **waning gibbous phase**. Waning means to get smaller, meaning we start to see LESS of the Moon's surface as it begins to reach its new Moon phase once again.

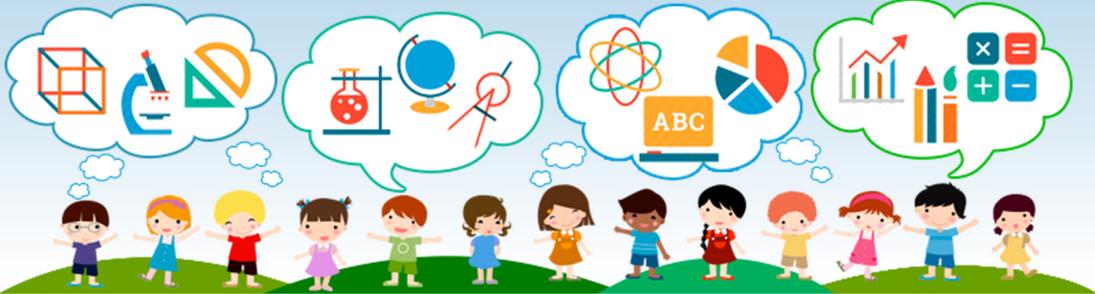


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A **solar eclipse** occurs in the sky when the Moon passes between the Sun and the Earth and casts its shadow on Earth. The daytime sky is dark for a few minutes when the Moon blocks the Sunlight. These don't happen very often. Don't look at a solar eclipse directly or without special glasses or the light can hurt your eyes.



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**FALL**

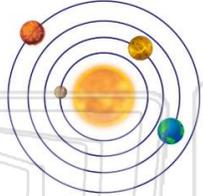
*Lesson Checkpoint:*  
**What are two important reasons for the seasons on Earth?**



Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1 A \_\_\_\_\_ is a **large body** that **revolves** around the sun.

- A satellite
- B galaxy
- C star
- D planet



2 Which of these statements is **correct** about the planets in **our solar system**

- A All planets rotate and revolve around the moon.
- B All planets rotate and revolve around the sun.
- C All planets rotate and revolve around earth.
- D Few planets rotate and revolve around the sun.



3 **Asteroids, comets and meteors** are made of pieces of \_\_\_\_\_.

- A rock and ice
- B metal
- C stars

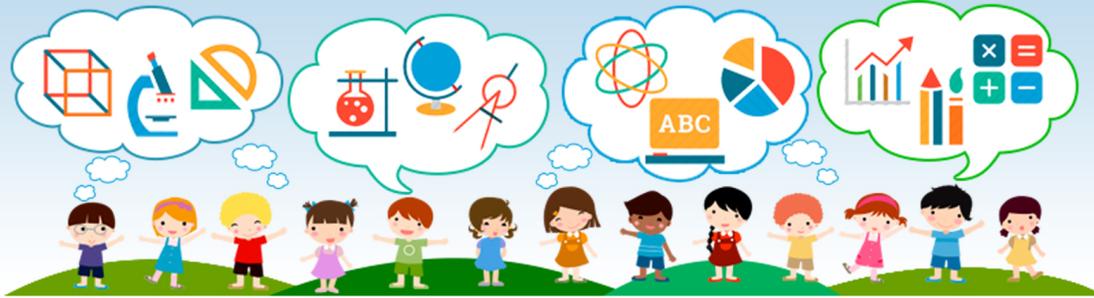


4 I am the **smallest planet** in the solar system and I am closest to the sun. **Which planet am I?**

- A Earth
- B Mercury



5



## PREVIEW

7

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D stars



- B oxygen
- C gravity
- D heat



9

The **earth's rotation** is the earth spinning around once every \_\_\_\_\_ hours which results in **one day and night on earth**.

- A 12
- B 24
- C 46
- D 48



10

The earth spins on its own \_\_\_\_\_, which is an **imaginary straight line** running through the center of the earth, from the North Pole to the South Pole.

- A axis
- B rotation
- C equator
- D grid

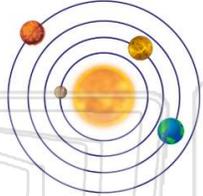




Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1 A \_\_\_\_\_ is a **large body** that **revolves** around the sun.

- A satellite
- B galaxy
- C star
- D planet



(D)

2 Which of these statements is **correct** about the planets in **our solar system**

- A All planets rotate and revolve around the moon.
- B All planets rotate and revolve around the sun.
- C All planets rotate and revolve around earth.
- D Few planets rotate and revolve around the sun.



(B)

3 **Asteroids, comets and meteors** are made of pieces of \_\_\_\_\_.

