

Name \_\_\_\_\_

Date \_\_\_\_\_

# Earth and Its Moon

## Key Words

atmosphere	day	diameter
gravity	moon	orbit
phases	reflect	revolve
rotate	satellite	year

The Earth and the moon are partners in the solar system. The **moon** is the Earth's only natural **satellite**. They orbit the sun together and are alike in many ways, but Earth and its moon differ in many other ways. The moon looks much larger than the stars, but it isn't. Its **diameter**, the distance through a circular object from one side to the other, is only one-fourth of Earth's, and it is much smaller than any star in the sky. Why does it look so large? It is closer to the Earth than any other space object.

The Earth **revolves** around the sun, while the moon revolves around the Earth. Both the Earth and the moon **rotate** on an axis. The Earth rotates on its axis once every 24 hours (causing **day** and night) as it **orbits** the sun once every 365.25 days (1 **year**). The moon rotates on its axis as it revolves around the Earth. One rotation and one revolution of the moon take exactly the same amount of time, about 28 days. Because of this, the same side of the moon always faces the Earth.

About 71% of the Earth's surface is covered with water. The rest of the Earth's surface is covered by soil and rocks. Many different landforms such as mountains, plateaus, deltas, and plains are also found on the Earth. The Earth has many active volcanoes. Earth is surrounded by an **atmosphere** composed mainly of nitrogen, oxygen, argon, and carbon dioxide. This atmosphere makes it possible for all different kinds of life to exist on the Earth. Because of its mass, Earth has strong **gravity**, the force that keeps objects on its surface from drifting off into space.

The moon also has a rocky surface with soil, mountains, and plains. The light and dark patches that you see when you look at the moon are flat plains (mare) that appear in shadow. Mountains and craters surround the dark areas, making some

people think they see “a man in the moon.” Some of these mountains are inactive volcanoes—lava no longer flows out of them. Unlike the Earth, the moon has no liquid water, although scientists believe that there may be some ice at the moon’s poles. There is no atmosphere on the moon’s surface, so astronauts landing on the moon must wear space suits with an oxygen supply in order to survive. Since it does not have any air or liquid water, scientists believe that there is no life on the moon’s surface. Because the moon’s mass is smaller than the Earth’s, it has less gravity. The moon’s gravity is about one-sixth of that found on the Earth. That means that an astronaut weighing 180 pounds on the Earth would only weigh 30 pounds on the moon!

The moon and the Earth are very much alike in one way: neither make their own light but instead receive all of their light from the sun. Even though it appears as the brightest object in the night sky, we would not be able to see the moon without the sun. The moon **reflects**, or bounces back, light from the sun like a giant mirror.

During each month, the moon seems to change shape, but it really doesn’t. It only looks like it changes shape because of the amount of sunlight that it reflects. As more sun hits the moon, more light is reflected to the Earth, and more of the moon’s surface is seen. The changing views of the moon we see on Earth are called **phases**. The illustration below shows the moon’s phases during one lunar cycle (about 28 days).



