Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Nine Planets

_____ **1.** What does the word *planet* mean?
- **a.** sky
- **b.** wanderers
- **c.** stars
- **d.** solar system

_____ **2.** Ancient astronomers knew that planets were
- **a.** wandering stars.
- **b.** full of life.
- **c.** physical bodies.
- **d.** easy to explore.

_____ **3.** What scientific instrument first made it possible to study the stars and planets?
- **a.** gyroscopes
- **b.** microscopes
- **c.** spectroscopes
- **d.** telescopes

_____ **4.** Which famous 17th century scientist used a telescope to explore the sky?
- **a.** Copernicus
- **b.** Charles Darwin
- **c.** Galileo
- **d.** Isaac Newton

OUR SOLAR SYSTEM

5. The sun, the planets, and many smaller bodies make up the _____.

6. What makes up the Saturn system?

_____

_____

_____

MEASURING INTERPLANETARY DISTANCES

_____ **7.** The average distance between the Earth and the sun is
- **a.** the light-year.
- **b.** the astronomical unit.
- **c.** the kilometer.
- **d.** the parsec.

_____ **8.** Another way to measure distances in space is by using
- **a.** a tape measure.
- **b.** a road map.
- **c.** a globe.
- **d.** the speed of light.

9. The amount of time it takes light to travel around the Earth seven and a half times is _____.

10. The distance light travels in 1 min is called a(n) _____.

11. How many light-minutes are there in one astronomical unit?

_____

THE DISCOVERY OF THE SOLAR SYSTEM

_____**12.** Which new bodies were discovered during the 17th century, after the telescope was introduced?
- **a.** Uranus and Pluto
- **b.** Neptune and Uranus
- **c.** Uranus and its moons
- **d.** the moons of Jupiter and Saturn

_____**13.** Which was the last planet discovered during the 20th century?
- **a.** Mercury
- **b.** Neptune
- **c.** Pluto
- **d.** Uranus

14. Up until the 17th century, which eight bodies were thought to make up the universe?

_____

_____

_____

_____

THE INNER AND OUTER SOLAR SYSTEMS

_____**15.** How many planets are in the inner solar system?
- **a.** 10
- **b.** 15
- **c.** 4
- **d.** 3

_____**16.** How many planets are in the outer solar system?
- **a.** 6
- **b.** 5
- **c.** 11
- **d.** 20

17. Is Earth part of the inner solar system or the outer solar system?

_____

18. The inner planets are also called _____ planets because their surfaces are dense and rocky.

19. What are the four planets of the inner solar system?

_____

_____

_____

_____

20. What are the five planets of the outer solar system?

_____

_____

_____

_____

_____

21. Why are most of the outer planets called gas giants?

_____

_____

_____

_____

22. What is the only planet of the outer solar system that is small, dense, and rocky?

_____

_____

_____

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Inner Planets

_____ **1.** Why are the inner planets called terrestrial planets?

a. because they are very hot
b. because, like Earth, they are dense and rocky
c. because most are gas giants
d. because they can support life

2. In what three ways do the inner planets differ from the outer planets?

_____

_____

_____

MERCURY: CLOSEST TO THE SUN

_____ **3.** Because Mercury is less massive than Earth, things there would weigh

a. about the same as on Earth.
b. much more than on Earth.
c. much less than on Earth.
d. two-thirds of their weight on Earth.

4. The amount of time that an object takes to rotate once is called its _____.

5. Why does Mercury's day last almost 59 Earth days?

_____

_____

Match the correct definition with the correct term. Write the letter in the space provided.

_____ **6.** the time that a planet takes to go around the sun once

_____ **7.** the motion of a body orbiting another body in space

_____ **8.** the amount of time that an object takes to rotate once

_____ **9.** the amount of time an object takes to revolve around the sun

a. period of rotation
b. period of revolution
c. year
d. revolution

VENUS: EARTH'S TWIN?

_____**10.** Why does the sun rise in the west and set in the east on Venus?
- **a.** because Venus has a retrograde rotation
- **b.** because Venus has a prograde rotation
- **c.** because the sun rotates in the same direction
- **d.** because Earth has a prograde rotation

_____**11.** Which of the terrestrial planets has the densest atmosphere?
- **a.** Earth
- **b.** Mars
- **c.** Mercury
- **d.** Venus

_____**12.** What makes up the air on Venus?
- **a.** mainly oxygen and nitrogen
- **b.** mainly carbon dioxide and acids
- **c.** mainly hydrogen and helium
- **d.** mainly water vapor and acids

_____**13.** What causes the high surface temperature on Venus?
- **a.** the acids in its atmosphere
- **b.** the low atmospheric pressure
- **c.** the carbon dioxide in its atmosphere
- **d.** the water in its atmosphere

_____**14.** What technology did the *Magellan* spacecraft use to map Venus?
- **a.** geological surveys
- **b.** orbital satellites
- **c.** radar
- **d.** sonar

_____**15.** What Earthlike feature was discovered on the surface of Venus?
- **a.** continents
- **b.** oceans
- **c.** rift valleys
- **d.** volcanoes

16. What are three ways Venus is more like Earth than any other planet?

_____

_____

17. A planet with a _____ rotation appears to spin counterclockwise as seen from above its North Pole.

18. A planet with a _____ rotation appears to spin clockwise as seen from above its North Pole.

EARTH: AN OASIS IN SPACE

19. How does Earth's distance from the sun make it suitable for life?

_____

_____

_____

20. What are six of the smaller systems that make up Earth's global system?

_____

_____

_____

MARS: OUR INTRIGUING NEIGHBOR

_____**21.** How does the air pressure on Mars compare with that on Earth?

- **a.** The air pressure is about the same as on Earth.
- **b.** The air pressure is greater on Mars.
- **c.** The air pressure is lower on Mars.
- **d.** The air pressure is lower on Earth.

