Astronomy

Review

and

Reinforce

Chapter 1

Earth, Moon, and Sun

_____

Name

_____

Homeroom

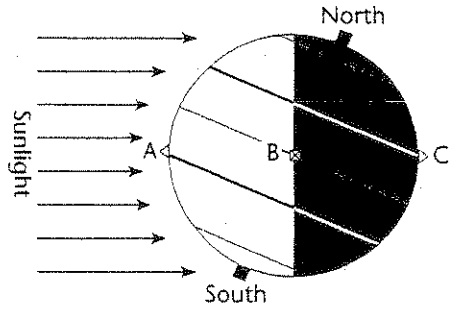
Name _____ Date _____ Class _____

P. 6-13

Earth in Space

Understanding Main Ideas

Use the following figure to answer questions 1 through 3. Write your answers on a separate sheet of paper.



1. In the diagram, what season is it in North America?
2. Would a person at each of the points A, B, and C see the sun? If so, where would the sun be in the sky?
3. Which is a person standing at point B seeing, sunrise or sunset? Explain.

Building Vocabulary

Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

____ 4. astronomy

____ 5. axis

____ 6. rotation

____ 7. revolution

____ 8. orbit

____ 9. calendar

____ 10. equinox

____ 11. solstice

a. The path of Earth as it revolves around the sun

b. System of organizing time that defines the beginning, length, and divisions of a year

c. Line passing through Earth's center and poles

d. The study of the moon, stars, and other objects in space

e. The sun is farthest north or south of the equator at this time.

f. Movement of Earth around the sun

g. Movement of Earth around its axis

h. The noon sun is directly overhead at the equator at this time.

1.

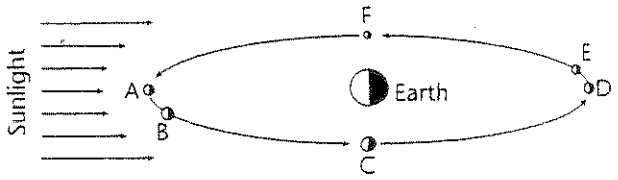
Name _____ Date _____ Class _____

P. 20-27

Phases, Eclipses, and Tides

Understanding Main Ideas

Use the following figure to answer questions 1 and 2. Write your answers on a separate sheet of paper.



1. What phases of the moon would someone on Earth see when the moon is at positions A through F?
2. What kind of tide (spring or neap) will occur when the moon is at positions A, C, D, and F?

Building Vocabulary

From the list below, choose the term that best completes each sentence, and write it in the blank.

phase	gravity	penumbra	umbra	solar
tides	lunar	eclipse	spring	neap

3. A(n) _____ tide occurs when the sun is at right angles to the line between Earth and the moon.
4. A(n) _____ occurs when the moon's shadow hits Earth or Earth's shadow hits the moon.
5. A person standing in the moon's _____ would see a partial solar eclipse.
6. Differences in the moon's pull on different parts of Earth cause _____.
7. A person standing in the moon's _____ would see a total solar eclipse.
8. The _____ of the moon you see depends on how much of the sunlit side of the moon faces Earth.
9. A(n) _____ tide occurs when the sun, moon, and Earth line up.
10. A(n) _____ eclipse occurs at a full moon when Earth is directly between the moon and the sun.
11. A(n) _____ eclipse occurs when the moon passes between Earth and the sun.
12. The force of _____ pulls the moon and Earth toward each other.

2.

p. 30-33

The Origin of the Moon

11. Complete the flowchart to show the sequence of events in the collision-ring theory.

The Collision-Ring Theory

A large object collided with a. _____

↓

Material from b. _____ outer layer was ejected into space.

↓

The material from Earth was thrown into c. _____ and formed a ring.

↓

Gravity caused this material to form the d. _____.

e. Use the flowchart to summarize in your own words how the moon was formed.

_____

_____

_____

_____

3.

Earth's Moon

p. 30-33

Understanding Main Ideas

Answer the following questions on a separate sheet of paper.

1. How are the size and mass of the moon different from that of the Earth?
2. How do astronomers think the moon was formed?
3. Who was the first person to observe the moon through a telescope? What features of the moon did he identify?
4. How do temperatures on the moon differ from those on Earth?
5. Identify the feature that covers much of the moon's surface. What did Galileo see when he observed this feature through a telescope?

Building Vocabulary

Answer the following questions in the spaces provided.

6. How did Galileo make a telescope?

_____

_____

7. What are moon craters? How were they formed?

_____

_____

8. What are maria? How were they formed?

_____

_____

9. What are meteoroids?

_____

_____

4.

Name _____ Date _____ Class _____

P. 5-33

Key Terms

The hidden-word puzzle below contains 12 key terms from the chapter. You might find them across, down, or on the diagonal. Use the clues to identify the hidden terms. Then circle each term in the puzzle.

Clues	Key Terms
1. The spinning motion of Earth around its axis	_____
2. The study of the moon, stars, and other objects in space	_____
3. The different shapes of the moon you see from Earth	_____
4. The imaginary line that passes through Earth's center and the North and South poles	_____
5. The two days of the year on which the sun is directly overhead at either 23.5° north or south	_____
6. Earth's path as it revolves around the sun	_____
7. The movement of one object around another object	_____
8. The rise or fall of ocean water	_____
9. A round pit on the moon's surface	_____
10. The darkest part of the moon's shadow	_____
11. Dark, flat areas on the moon's surface	_____
12. The part of a shadow that surrounds the darkest part	_____