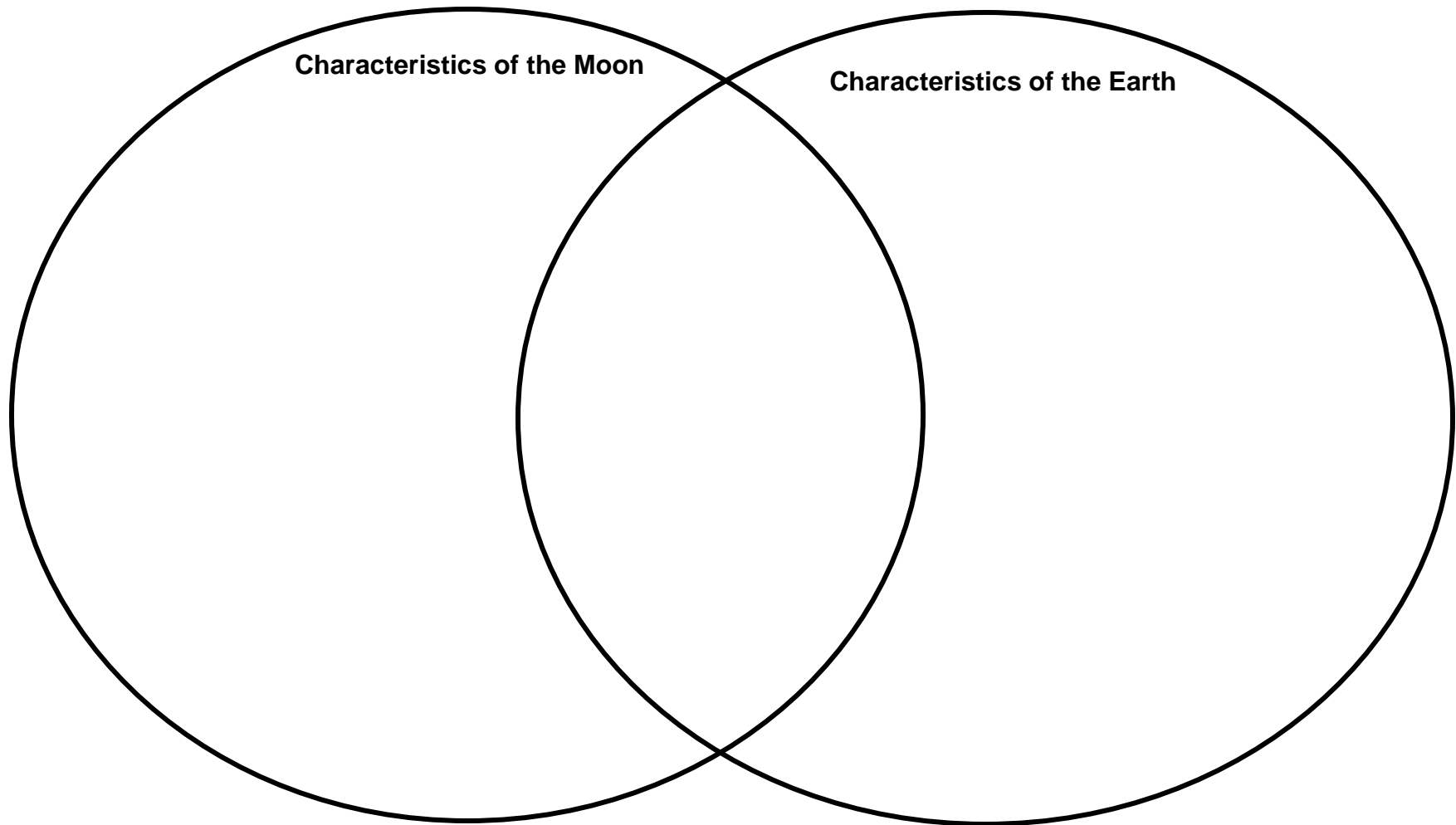
New Moon    First Quarter    Waxing Gibbous    Full Moon    Waning Gibbous    Last Quarter

Because the Earth and the moon are close together, the force of gravity between them is strong. The moon’s gravity pulls the waters in the ocean towards the moon. This makes the level of water in the oceans change. These changes in water level are called tides. If you visit an ocean beach, you will see the water come up higher on the beach at certain times. At other times, the water is lower. What you are seeing is high and low tides. Tides are caused mostly by the pull of gravity between the Earth and the moon. Most days, there will be two high tides and two low tides on the beach.

1. Which of the following is NOT present on the moon?
  - A Air
  - B Plains
  - C Craters
  - D Gravity
  
2. What causes the moon to appear bright in the night sky?
  - A Light from the Earth
  - B Fire from inactive volcanoes
  - C Light from the sun
  - D Light reflecting from the water
  
3. About how long is the lunar cycle?
  - A 7 days
  - B 28 days
  - C 31 days
  - D 365 days
  
4. Why is it difficult to see a new moon?
  - A It is invisible.
  - B It is hidden behind Mercury.
  - C It is in Earth's shadow.
  - D Its dark side faces Earth.
  
5. What happens because of Earth's rotation?
  - A Summers are warmer than winters.
  - B Earth's axis tilts.
  - C Day and night occur.
  - D Earth orbits the sun.
  