_____**22.** What evidence suggests that there was once liquid water on Mars?

- **a.** the Martian icecaps
- **b.** features like dry riverbeds
- **c.** features like wave patterns
- **d.** water vapor in its atmosphere

_____**23.** Where may some of the lost water on Mars be found?

- **a.** in underground rivers
- **b.** frozen in icecaps
- **c.** frozen beneath the Martian soil
- **d.** in underground oceans

24. Give two reasons why Mars is a cold planet.

_____

_____

25. The largest extinct shield type volcano on Mars is called

_____.

26. How might the chemical composition of Mars affect Martian volcanic activity?

_____

_____

_____

27. Describe the two goals assigned to NASA's Twin Rover project.

_____

_____

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Outer Planets

1. A planet that has a deep, massive atmosphere, rather than a hard and rocky surface, is called a(n) _____.

JUPITER: A GIANT AMONG GIANTS

_____ **2.** Which of the following is the largest planet in our solar system?
- **a.** Jupiter
- **b.** Earth
- **c.** Saturn
- **d.** Neptune

_____ **3.** What makes up the outer part of Jupiter's atmosphere?
- **a.** oxygen, nitrogen, helium
- **b.** water, methane, ammonia
- **c.** carbon dioxide, oxygen, nitrogen
- **d.** hydrogen, oxygen, water

_____ **4.** Which of the following gases is Jupiter mostly composed of?
- **a.** oxygen and nitrogen
- **b.** organic molecules
- **c.** hydrogen and helium
- **d.** water and carbon dioxide

_____ **5.** What is Jupiter's Great Red Spot?
- **a.** thick layers of clouds
- **b.** a huge storm system
- **c.** metallic hydrogen
- **d.** colorful organic molecules

_____ **6.** What did the Voyager missions discover about Jupiter?
- **a.** details about its moons system
- **b.** data about its temperature
- **c.** that it has a faint ring
- **d.** data about its composition

7. What happens to the gases in Jupiter's atmosphere as the depth increases?

_____

_____

SATURN: STILL FORMING

_____ **8.** What makes up Saturn's rings?

a. rocks and dust
b. iron and metals
c. different sized icy particles
d. organic molecules

9. What is the *Cassini* spacecraft designed to study?

_____

_____

_____

URANUS: A SMALL GIANT

_____**10.** Which of the following astronomers discovered Uranus during the 18th century?

a. Isaac Newton
b. Galileo Galilei
c. William Herschel
d. George III

_____**11.** The atmosphere of Uranus is mainly made up of

a. oxygen and nitrogen.
b. hydrogen and methane.
c. carbon dioxide.
d. methane and ammonia.

_____**12.** What is unusual about Uranus's axis of rotation?

a. It is perpendicular to the orbital plane.
b. It is tilted almost 90° and lies on its side.
c. It is tilted at a 45° angle.
d. Its poles are reversed.

13. How do scientists explain what may have happened to Uranus to cause its axis of rotation?

_____

_____

_____

NEPTUNE: THE BLUE WORLD

_____**14.** What prompted astronomers to look for Neptune?

a. the writings of Jules Verne
b. disturbances in Pluto's orbit
c. *Gulliver's Travels*
d. irregularities in Uranus's orbit

15. Neptune had an area called the _____ similar to the Great Red Spot found on Jupiter.

16. What drives the belts of whirling clouds and storms visible in images of Neptune's atmosphere?

_____

_____

_____

PLUTO: THE MYSTERY PLANET

_____**17.** Which of the following is the smallest planet in our solar system?

a. Pluto
b. Mars
c. Mercury
d. Charon

_____**18.** What does the sun look like from the surface of Pluto?

a. a ball the size of the moon
b. a distant bright star
c. a bright ringed object
d. a ball half the size of the moon

_____**19.** What materials does Pluto seem to be composed of?

a. hydrogen and helium
b. organics and ice
c. hydrogen and water
d. rock and ice

_____**20.** Pluto has a thin atmosphere. What does it seem to be made of?

a. oxygen
b. nitrogen
c. methane
d. hydrogen

21. What is the difference between the ice covering Pluto and the ice covering its moon, Charon?

_____

_____

22. What is unusual about Pluto's moon?

_____

23. Why do some scientists think Pluto should NOT be classified as a planet?

_____

_____

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Moons

1. Natural or artificial bodies that revolve around larger bodies such as planets are called _____.
2. Except for Mercury and Venus, all of the planets have natural satellites called _____.
3. What is the difference between a moon and a satellite?

_____

_____

LUNA: THE MOON OF EARTH

_____ 4. How old were the lunar rocks brought back by the Apollo missions?
   a. 3 billion years
   b. about 3.8 billion years
   c. about 4.6 billion years
   d. more than 5 billion years

5. What does the age of these rocks tell us about our solar system?

_____

_____

_____

6. What happens to impacts on the surface of bodies without an atmosphere?

_____

_____

7. What were the three popular explanations for the moon's formation?

_____

_____

_____

8. What is the current theory about the origin of the moon?

_____

_____

9. What evidence supports the current theory about the origin of the Moon?

_____

_____

10. Describe how the moon's appearance changes during the month.

_____

_____

11. The different appearances of the moon due to its changing position are called _____.

12. What causes the different appearances of the moon?

_____

_____

13. Why do we always see the same side of the moon from Earth?

_____

14. When the moon is _____, the sunlit part of the moon that we can see is getting larger. When the moon is _____ the sunlit part of the moon that we can see is getting smaller.