x c r a t e r r u q r

p a s t r o n o m y e

e x o m o n t t b w v

n i l m a r i a r l o

u s s d e n b t a t l

m w t d c m s i m i u

b s i k p m b o t a t

r t c m l s s n p t i

a a e u i l k a i d o

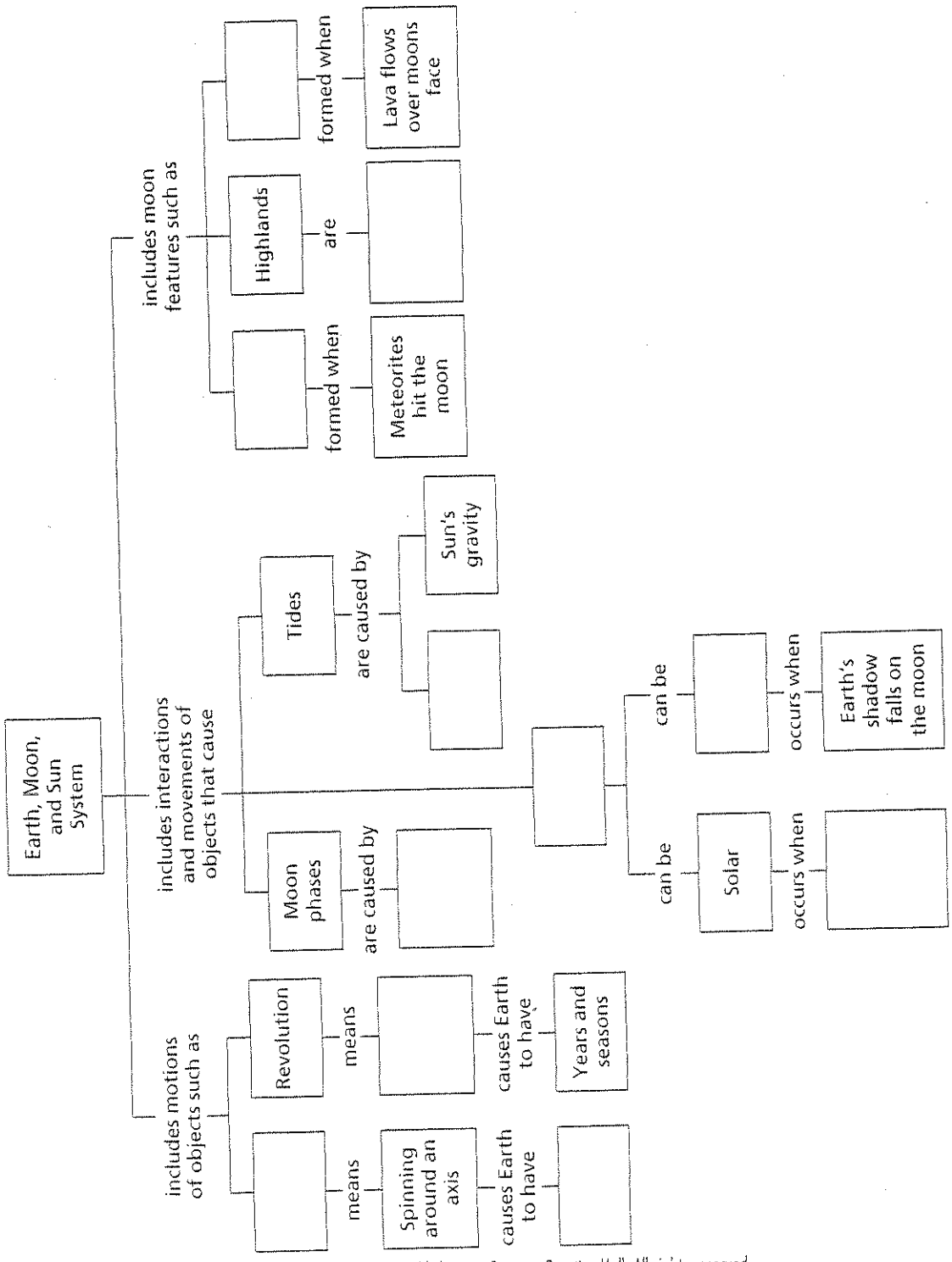
y p h a s e s h n u n

5.

P. 5-33

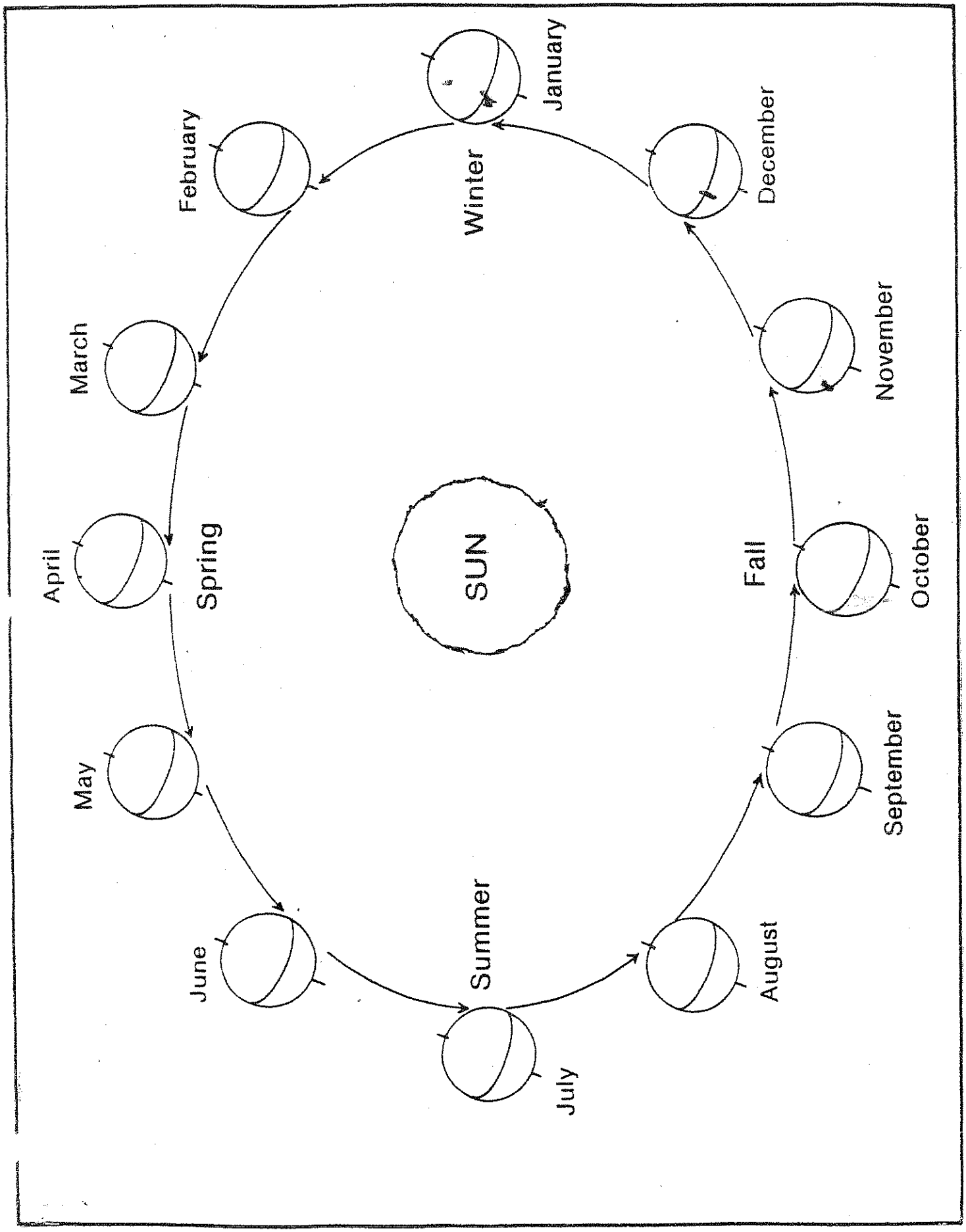
Connecting Concepts

Develop a concept map that uses the key concepts and key terms from this chapter. Keep in mind the big idea of this chapter: The movements and relative positions of Earth, the moon, and the sun cause Earth to experience day and night, years, seasons, moon phases, eclipses, and tides. The concept map shown is one way to organize how the information in this chapter is related. You may use an extra sheet of paper.



6.