6. If the moon in its full phase, what phase will come next?
  - A New Moon
  - B First Quarter
  - C Waxing Gibbous
  - D Waning Gibbous
  
7. Which of the following changes on Earth are caused by the moon as it orbits the Earth?
  - A Night and day
  - B Tides and phases
  - C Eclipses and erosion
  - D The Seasons

# Earth and Its Moon

**Directions:** Think about what you have learned about the Earth and its moon. Tell how the Earth and the moon are alike and how they are different by filling in the sections of the Venn diagram below. Tell as much about the Earth and the moon as you can. Look back at the passage to help you find the similarities and differences.



atmosphere	day
diameter	gravity
moon	orbit
phases	reflect
revolve	rotate
satellite	year

<p>I have the <b>first card</b>.</p> <p>Who has the word for the movement of the Earth that causes day and night?</p>	<p>I have <b><u>rotate</u></b>.</p> <p>Who has the word that tells how long it takes the Earth to rotate once on its axis?</p>
<p>I have one <b><u>day</u></b>.</p> <p>Who has the term for one object moving around another object?</p>	<p>I have <b><u>revolve</u></b>.</p> <p>Who has the star around which the Earth revolves?</p>
<p>I have the <b><u>sun</u></b>.</p> <p>Who has the length of time it takes the Earth to make one revolution around the sun.</p>	<p>I have the word <b><u>year</u></b>.</p> <p>Who has the word that is a synonym for revolve?</p>
<p>I have <b><u>orbit</u></b>.</p> <p>Who has the word for an object that orbits a planet?</p>	<p>I have <b><u>satellite</u></b>.</p> <p>Who has the term for the Earth's only natural satellite?</p>
<p>I have the <b><u>moon</u></b>.</p> <p>Who has the term for the changing views of the moon we see from the Earth?</p>	<p>I have <b><u>phases</u></b>.</p> <p>Who has the term for what the moon does to the light of the sun?</p>

<p>I have <b><u>reflect.</u></b></p> <p>Who has the word that means the distance through a circular object from one side to the other?</p>	<p>I have the word <b><u>diameter.</u></b></p> <p>Who has the term for the thin layer of air that surrounds the Earth?</p>
<p>I have <b><u>atmosphere.</u></b></p> <p>Who has the term for the force that causes the ocean tides on the Earth's surface?</p>	<p>I have <b><u>gravity.</u></b></p> <p>Who has the number of hours in a day?</p>
<p>I have <b><u>twenty-four.</u></b></p> <p>Who has the number of days in a year?</p>	<p>I have <b><u>three hundred sixty-five.</u></b></p> <p>Who has the first card?</p>

Name \_\_\_\_\_

Home Room \_\_\_\_\_

## Earth and Its Moon

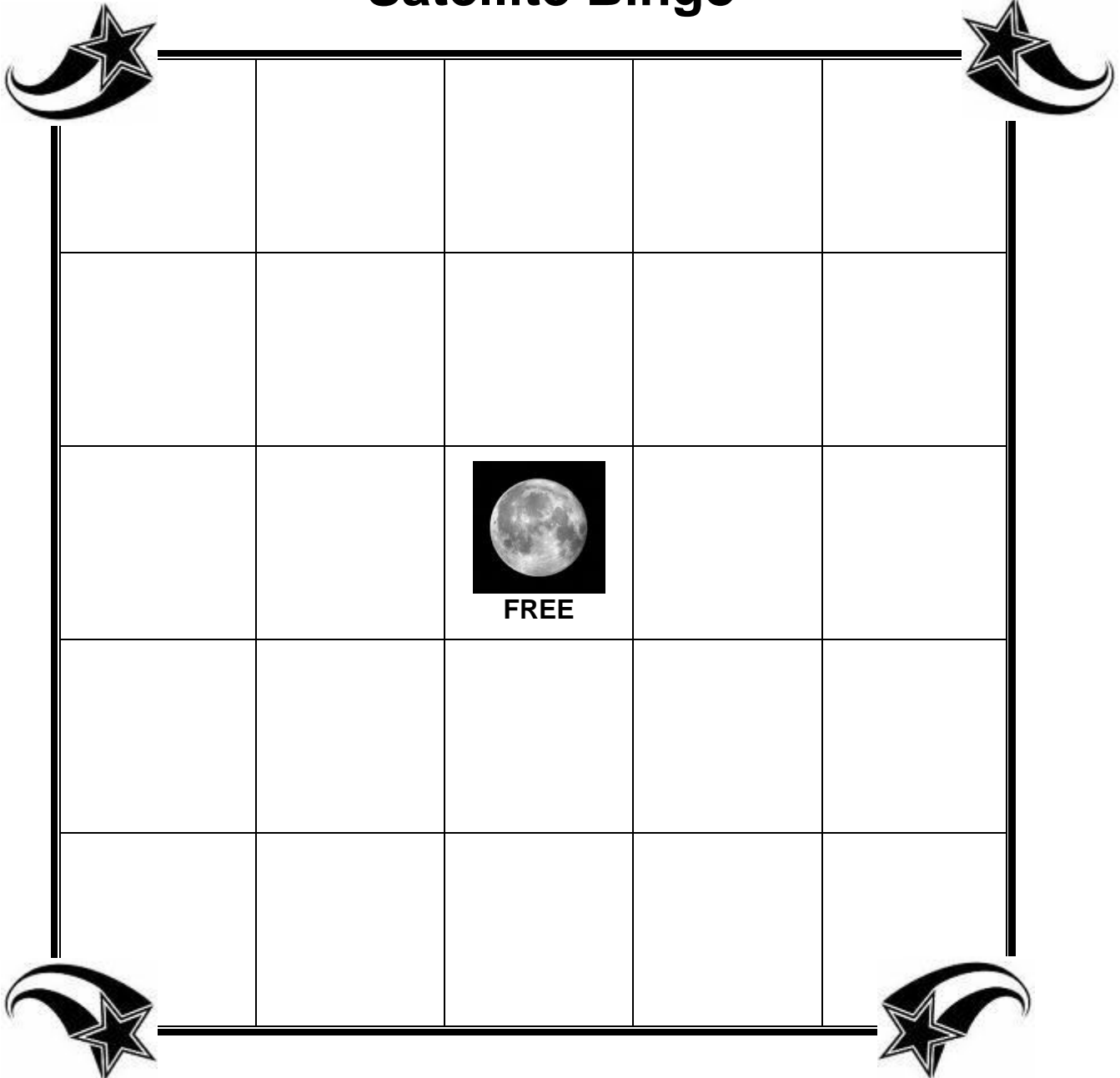
Directions: Draw a line from word to word to complete the maze as your classmates read the clues.