Match the correct description with the correct term. Write the letter in the space provided.

_____**15.** when the moon's shadow falls on part of the Earth

_____**16.** when the shadow of Earth falls on the moon

_____**17.** when the shadow of one celestial body falls on another

_____**18.** when a thin solar ring is visible around the edge of the moon

_____**19.** when the moon's disk completely covers the sun

a. eclipse
b. solar eclipse
c. lunar eclipse
d. total solar eclipse
e. annular eclipse

20. Why don't we see solar and lunar eclipses every month?

_____

_____

THE MOONS OF OTHER PLANETS

_____**21.** Which of the following statements about moons in this solar system is NOT correct?

a. Some orbit their planet backwards.
b. Many may be captured asteroids.
c. Some have very elongated orbits.
d. None is as large as the terrestrial planets.

_____**22.** Why do scientists think the Martian moons may be asteroids caught by the planet's gravity?

a. They are very small moons.
b. They are very dark.
c. They are similar in composition.
d. They are oddly shaped.

_____**23.** Who discovered the four largest moons of Jupiter?

a. Copernicus
b. Galileo
c. Ganymede
d. Mercury

24. Why is Io the most volcanically active body in the solar system?

_____

_____

_____

25. What evidence supports the idea that life could have evolved on Europa?

_____

_____

26. Why might Titan hold the key to learning more about the origin of life?

_____

_____

27. What do scientists believe caused the patchwork surface of Uranus's moon, Miranda?

_____

_____

_____

_____

28. Neptune's largest moon, Triton, has a _____, or "backward," orbit.

29. What is the period of revolution of Pluto's moon, Charon?

_____

22. What causes meteor showers?

_____

_____

_____

THE ROLE OF IMPACTS IN THE SOLAR SYSTEM

23. The result of a collision with a large object from space is often an impact _____.

24. Why does the Earth generally have fewer impacts than the moon?

_____

_____

_____

25. What are the three reasons why most craters left on Earth are no longer visible?

_____

_____

_____

26. How often do large objects that could cause a global catastrophe strike Earth?

_____

_____

27. What is the Torino scale?

_____

_____

_____

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Small Bodies in the Solar System

1. Name two objects in the solar system besides moons and planets.

_____

_____

COMETS

_____ **2.** What materials are comets made of?

a. iron, nickel, and rock
b. ice, rock, and cosmic dust
c. lighter elements and water ice
d. frozen gases and metals

3. Why are comets sometimes called "dirty snowballs?"

_____

_____

4. How can studying comets help us learn about the solar system's history?

_____

_____

5. When a comet passes close enough to the sun to be heated by solar radiation, what happens to the ice?

_____

_____

6. The solid center of a comet is called its _____.

7. How does the behavior of a comet's dust tail differ from a comet's ion tail?

_____

_____

8. What two regions in space do comets come from?

_____

_____

9. What would cause a comet to head for the sun?

_____

_____

ASTEROIDS

10. Small, rocky bodies that revolve around the sun are called _____.

11. A region of space between the orbits of Mars and Jupiter in which asteroids orbit is called the _____.

12. When do scientists think the asteroids originated?

_____

Match the correct description with the correct term. Write the letter in the space provided.