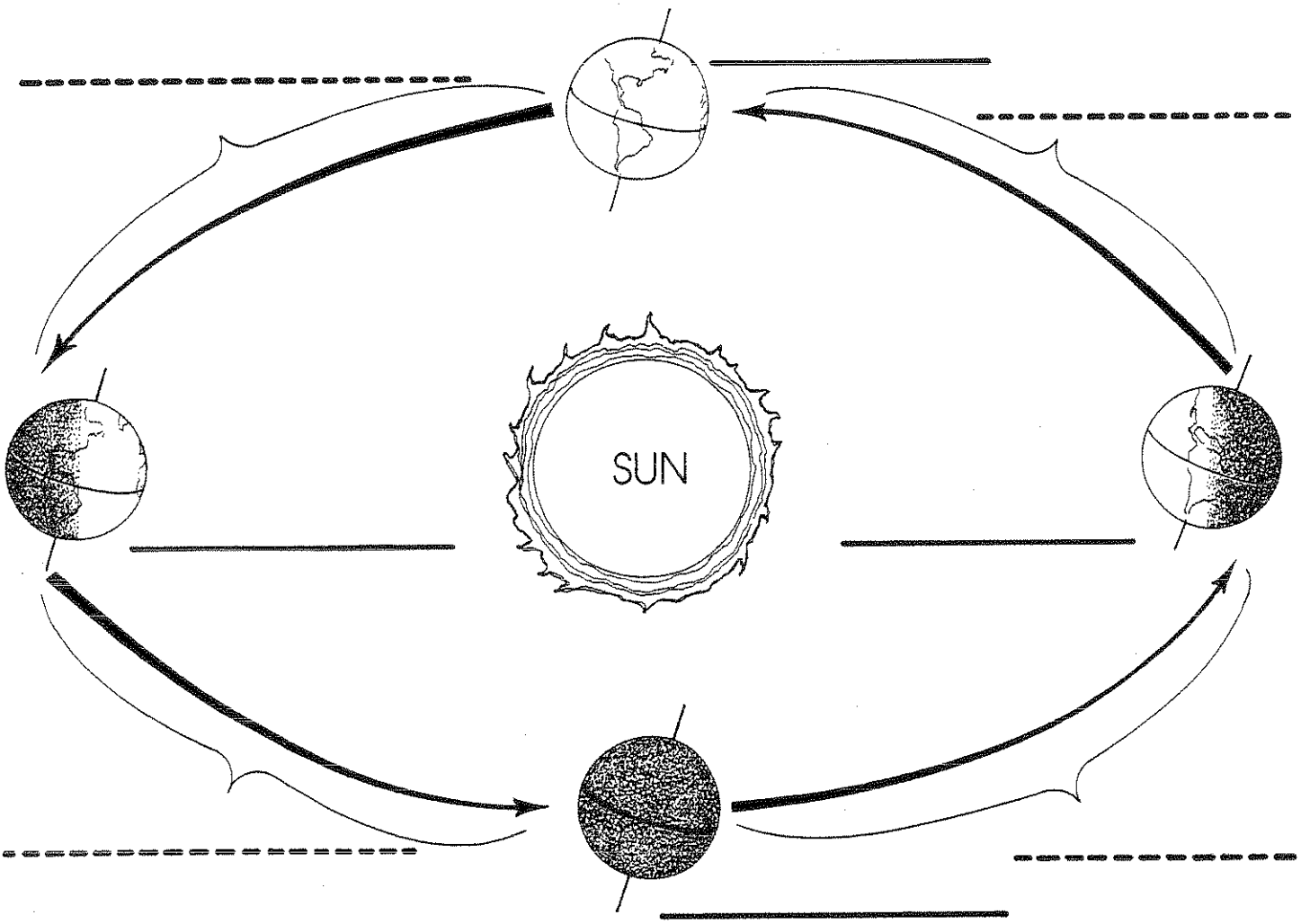
SEASONS IN THE NORTHERN HEMISPHERE



The Seasons

Name_____

The diagram below shows the Earth's position in its orbit on four different dates. On the solid line label the equinox dates. On the dotted lines name the season for the Northern Hemisphere.



WORD BANK

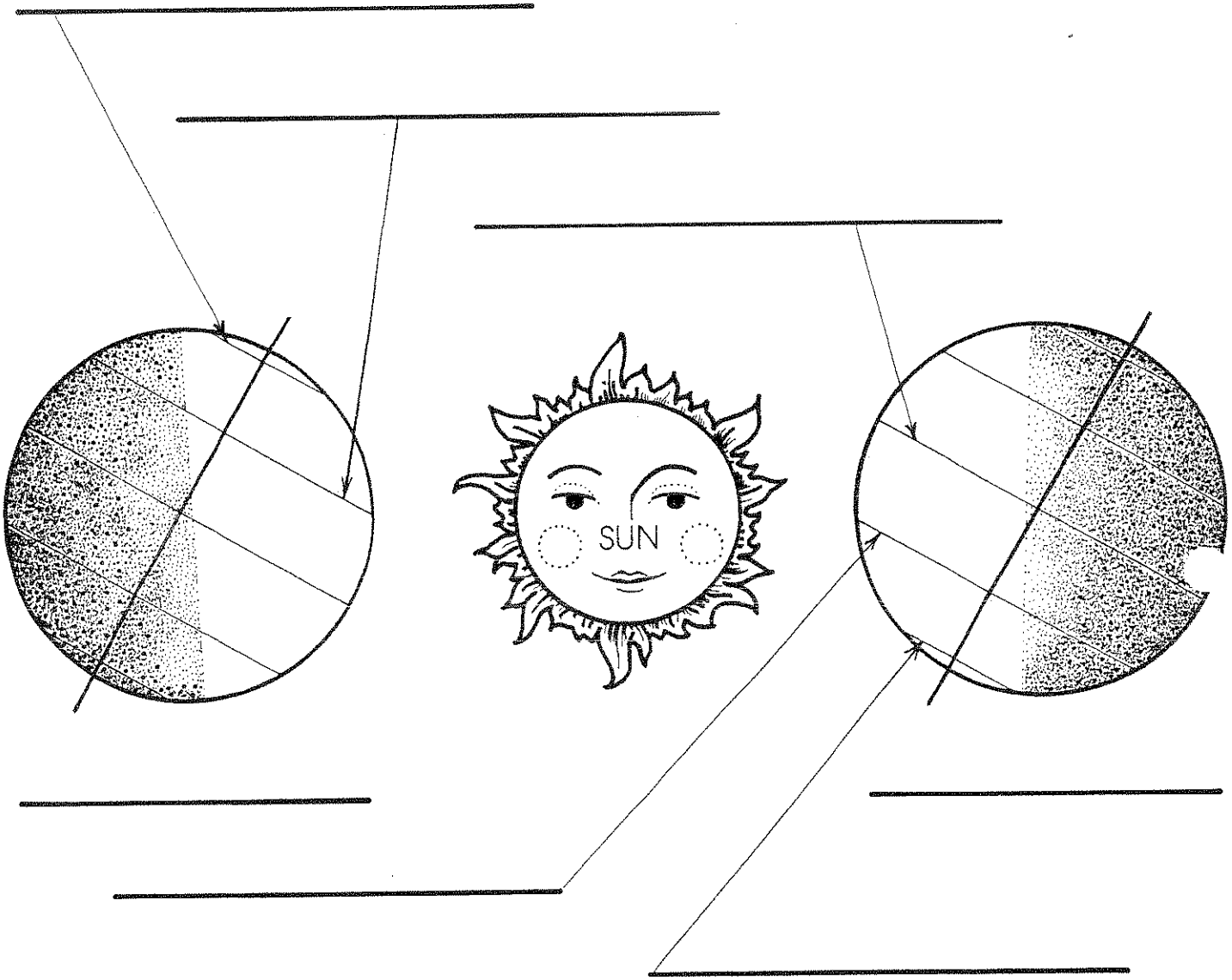
March 21	December 22	spring	fall
September 22	June 21	winter	summer

8.

Summer and Winter

Name_____

The illustration below shows the Earth's position in relation to the Sun for the summer and winter in the Northern Hemisphere. Label the seasons for the Northern Hemisphere,and name the imaginary lines of latitude on the Earth.



WORD BANK

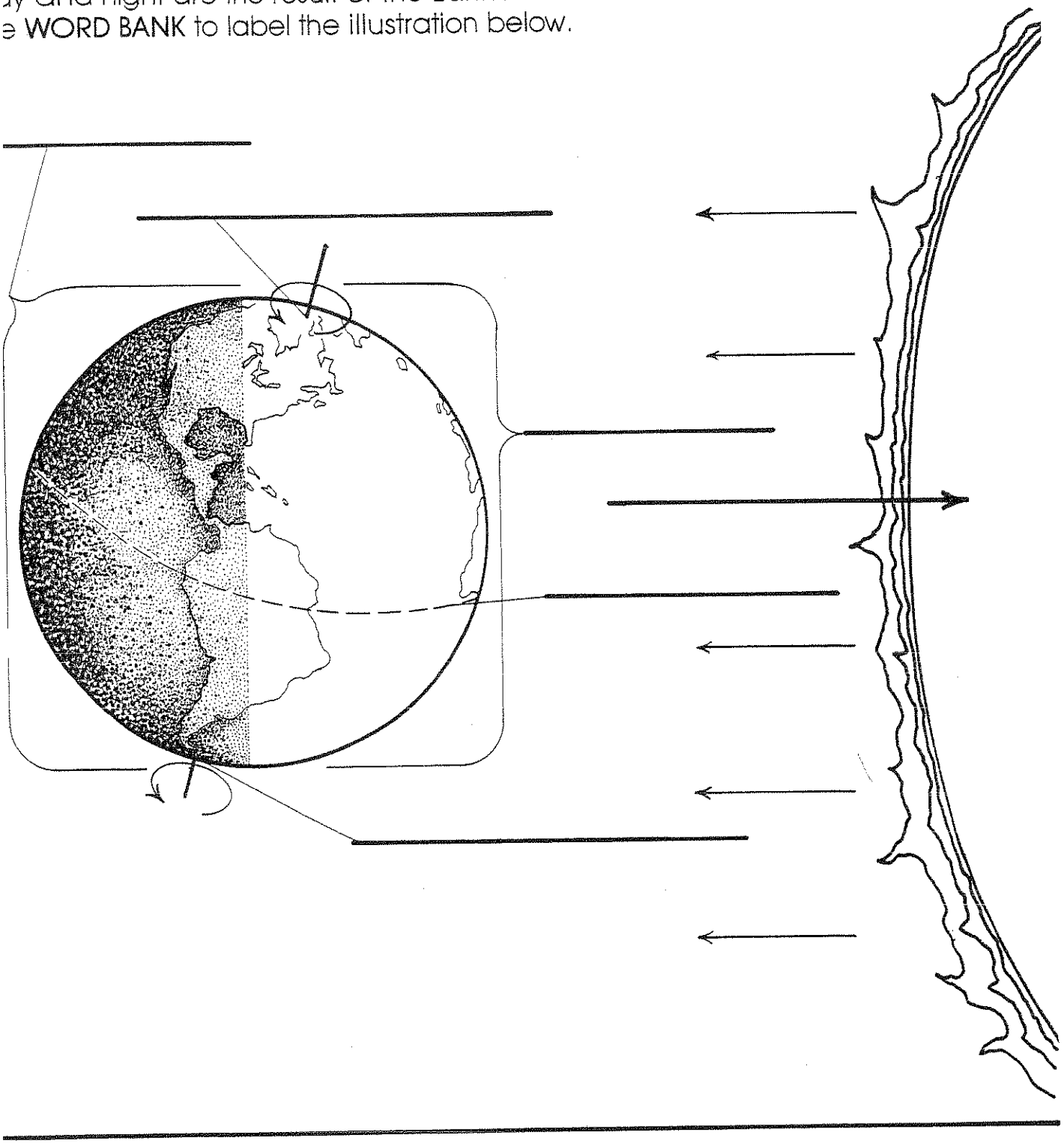
summer
Arctic Circle
Tropic of Capricorn
Equator
winter
Antarctic Circle
Tropic of Cancer