<b>START</b>	revolve	sun	year
rotate	day	revolve	orbit
atmosphere	diameter	moon	satellite
year	reflect	phases	phases
day	diameter	twenty-four	three hundred sixty-five
satellite	atmosphere	gravity	<b>FINISH</b>

1. \_\_\_\_\_ an object that orbits a planet
2. \_\_\_\_\_ the thin layer of air that surrounds the Earth
3. \_\_\_\_\_ the changing views of the moon we see from the Earth
4. \_\_\_\_\_ the word that is a synonym for orbit
5. \_\_\_\_\_ twenty-four hours
6. \_\_\_\_\_ three hundred sixty-five days
7. \_\_\_\_\_ the force that keeps the moon in orbit around the Earth
8. \_\_\_\_\_ to spin on an axis



# Satellite Bingo



**Choose 24 terms to fill in your bingo card! Use each word one time only!**

Atmosphere  
Diameter  
Mare  
Moon  
Phases  
Revolution  
Surface

Axis  
Earth  
Mass  
Natural  
Planet  
Rotation  
Tides

Crater  
Gravity  
Meteor  
Night  
Satellite  
Solar System  
Year

Day  
Lunar  
Milky Way  
Orbit  
Reflect  
Sun

### Satellite Bingo Definitions

The amount of time it takes the Earth to make one rotation on its axis
The air that surrounds the Earth or any other planet or moon
The distance through a circular object from one side to the other
The third planet from the sun
Word that means "relating to the moon"
Amount of matter in an object; measured in grams
Made by nature
The name for the spiral galaxy that contains our Solar System
An object that revolves around a larger object in space
The regular changes in the way the moon looks from the Earth
To bounce back light or heat
One complete trip of a planet around the sun or a moon around a planet
The daily rise and fall of the oceans caused mainly by the gravitational pull of the moon
Medium-sized yellow star at the center of our Solar System

The amount of time it takes the Earth to make one revolution around the sun
An imaginary line that passes from the North Pole to the South Pole through the Earth's center
A bowl-shaped landform found on a planet or a moon
The force that pulls objects towards each other
Large plains found on the Earth's moon
A piece of rock from space that enters the atmosphere of a moon or a planet and burns
The daily period of darkness on the Earth's surface
The Earth's only natural satellite; takes about 28 days to orbit the Earth
The path that one object in space takes around another object in space
A large object that orbits a star
The outer covering of a planet or moon
The spinning of a planet or a moon on its axis
Consists of the sun, the planets, and all the other objects that revolve around the sun