_____**13.** asteroids found in the middle region of the asteroid belt

_____**14.** asteroids found in the outermost region of the asteroid belt

_____**15.** asteroids found in the innermost region of the asteroid belt

a. dark red to black in color; rich in organic material

b. light gray; stony or metallic in composition

c. dark gray surfaces; rich in carbon

METEOROIDS

_____**16.** a meteoroid that reaches Earth's surface without burning up

_____**17.** a meteorite made from rocky materials; probably came from carbon-rich asteroids

_____**18.** a bright streak of light that results when a body burns up in the atmosphere

_____**19.** a meteorite composed of a mixture of rocky material, iron, and nickel

_____**20.** a small, rocky body that travels through space

_____**21.** a meteorite mainly composed of iron and nickel

a. meteor

b. metallic meteorite

c. meteoroid

d. stony meteorite

e. meteorite

f. stony-iron meteorite

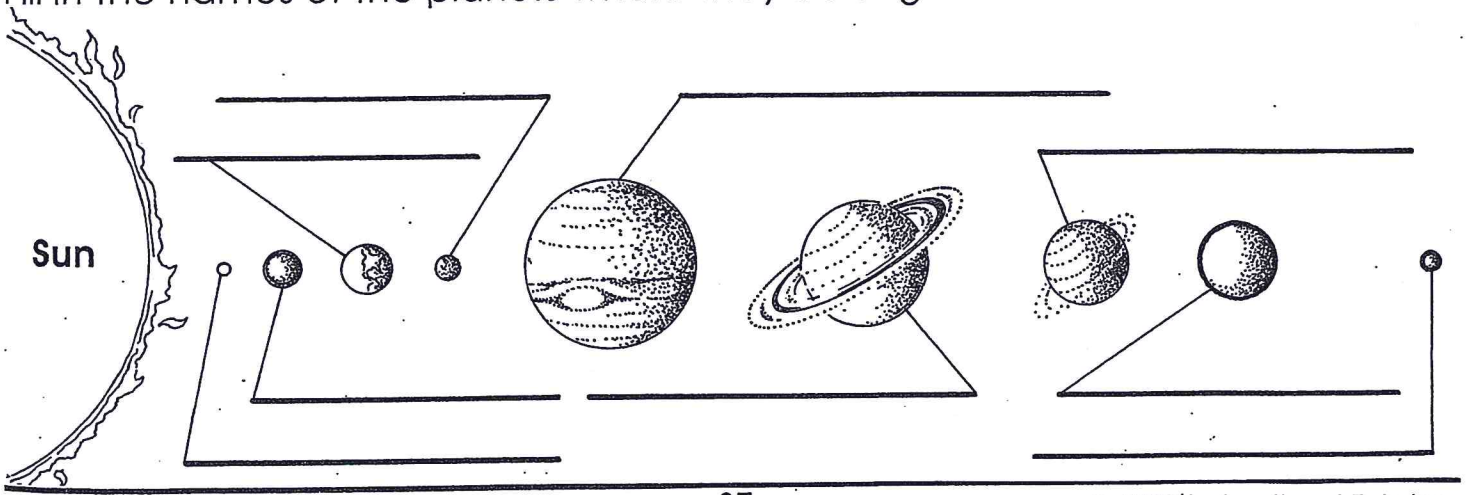
Exploring Our Solar System

Name _____

Comets, asteroids, and some meteors travel around the sun in our solar system. But the largest objects traveling around the sun are the planets. Use your science book, encyclopedia, or another source to complete the chart about the planets of our solar system.

Planet	Position From the Sun	Revolution Time (Length of Year — Earth Days)	Rotation Time	Known Satellites	Distance From the Sun

Fill in the names of the planets where they belong.



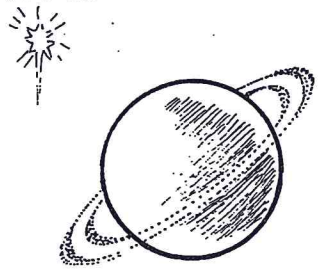
Puzzling Planets

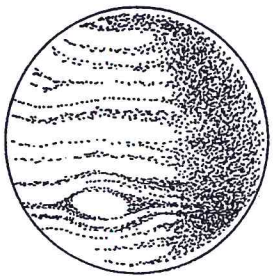
Name _____

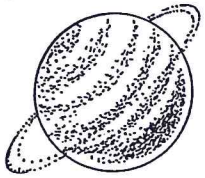
Use what you have learned about the planets of our solar system to complete the puzzle. You may need to refer to your science book or an encyclopedia.

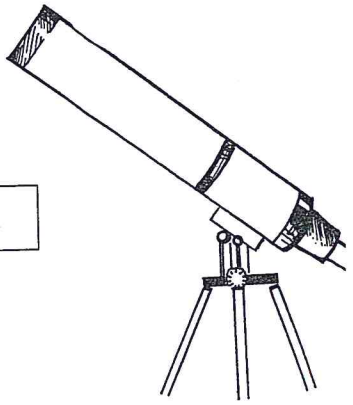
Across

3. I am the closest in size to the Earth.
4. I am the smallest planet.
6. I have the greatest number of natural satellites.
7. I am the only planet known to support life.
8. I am the Red Planet.
9. I am the most distant planet that can be seen without a telescope.









Down

1. I am usually the 8th planet from the Sun, but every 248 years I move inside Pluto's orbit for 20 years.
2. I am a large planet known for my "Great Red Spot."
5. I am the closest planet to the Sun.

WORD BANK

Mercury	Venus	Earth
Mars	Jupiter	Saturn
Uranus	Neptune	Pluto

Planet Project

Name _____ & _____

Planet Picture _____ (2pts)

Cross Section Picture _____ (2pts)

Factual Information _____ (3pts)

Mythological Information _____ (3 pts)

Position from the sun _____ (2 pts)

Revolution time _____ (2pts)

Rotation time _____ (2 pts)

Known satellites _____ (2pts)

Three dimensional object _____ (7pts)

Total _____

25 points possible

+ Brain Pop Score for your Planet

Name _____ Date _____ Class _____

Math Skills for Science

MATH IN SCIENCE: EARTH SCIENCE

MATH SKILLS USED
Multiplication
Division
Decimals
Scientific Notation
SI Measurement and Conversion

Distances in Space

Learn about the units of length used to measure distances in our solar system and beyond.

Because astronomers study objects over such extremely large distances, astronomers commonly use units of length that are much bigger than the ones we usually use. Two common units of distance used in astronomy are the astronomical unit (AU) and the light-year.

Astronomical Unit

The astronomical unit (AU) is the average distance from the Earth to the sun, measured to be about 1.5×10^8 km. It is a convenient unit to use when discussing distances within our solar system.

1. Saturn has an average distance of 9.5 AU from the sun. How many centimeters is this?

2. Pluto, the outermost planet in the solar system, is about 6×10^9 km from the sun. How many astronomical units (AU) is this?

Light-year

The light-year is defined as the distance that light travels in a year. (The speed of light is 3×10^5 km/s.) For instance, Alpha Centauri, the closest star to the Earth after the sun, is 4.3 light-years from us.

3. How long does it take light from this star to reach us?

4. The star Betelgeuse, meaning "armpit of the giant," is 310 light-years from Earth. How many hours does light from this star take to reach Earth?

5. How many AUs are in a light-year? (*Hint:* There are approximately 31,536,000 seconds in a year.)

Name _____ Class _____ Date _____

Activity

Vocabulary Activity

A Planetary Puzzle

After you finish reading the chapter, try this puzzle. The clues provided have all lost their vowels and spaces! Use these clues (in parentheses) to unscramble the vocabulary words. Write your answers in the space provided.