9.

ay and Night

Name_____

ay and night are the result of the Earth's rotation on its axis. Use the words from e **WORD BANK** to label the illustration below.



WORD BANK

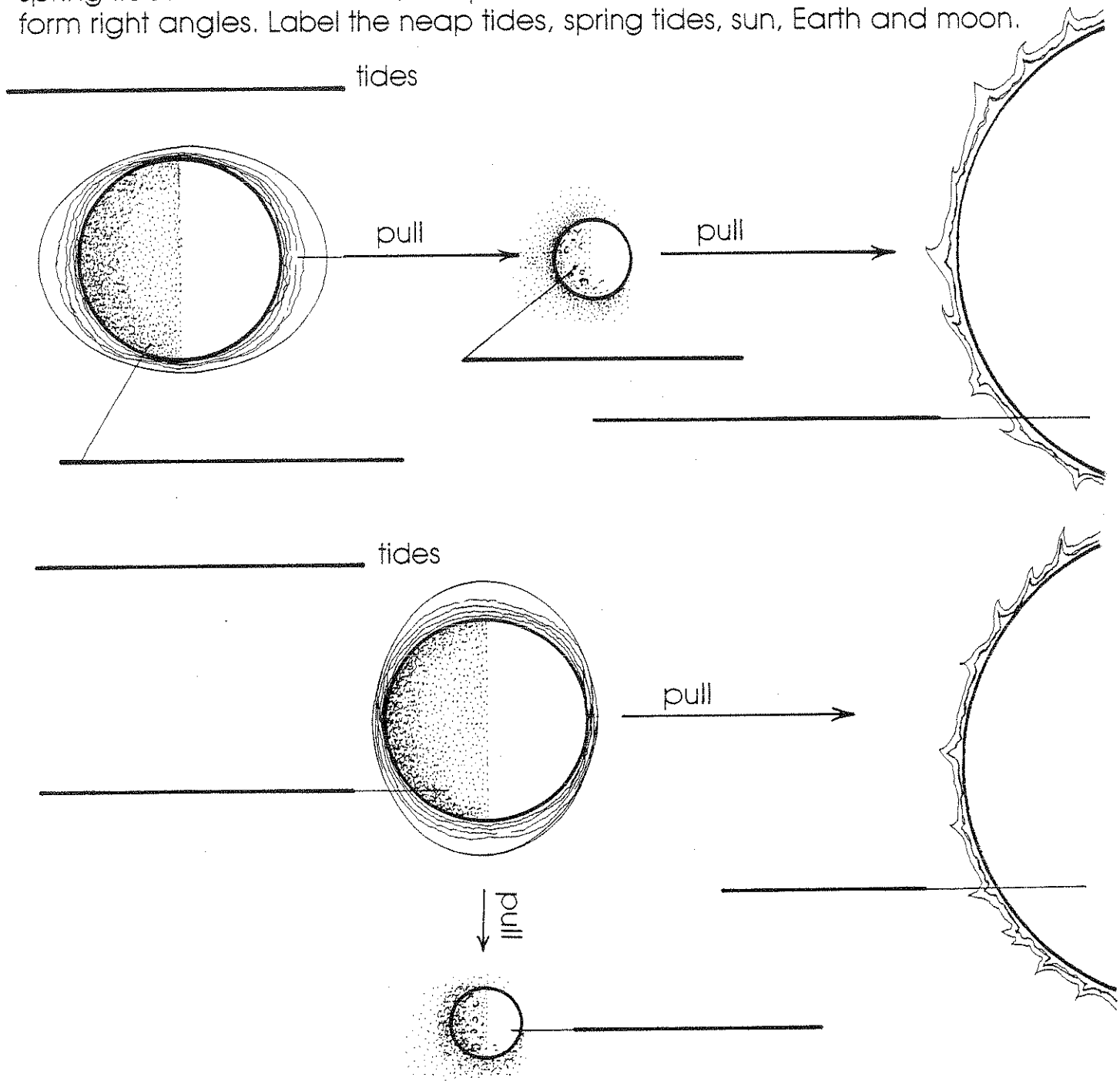
North Pole	South Pole
day	sun
Equator	night

10.

High Tide

Name_____

The ocean tides are caused mostly by the moon's gravity. When the Sun, moon and Earth line up, the gravitational pull is greatest causing the highest tides, tr spring tides. The lowest tides, neap tides, occur when the sun, Earth and moon form right angles. Label the neap tides, spring tides, sun, Earth and moon.