- A rock and ice
- B metal
- C stars



(A)

4 I am the **smallest planet** in the solar system and I am closest to the sun. **Which planet am I?**

- A Earth
- B Mercury



(B)

5



(A)

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(C)

D stars



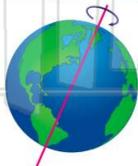
- B oxygen
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- D 48



(B)

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The earth spins on its own \_\_\_\_\_, which is an **imaginary straight line** running through the center of the earth, from the North Pole to the South Pole.

- A axis
- B rotation
- C equator
- D grid



(A)



Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

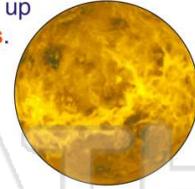
1 A(n) \_\_\_\_\_ is the **earth moving in a path around the sun**, which results in one year on earth.

- A trail
- B revolution
- C rotation
- D axis



2 \_\_\_\_\_ is a very **hot and rocky planet** with no moons; its atmosphere is made up of **poisonous gases**.

- A Mars
- B Earth
- C Venus
- D Uranus



3 What keeps the **earth revolving around the sun**?

- A stars
- B wind
- C gravity



4 The **path that the earth follows** as it revolves around the sun is called its \_\_\_\_\_.

- A orbit
- B axis



5



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D the Sun

- C the moon is not visible from earth
- D the same side of earth faces the moon

9

When the moon is between the earth and the sun, the moon **looks dark**. This **phase** is called the \_\_\_\_\_, which begins a new set of moon phases.

- A half moon
- B full moon
- C new moon
- D crescent moon



10

After the **new moon**, the moon begins to show in its \_\_\_\_\_ phase. The moon looks like a **sliver in the sky** during this phase.

- A new moon
- B waxing crescent
- C half moon
- D full moon





Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1 A(n) \_\_\_\_\_ is the **earth moving in a path around the sun**, which results in one year on earth.

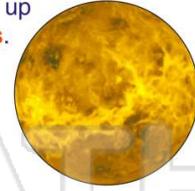
- A trail
- B revolution
- C rotation
- D axis



(B)

2 \_\_\_\_\_ is a very **hot and rocky planet** with no moons; its atmosphere is made up of **poisonous gases**.

- A Mars
- B Earth
- C Venus
- D Uranus



(C)

3 What keeps the **earth revolving around the sun**?

- A stars
- B wind
- C gravity



(C)

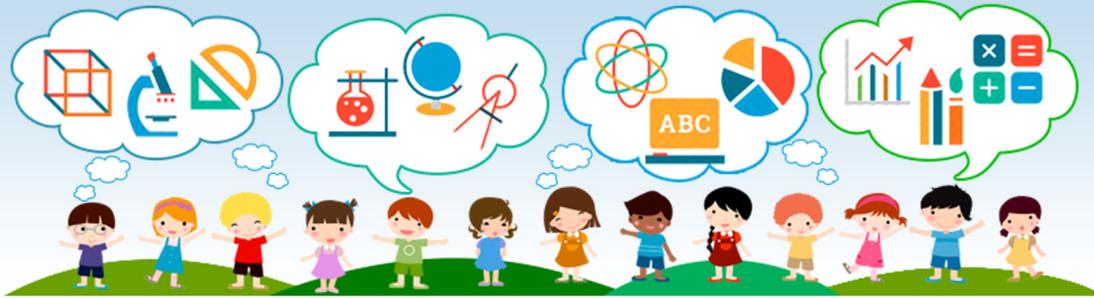
4 The **path that the earth follows** as it revolves around the sun is called its \_\_\_\_\_.

- A orbit
- B axis



(A)

5



(D)

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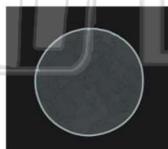
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(A)

9

When the moon is between the earth and the sun, the moon **looks dark**. This **phase** is called the \_\_\_\_\_, which begins a new set of moon phases.

- A half moon
- B full moon
- C new moon
- D crescent moon



(C)

10

After the **new moon**, the moon begins to show in its \_\_\_\_\_ phase. The moon looks like a **sliver in the sky** during this phase.

- A new moon
- B waxing crescent
- C half moon
- D full moon



(B)



Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1 The \_\_\_\_\_ phase of the moon occurs when the side of the moon visible to us on earth appears to be **half-full on its right side**.