1. The planet Uranus is called a(n) _____. (GSGNT)

2. A shooting star is probably a(n) _____. (MTR)

3. Any object that orbits around a larger object is called a(n) _____.(STLLT)

4. The average distance between the Earth and the sun is a standard measurement called the _____. (STRNMCLNT)

5. The four inner planets are called the _____ planets. (TRRSTRL)

6. A planet that appears to spin counterclockwise when viewed from its North Pole has a(n) _____ rotation. (PRGRD)

7. Due to its changing position in space, the moon has different appearances, called _____. (PHSS)

8. Small, rocky bodies that revolve around the sun are called _____.(STRDS)

9. The region of space between the orbits of Mars and Jupiter where most of these irregularly shaped objects orbit is known as the _____. (STRDBLT)

10. After a space object has hit Earth's surface, it is known as a(n) _____. (MTRT)

11. Some scientists refer to _____ as "dirty snowballs," because they are composed of rock, ice, and cosmic dust. (CMTS)

12. When the shadow of one celestial body blocks the view of another, the event is called a(n) _____.(CLPS)

13. A small, rocky body that travels through space is called a(n) _____. Most are pieces of asteroids. (MTRD)

14. A planet that has a(n) _____ rotation spins in the opposite direction as the Earth. (RTRGRD)

Name _____ Class _____ Date _____

Assessment

Section Quiz

Section: The Nine Planets

Match the correct definition with the correct term. Write letter in the space provided.

_____ **1.** contains the five planets farthest from the sun

_____ **2.** a group of very large planets that are composed mainly of gases

_____ **3.** contains the four planets located closest to the sun

_____ **4.** a unit of measurement based on the average distance between Earth and the sun

_____ **5.** a group of planets whose surfaces are hard and rocky

a. astronomical unit
b. gas giants
c. terrestrial planets
d. inner solar system
e. outer solar system

Write the letter of the correct answer in the space provided.

_____ **6.** What tool made possible the discovery of additional planets?
a. the microscope
b. the telescope
c. the gyroscope
d. the spectroscope

_____ **7.** How do the inner planets differ from the outer planets?
a. They are made of lighter elements.
b. They do not have any moons.
c. They are extremely large.
d. They are spaced more closely together.

_____ **8.** A common method for scientists to measure distances within the solar system is to use
a. the speed of sound.
b. the English system.
c. the speed of light.
d. parallax angles.

_____ **9.** Which is the next planet moving outward from the sun after Saturn?
a. Neptune
b. Uranus
c. Jupiter
d. Pluto

_____ **10.** How can you tell that Pluto is not a gas giant?
a. because of where it orbits the sun
b. because it has no ring system
c. because it is dense and rocky
d. because it has only one moon

Name _____ Class _____ Date _____

Assessment

Section Quiz

Section: The Inner Planets

Match the correct description with the correct term. Write the letter in the space provided.

_____ **1.** a planet or moon that has a counterclockwise spin has this type of rotation

_____ **2.** the time an object takes to revolve around the sun once

_____ **3.** a dense and rocky planet similar to Earth

_____ **4.** the amount of time that an object takes to rotate once

_____ **5.** the kind of rotational spin that causes the sun to appear to rise in the west and set in the east

a. period of revolution
b. period of rotation
c. prograde rotation
d. retrograde rotation
e. terrestrial planet

Write the letter of the correct answer in the space provided.

_____ **6.** What causes a high surface temperature on Venus?
a. the acid content of its atmosphere
b. the planet's fast period of rotation
c. the planet's retrograde spin on its axis
d. the greenhouse effect of its atmosphere

_____ **7.** What evidence suggests that Mars once had a warmer climate?
a. water in its icecaps
b. thin atmospheric pressure
c. features like dry riverbeds
d. an extinct shield volcano

_____ **8.** Which terrestrial planet has a day that is over two Earth months long?
a. Mars
b. Mercury
c. Pluto
d. Venus

_____ **9.** Why is Venus sometimes called Earth's twin?
a. Venus rotates in the same direction.
b. Venus's air has the same gases.
c. Venus is of similar size and density.
d. Venus was born at the same time.

_____ **10.** What is one factor that makes life possible on Earth?
a. a runaway greenhouse effect
b. liquid water on its surface
c. high surface gravity
d. an irregular planetary orbit

Name _____ Class _____ Date _____

Assessment

Section Quiz

Section: The Outer Planets

Match the correct description with the correct term. Write the letter in the space provided.

_____ **1.** This is the only outer planet that is dense and rocky.

_____ **2.** This planet has a well-known bright ring system.

_____ **3.** This planet has a huge storm called the Great Red Spot.

_____ **4.** This planet has belts of visible clouds.

_____ **5.** This planet is tipped over onto its side.

a. Jupiter
b. Neptune
c. Saturn
d. Uranus
e. Pluto

Write the letter of the correct answer in the space provided.

_____ **6.** What happens to hydrogen in Jupiter's atmosphere as you go deeper?
a. It expands and occupies more volume.
b. Its temperature becomes increasingly colder.
c. It changes into a liquid, metallic state.
d. It becomes solid and gives off heat.

_____ **7.** What does the extra energy that Saturn gives off suggest about the planet?
a. Saturn has storms in its interior.
b. Saturn is still forming.
c. Saturn is very massive.
d. Saturn contains helium gas.

_____ **8.** Why is the planet Uranus considered a gas giant?
a. because it has a rocky surface
b. because it is similar to Earth
c. because it has a deep massive atmosphere
d. because it is larger than Mercury and Pluto

_____ **9.** What is unusual about Pluto's moon?
a. Its orbit is not circular.
b. It's the same size as Pluto.
c. It's more dense than Pluto.
d. It's more than half of Pluto's size.