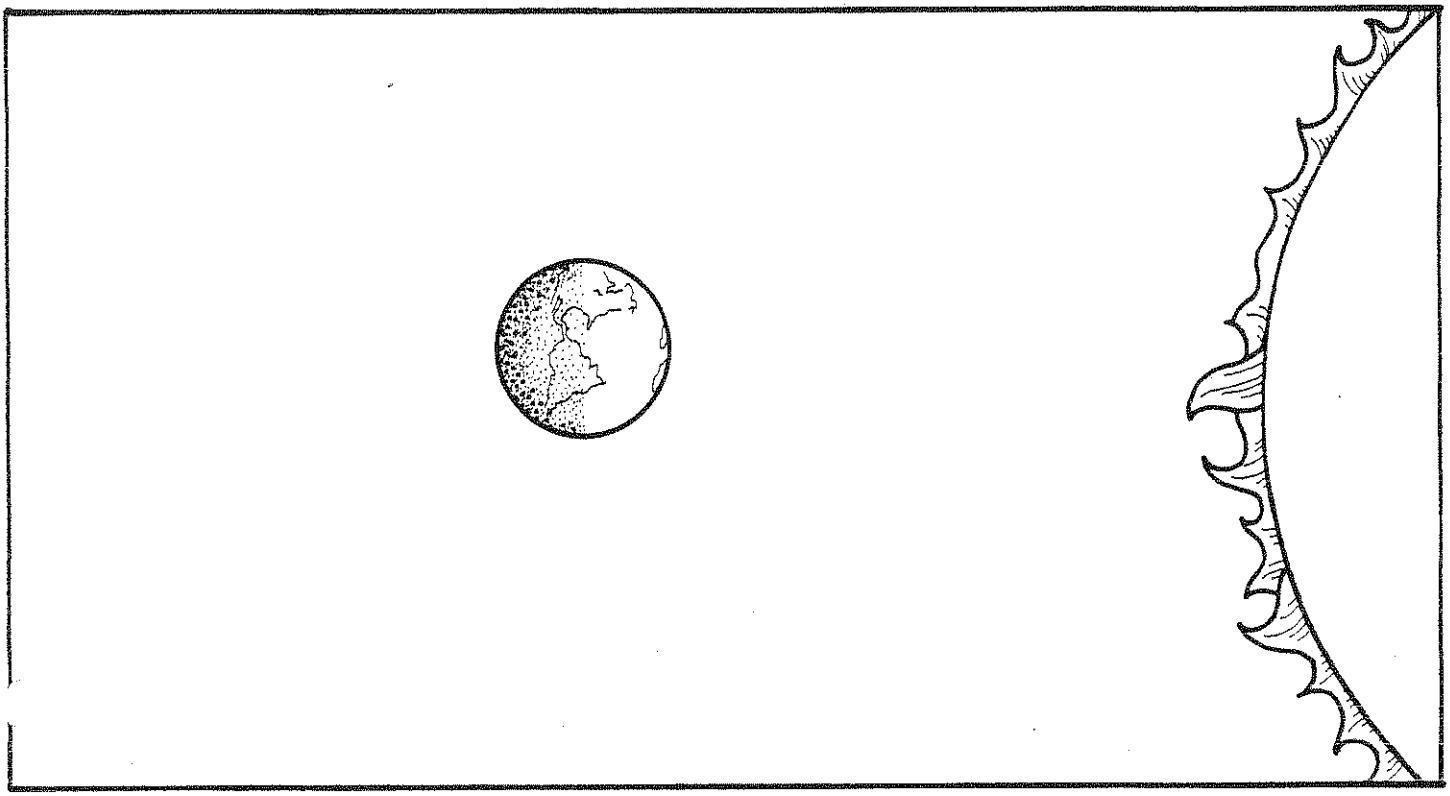
WORD BANK

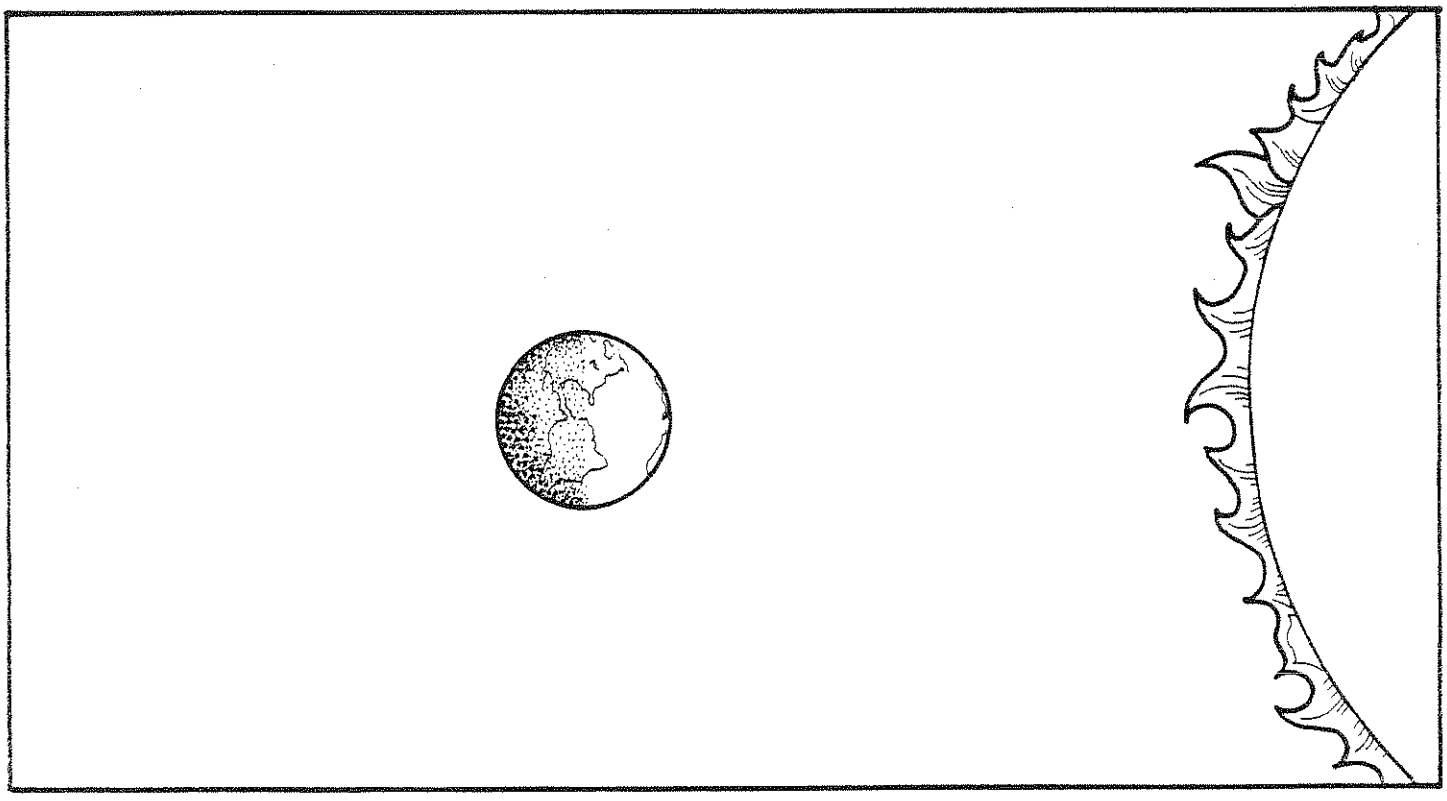
neap tides spring tides sun
moon Earth

Space Shadows

Name_____

When the sun, moon and Earth are in the proper alignment, either the moon can cast a shadow on the Earth, or the Earth can cast a shadow on the moon. Draw the position of the moon and the shadows for both a lunar and solar eclipse. Label the type of eclipse.