**A** waxing gibbous  
**B** last quarter  
**C** full moon  
**D** first quarter



2 What is the **largest planet** in our solar system?

**A** Mars  
**B** Jupiter  
**C** Mercury  
**D** Saturn



3 The **rings of Saturn** are made of \_\_\_\_\_.

**A** gas  
**B** soil and water  
**C** sand  
**D** dust



4 How many **moons** does **Uranus** have?

**A** 2  
**B** 6  
**C** 26  
**D** 28



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8 \_\_\_\_\_

**C** Wind storms  
**D** Thunderstorms



**B** summer  
**C** spring  
**D** fall

9 The **eighth planet** from the Sun is \_\_\_\_\_ which is made up of **several different types of gases**.

**A** Saturn  
**B** Neptune  
**C** Pluto  
**D** Jupiter



10 **Pluto** is a \_\_\_\_\_.

**A** planet  
**B** dwarf planet  
**C** comet  
**D** moon





Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1 The \_\_\_\_\_ phase of the moon occurs when the side of the moon visible to us on earth appears to be **half-full on its right side.**

**A** waxing gibbous  
**B** last quarter  
**C** full moon  
**D** first quarter



(D)

2 What is the **largest planet** in our solar system?

**A** Mars  
**B** Jupiter  
**C** Mercury  
**D** Saturn



(B)

3 The **rings of Saturn** are made of \_\_\_\_\_.

**A** gas  
**B** soil and water  
**C** sand  
**D** dust



(D)

4 How many **moons** does **Uranus** have?

**A** 2  
**B** 6  
**C** 26  
**D** 28



(C)



(D)

## PREVIEW

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(A)

8 \_\_\_\_\_  
**C** Wind storms  
**D** Thunderstorms



**B** summer  
**C** spring  
**D** fall



9 The **eighth planet** from the Sun is \_\_\_\_\_ which is made up of **several different types of gases.**

**A** Saturn  
**B** Neptune  
**C** Pluto  
**D** Jupiter



(B)

10 **Pluto** is a \_\_\_\_\_.

**A** plant  
**B** dwarf planet  
**C** comet  
**D** moon



(B)



Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

**Match each of the following terms to its definition:**

Planet

Asteroid

Axis

Galaxy

Orbit

Accretion

Constellation

Comet

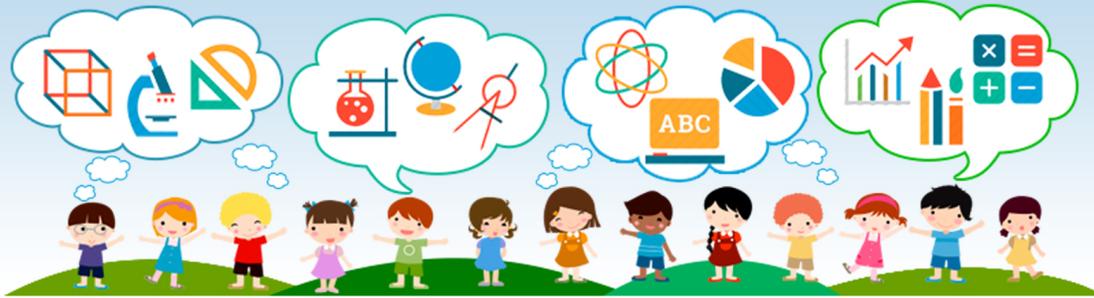
1. - a large object that orbits around Sun



2. - the path that an electron follows as it moves around the nucleus of an atom; the elliptical path of the planets and other celestial objects which revolve around the Sun



3. together



4. and together

5. the earth

6. that of

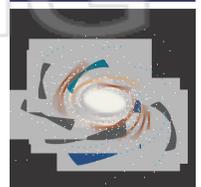
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7. - a group of stars that make a pattern in the night sky



8. - a system of dust, gas and millions of stars held together by gravity; an identifiable cluster of stars and planets





Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

**Match each of the following terms to its definition:**

Planet

Asteroid

Axis

Galaxy

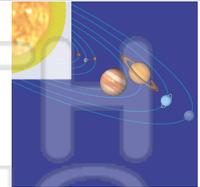
Orbit

Accretion

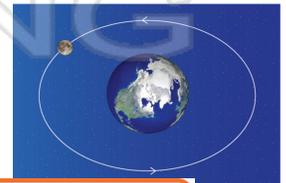
Constellation

Comet

1. **planet** - a large object that orbits around Sun



2. **orbit** - the path that an electron follows as it moves around the nucleus of an atom; the elliptical path of the planets and other celestial objects which revolve around the Sun



3. **accr**  
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4. **ast**  
travel  
betwe

5. **axis**  
from t

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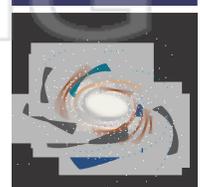
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6. **com**  
the Su

7. **constellation** - a group of stars that make a pattern in the night sky



8. **galaxy** - a system of dust, gas and millions of stars held together by gravity; an identifiable cluster of stars and planets







Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

**Match each of the following terms to its definition:**

Star

Waning moon

Constellation

Galaxy

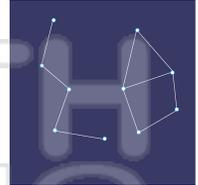
Meteor

Lunar eclipse

Revolution

New moon

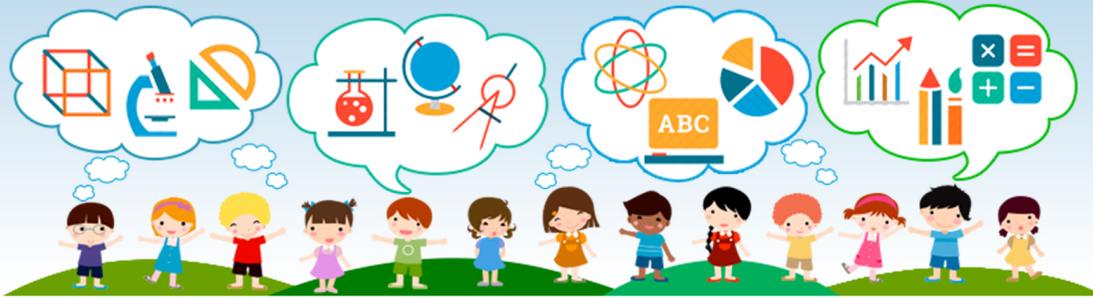
1. **constellation** - a group of stars that make a pattern in the night sky



2. **galaxy** - a system of dust, gas and millions of stars held together by gravity; an identifiable cluster of stars and planets



3. **lun**  
betwe  
exactl  
Earth'



4. **me**  
the Ea

5. **nev**  
the Su  
Moon

## PREVIEW

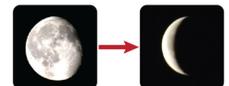
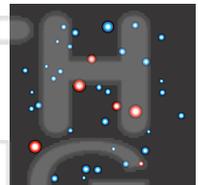
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6. **rev**  
one Ea

7. **star** - a hot ball of gas



8. **waning moon** - a phase of the Moon when the sunlit portion of the Moon is getting smaller





Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

### Match each of the following terms to its definition:

Nuclear fusion

Equinox

Earth's rotation

Solar eclipse

Star

Waning moon

Chromosphere

Waxing moon

1. \_\_\_\_\_ - a hot ball of gas



2. \_\_\_\_\_ - a phase of the Moon when the sunlit portion of the Moon is getting smaller



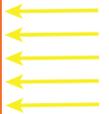
3. \_\_\_\_\_ Moon



4. \_\_\_\_\_



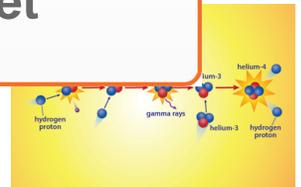
5. \_\_\_\_\_ direct from t



6. \_\_\_\_\_ in the

**PREVIEW**

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7. \_\_\_\_\_ - the shadow created on the Earth when the moon comes between the Sun and the Earth; a blocking of the Sun's light when the Moon comes between the Sun and the Earth



8. \_\_\_\_\_ - the Earth spinning around once every 24 hours which results in day and night on Earth





Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

**Match each of the following terms to its definition:**

Nuclear fusion

Equinox

Earth's rotation

Solar eclipse

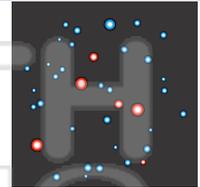
Star

Waning moon

Chromosphere

Waxing moon

1. **star** - a hot ball of gas



2. **waning moon** - a phase of the Moon when the sunlit portion of the Moon is getting smaller



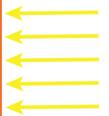
3. **waxing moon** - a phase of the Moon when the sunlit portion of the Moon is getting larger



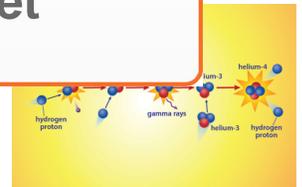
4. **chromosphere** - the layer of the Sun's atmosphere just above the photosphere



5. **equinox** - a time of the year when the Sun is directly above the equator, resulting in equal day and night



6. **nuclear fusion** - the process by which two light atoms combine to form a heavier atom, releasing energy



7. **solar eclipse** - the shadow created on the Earth when the moon comes between the Sun and the Earth; a blocking of the Sun's light when the Moon comes between the Sun and the Earth



8. **Earth's rotation** - the Earth spinning around once every 24 hours which results in day and night on Earth



**PREVIEW**

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