_____ **10.** Which of the following is the largest planet in our solar system?
a. Earth
b. Jupiter
c. Saturn
d. Uranus

Name _____ Class _____ Date _____

Assessment

Section Quiz

Section: Moons

Match the correct description with the correct term. Write the letter in the space provided.

_____ **1.** This moon is one of the most volcanically active.

_____ **2.** This moon has an atmosphere very similar to early Earth.

_____ **3.** This moon is also known as *Luna*.

_____ **4.** This moon is larger than the planet Mercury.

_____ **5.** This moon may have oceans of liquid water.

_____ **6.** This moon is believed to be a captured asteroid.

_____ **7.** This moon has geysers that eject nitrogen.

a. Deimos
b. Europa
c. Io
d. Triton
e. Ganymede
f. Titan
g. the moon

Write the letter of the correct answer in the space provided.

_____ **8.** What evidence supports the current theory about our moon's origin?
a. The lunar *maria* was formed from old lava flows.
b. Lunar rocks are similar to Earth's mantle.
c. The moon is covered with impact craters.
d. We have identified the impacting body.

_____ **9.** What causes the phases of the moon?
a. the relative positions of the moon, Earth, and the sun
b. the tilted orbit of the moon
c. the moon's period of revolution just equals its period of rotation
d. sunlight reflecting off Earth's surface

_____ **10.** What happens during a total solar eclipse?
a. The shadow of Earth falls on the moon.
b. A thin ring of the sun shows through.
c. The moon completely covers the sun.
d. The moon is about the same size as the sun.

Name _____ Class _____ Date _____

Assessment

Section Quiz

Section: Small Bodies in the Solar System

Match the correct definition with the correct term. Write the letter in the space provided.

_____ **1.** a bright streak of light caused by small bodies burning up

_____ **2.** a rocky body that strikes the surface of a planet

_____ **3.** a region of space between the orbits of Mars and Jupiter

_____ **4.** "dirty snowballs" made of ice, rock, and dust

_____ **5.** small, rocky bodies that revolve around the sun

_____ **6.** small pieces of an asteroid that travel through space

a. asteroid belt
b. comets
c. meteoroids
d. asteroids
e. meteorite
f. meteor

Write the letter of the correct answer in the space provided.

_____ **7.** Why is it useful to study the smaller objects of the solar system?
a. They come from a region just beyond the orbit of Neptune.
b. They orbit further out than we send space missions.
c. They provide a spectacular light show when they burn up.
d. Scientists can use them to study the early solar system.

_____ **8.** Why do planets or moons with atmospheres have fewer impacts?
a. The air slows and burns up small objects.
b. Fewer objects orbit near these planets.
c. Most impacts occur in remote areas.
d. Erosion erases the features of most craters.

_____ **9.** What is the main difference between an asteroid and a meteoroid?
a. the shape of their orbits
b. their density
c. the size of the body
d. their effect on Earth

_____ **10.** What is the Torino scale?
a. a system used to rate the hazard level of an object moving away from Earth
b. a system used to rate the hazard level of an object moving toward Earth
c. a system used to rate the size of an object moving toward Earth
d. a system used to rate the speed of an object moving toward Earth

Planet Data Collection WS **Name:_____ Period:___**

Directions: Use internet research to collect as much information as possible about your planet. If more room is needed, attach another piece of paper. Be sure to list units and use scientific notation with large numbers (ex: 8.2713×10^{14} km^3).

Our group is assigned planet _____

Draw the planet's symbol:	**Describe how the planet got its name:**
Who discovered your planet? When? How? Where?	**Distances:** **Order from the sun:** **Distance from the sun in AU:** **in km:** **Distance from the Earth in AU:** **in km:** *AU – Astronomical Units
Planet Measurements: **Mass:** **Volume:** **Equatorial Circumference:** **Mean Density:** **Gravity:** **If you weighed 100lbs. on Earth, how much would you weigh on your planet?**	**Orbit and Rotation:** **Number of days to orbit around the sun:** **Perihelion (how close does it get to the sun?):** **Aphelion (how far does it get from the sun?):** **Length of one day (number of hours in one day):**

Planet Appearance - Write 3-4 sentences to describe what your planet looks like:

Rings - Provide information about the rings, number, composition, color, etc):

Satellites (Moons) – List all satellites. Provide a brief description and data when a moon has significant information. Attach another piece of paper if necessary.

Composition – describe the core and surface composition:

Core Composition: **Surface Composition:**

Atmosphere – List the major and minor gases:

Major Gases: **Minor Gases:**

Surface Conditions:

Wind speeds: **Temperature Ranges:** **Surface Pressure:**

Weather – Describe what kind of weather occurs on your planet:

Water – What forms of water are found on your planet or on any of the moons?

Exploration – List all human explorations (from satellite probes) to your planet (attach additional paper if necessary). Include satellite name and date:
Habitability – Describe what would happen to a human if they traveled to your planet:
Future Human Travel – What are some problems and solutions to sending humans to your planet:
Terraforming – What modifications would be needed for humans to live on this planet:

1 mile = 5288 ft

10 - Measures of the Planets

Larger Scale Model							
Planet	True Diameter in miles	Diameter in inches (50,653 miles/sheet)	True Distance to the Sun in miles	Distance to Sun in sheets (50,653 miles/sheet)	Distance to Sun in inches (50,653 miles/sheet)	Distance to Sun in feet (50,653 miles/sheet)	
Mercury	3,032	0.267	35,983,610	710	3,197	266	.05
Venus	7,521	0.664	67,232,360	1,327	5,973	498	.09
Earth	7,926	0.699	92,957,100	1,835	8,258	688	.13
Mars	4,222	0.371	141,635,300	2,796	12,583	1,049	.19
Jupiter	88,846	7.658	483,632,000	9,548	42,966	3,580	.68
Saturn	74,898	6.391	888,188,000	17,535	78,906	6,576	1.24
Uranus	31,763	2.576	1,783,950,000	35,219	158,486	13,207	2.5
Neptune	30,778	2.494	2,798,842,000	55,255	248,648	20,721	3.92
Pluto	1413	0.124	3,674,491,000	72,542	326,441	27,203	5.15m
The Sun's diameter in inches (at this scale) is 76.7 in							

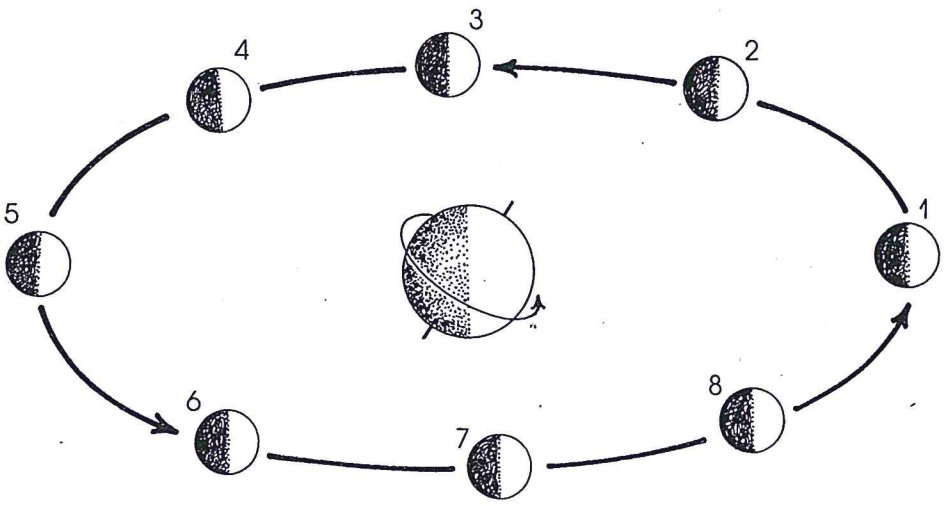
.68 miles × 5288 ft / 1 mile

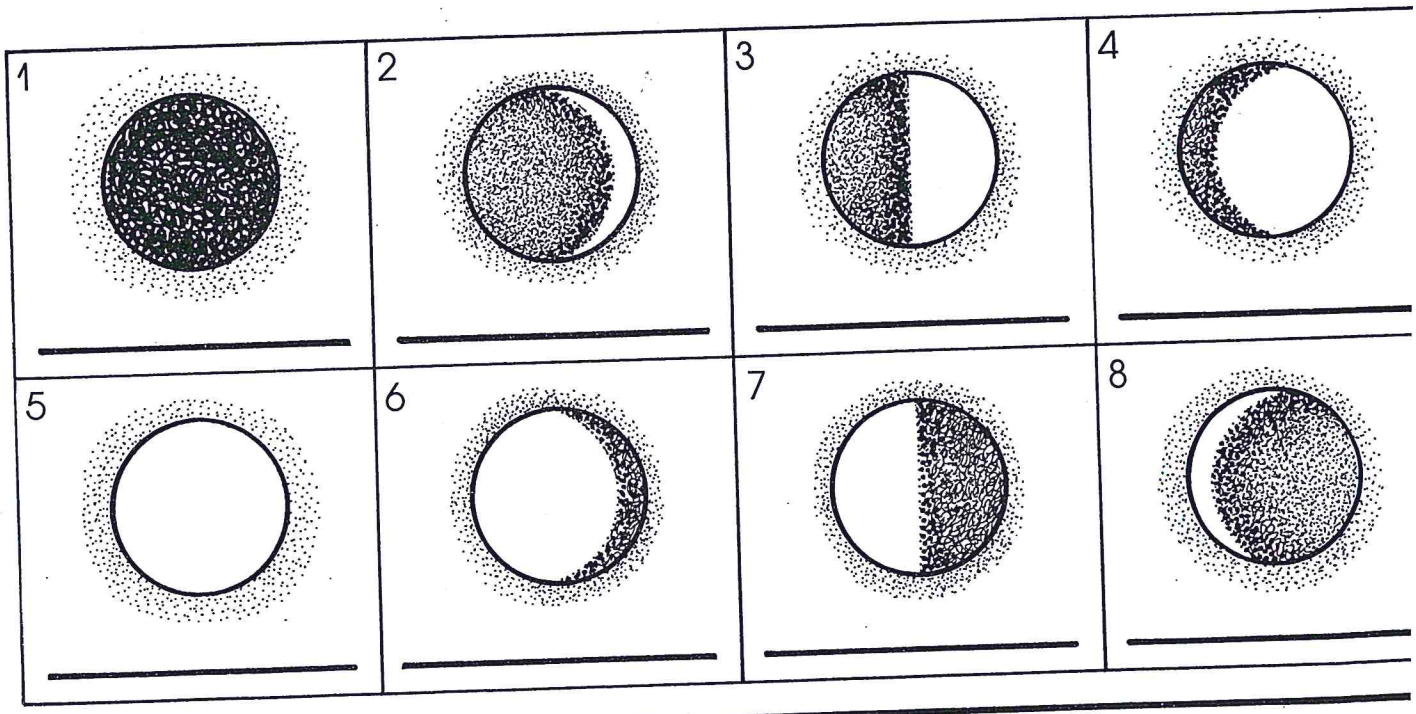
Smaller Scale Model						
Planet	True Diameter in miles	Diameter in inches (18,709,074 miles/sheet)	True Distance to the Sun in miles	Distance to Sun in sheets (18,709,074 miles/sheet)	Distance to Sun in inches (18,709,074 miles/sheet)	Distance to Sun in feet (18,709,074 miles/sheet)
Mercury	3,032	0.00073	35,983,610	1.9	8.7	0.7
Venus	7,521	0.0018	67,232,360	3.6	16.2	1.3
Earth	7,926	0.0019	92,957,100	5.0	22.4	1.9
Mars	4,222	0.001	141,635,300	7.6	34.0	2.8
Jupiter	88,846	0.0214	483,632,000	25.9	116.3	9.7
Saturn	74,898	0.018	888,188,000	47.5	213.6	17.8
Uranus	31,763	0.0076	1,783,950,000	95.4	429.1	35.8
Neptune	30,778	0.0074	2,798,842,000	150.0	673.2	56.1
Pluto	1413	0.00034	3,674,491,000	196.4	883.8	73.7