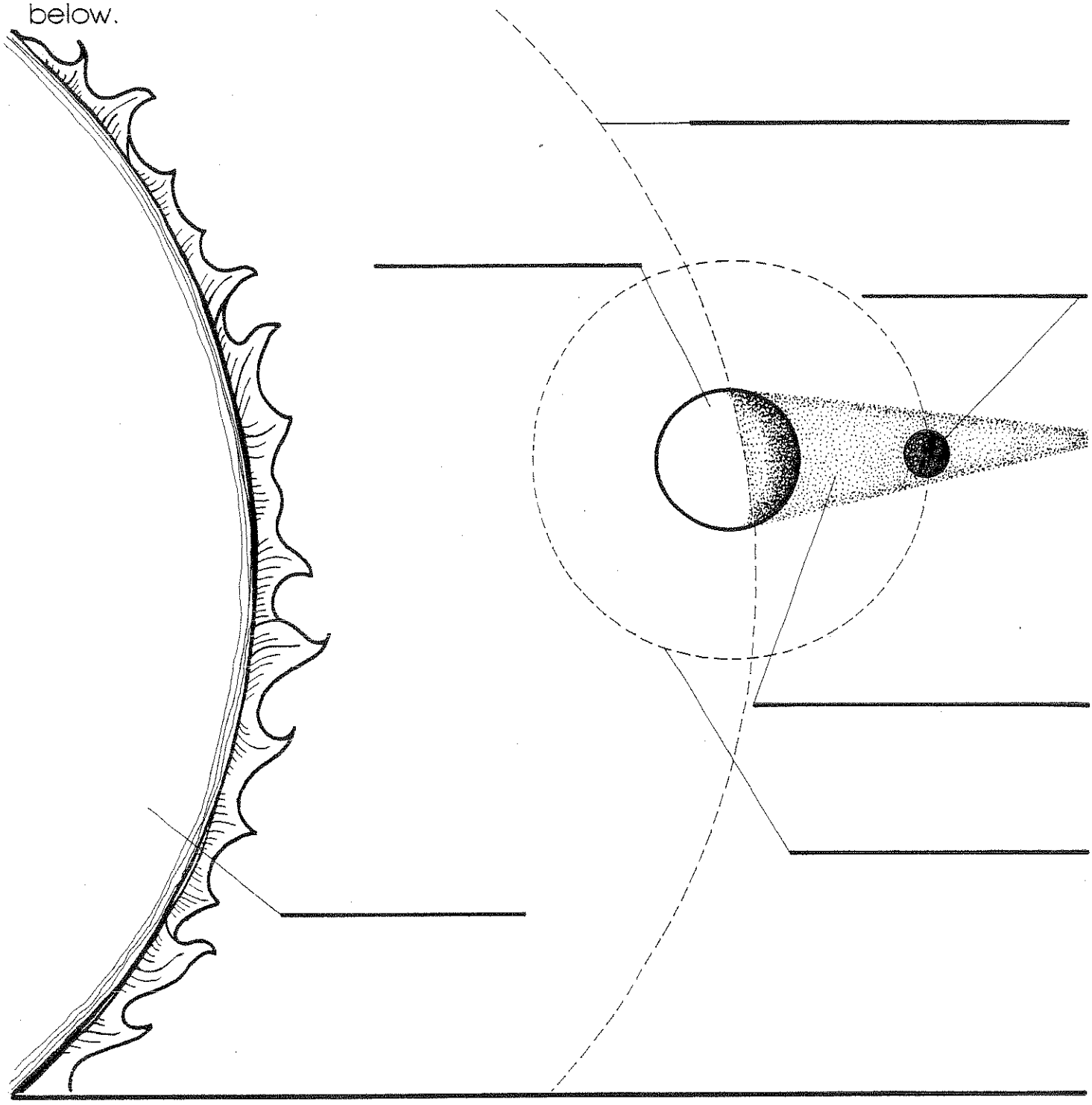




Earth Shadow

Name_____

When the sun, Earth and moon are in direct line, the moon moves into the Earth's shadow causing a lunar eclipse. Label the orbits and bodies in the illustration below.



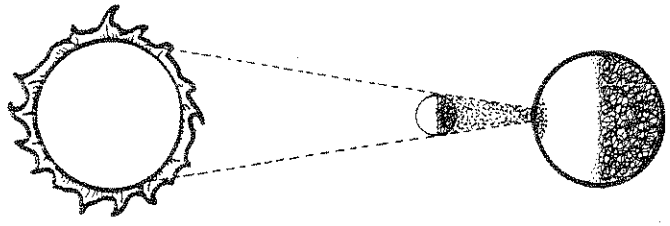
WORD BANK

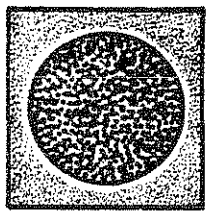
Earth orbit	moon orbit	moon
Earth	sun	Earth's shadow

Moon Shadows

Name_____

When the new moon is directly between the Earth and the sun, an eclipse of the sun occurs. The type of solar eclipse that occurs depends on how much sunlight the moon blocks from the view on Earth. Label the three kinds of solar eclipse. Label the moon, sun and Earth.





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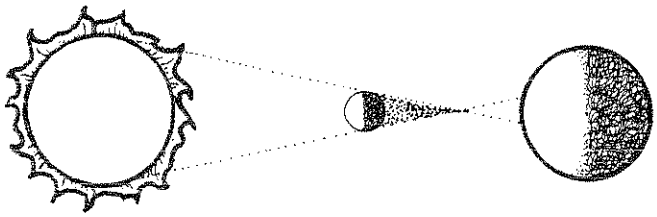

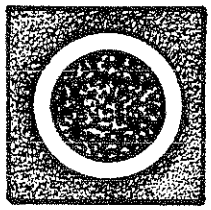

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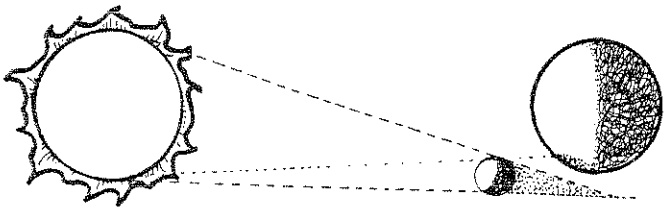
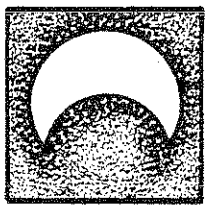