Changing Faces

Name_____

As the moon revolves around the Earth, we can see different amounts of the moon's lighted part. Study the drawing of the moon's different phases and each phase as it would be seen from the Earth. Label each phase.





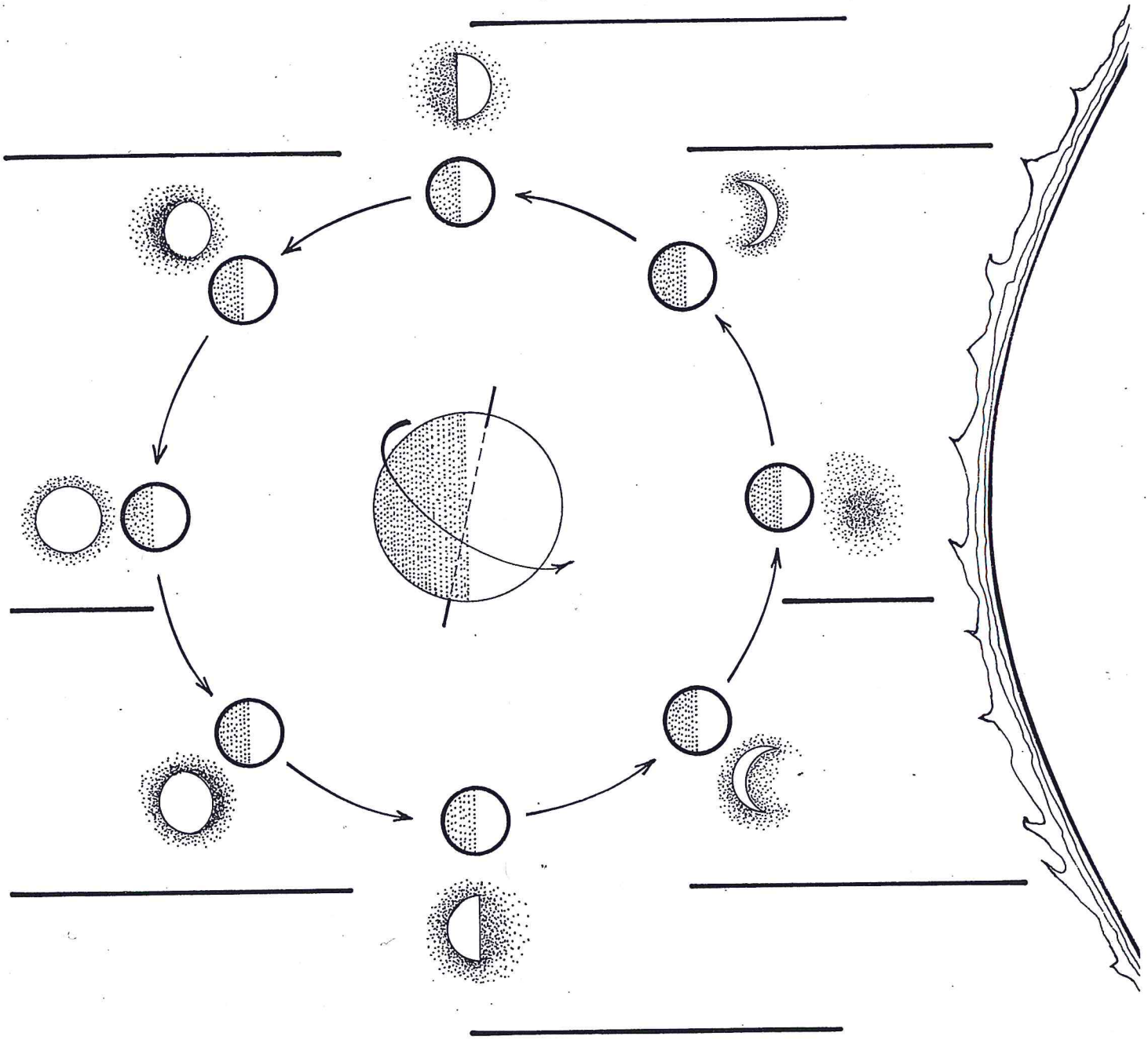
WORD BANK

new moon
waxing gibbous
last quarter
waxing crescent
full moon
waning crescent
first quarter
waning gibbous

Waning and Waxing Moon

Name_____

Use the **WORD BANK** to label the different phases of the moon.



WORD BANK

new	waxing crescent	first quarter
waxing gibbous	full	waning gibbous
last quarter	waning crescent	