_____

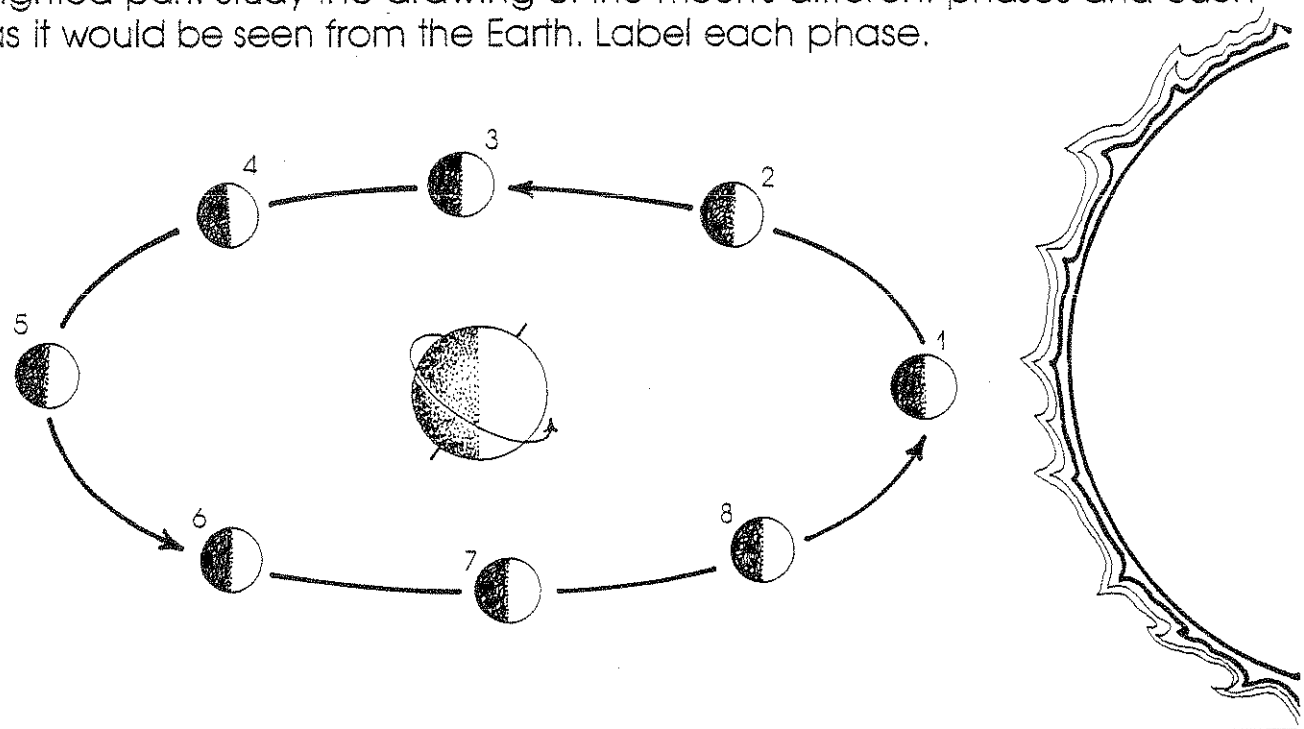
WORD BANK

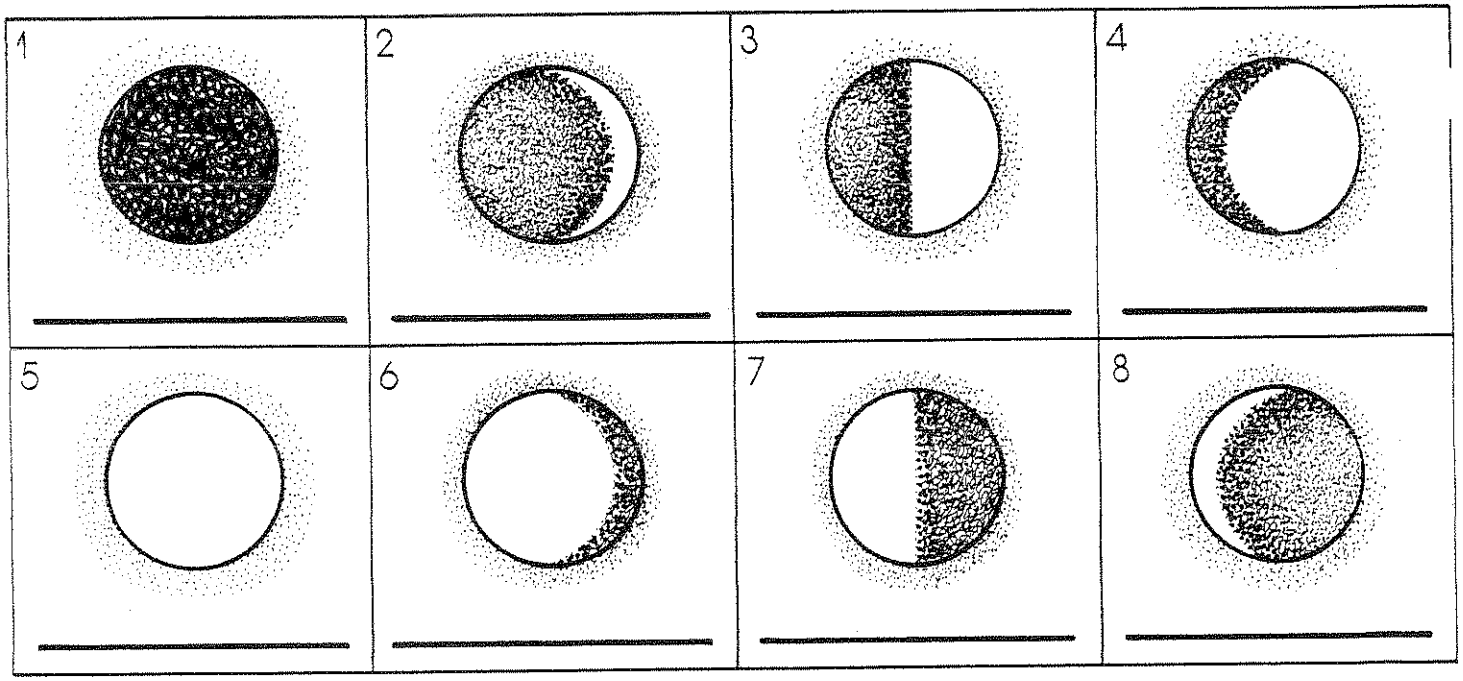
total eclipse	annular eclipse	partial eclipse
sun	moon	Earth

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.





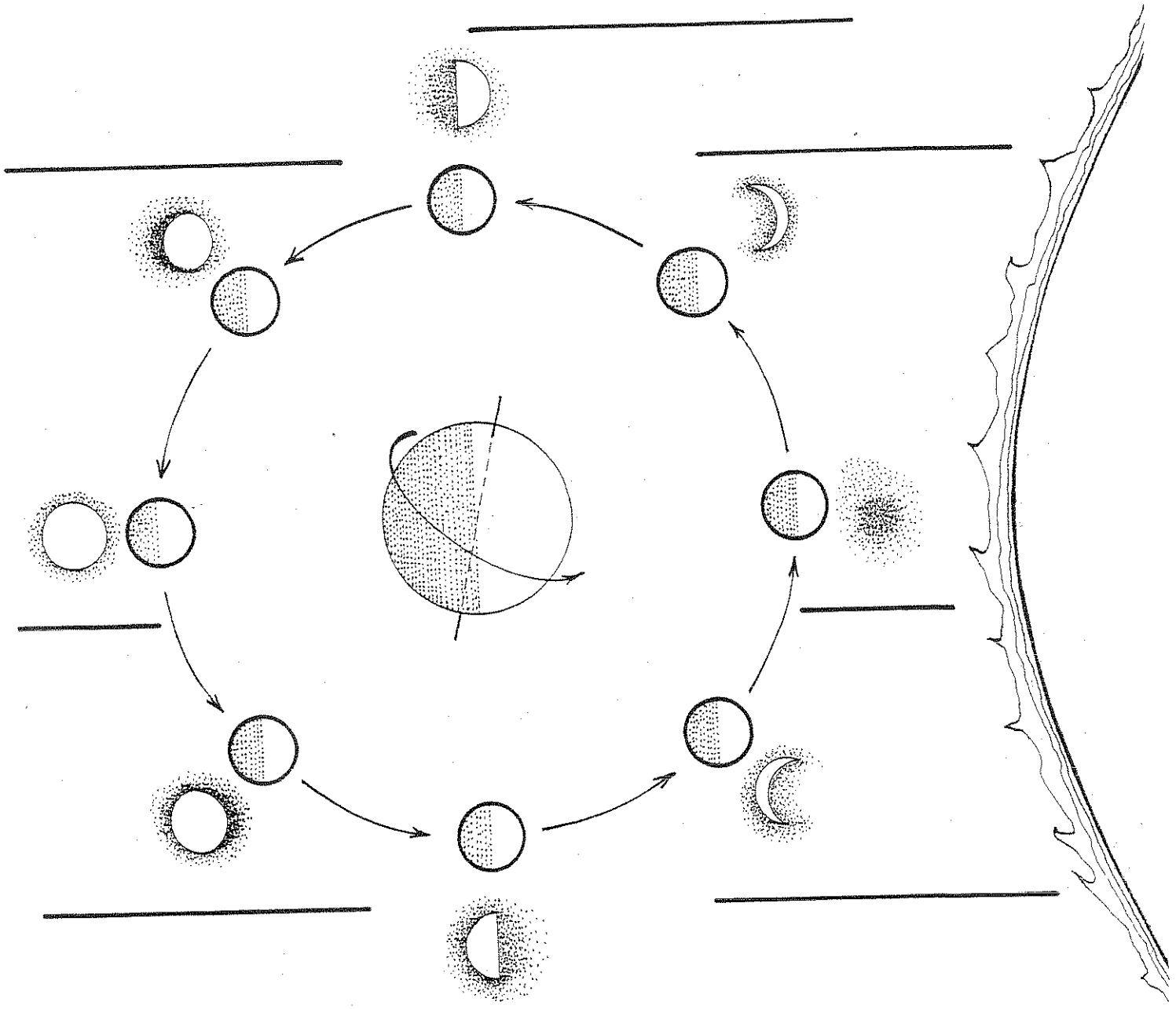
WORD BANK

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

Waning and Waxing Moon

Name _____

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



WORD BANK

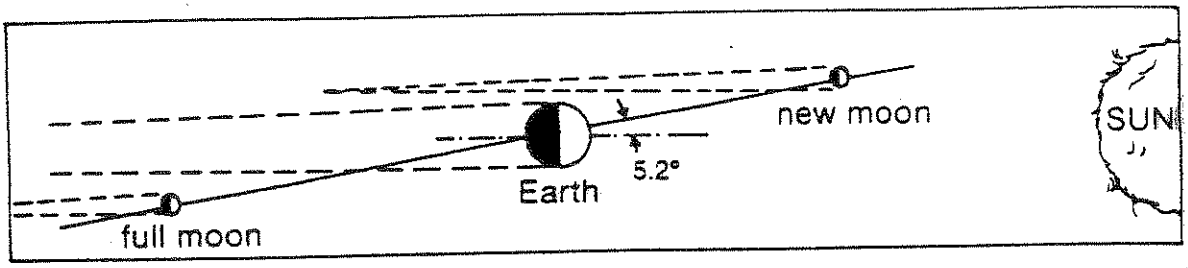
new	waxing crescent	first quarter
waxing gibbous	full	waning gibbous
last quarter	waning crescent	

PHASES OF THE MOON

From our view on Earth, the moon seems to change shape from night to night. These changing shapes are called **phases**. The moon does not actually change. The shape we see depends on how much of the moon's lighted half we can see. Half of the moon is always lighted by the Sun, but we do not always see all of the bright side.

When the moon is between the Sun and Earth, its dark side is facing us. This is known as a new moon. It cannot be seen at all.

When the moon is on the far side of the Earth, and the Sun is on the opposite side of us, the moon is full. That is, the whole of the sunlit side is facing us and we see a full moon.



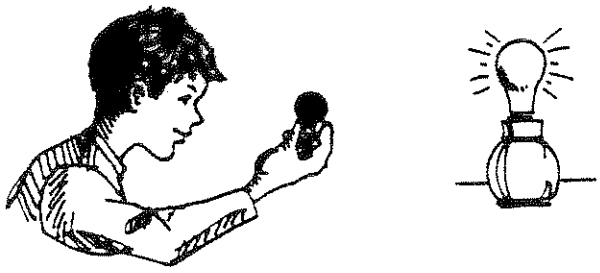
We have one full moon and one new moon each month. It takes about one month, 29 days, for the moon to complete one revolution of the Earth and to go through all the phases. At different times the shape may be crescent, half, or gibbous (3/4), depending on how much of the lighted half we can see at a particular time.

ACTIVITY

Viewing phases of the Moon

Materials needed: lamp—unshaded and a light colored ball

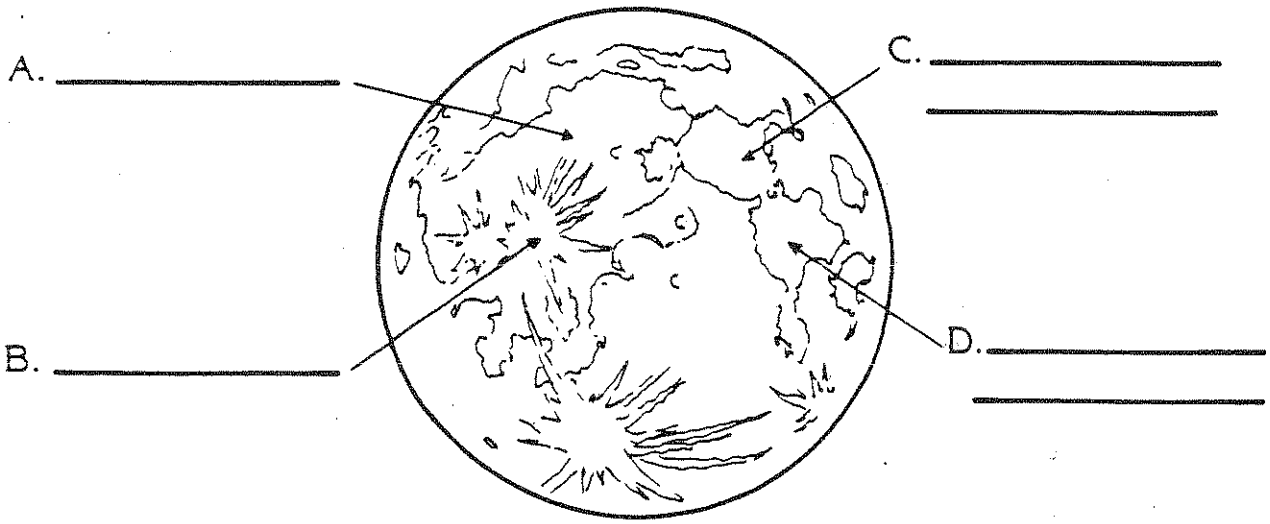
Darken the room, turn on the light, hold the ball in front of you and in line with your eyes and the light bulb. The light is the sun, the ball is the moon, and you are the Earth. Begin moving the ball slightly to the left of the bulb. You will see a new moon. Keep moving around the light with the ball in front of you. You will see the phases of the moon.



EXTRA CREDIT

Make a drawing showing the Sun, Earth, the moon and all its phases. Label each phase with its correct name.

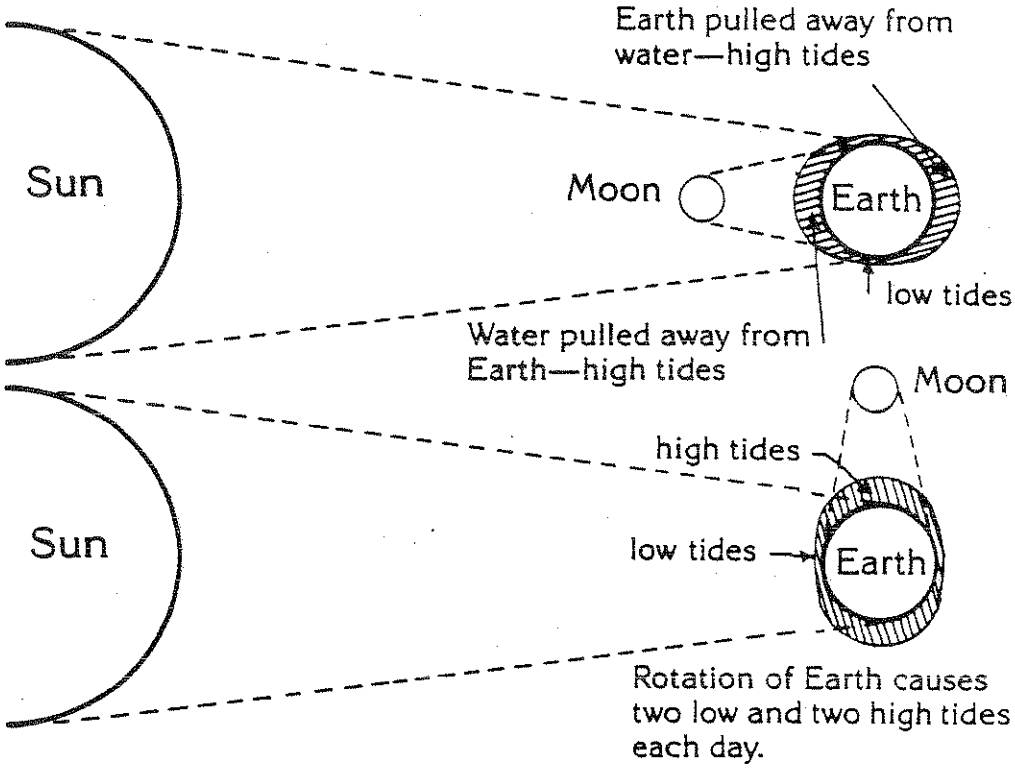
Our Moon and Tides



Tides

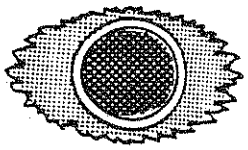
Spring Tides—Gravity from the sun and moon pulls together on Earth.

Neap Tides—Gravity from the sun and moon pulls against each other.

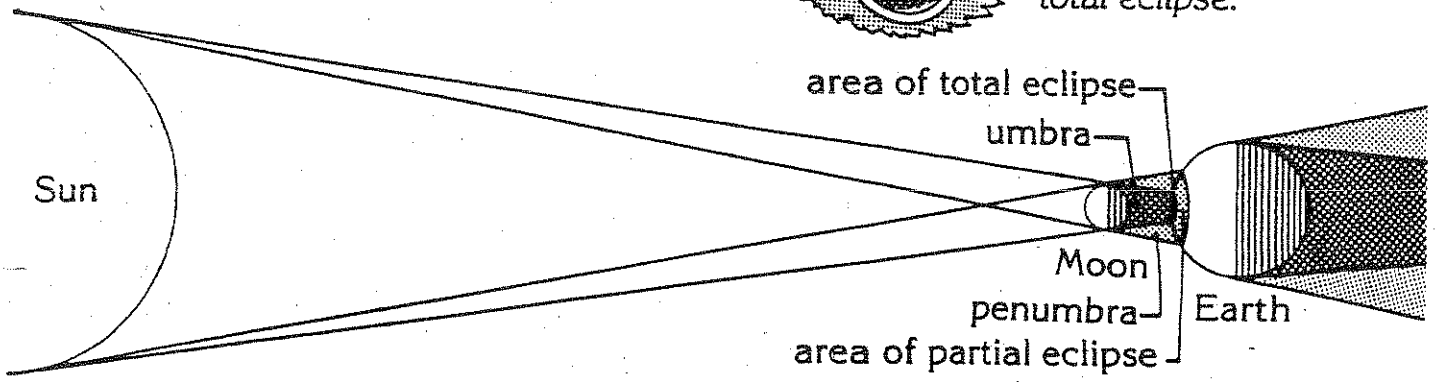


1. On lines A-D, label the parts of the moon's surface.
   Sea of Clouds Sea of Tranquility Copernicus Sea of Serenity
2. "Sea Areas" appear dark because they do not reflect as much _____ as do the _____ ranges.
3. Mountains are jagged because the moon has no _____ or _____ to cause weathering or erosion.
4. The _____ of the sun and moon is the main cause of tides on Earth.
5. When there are high tides, there are also _____ tides somewhere on Earth, _____ times a day.

Eclipses

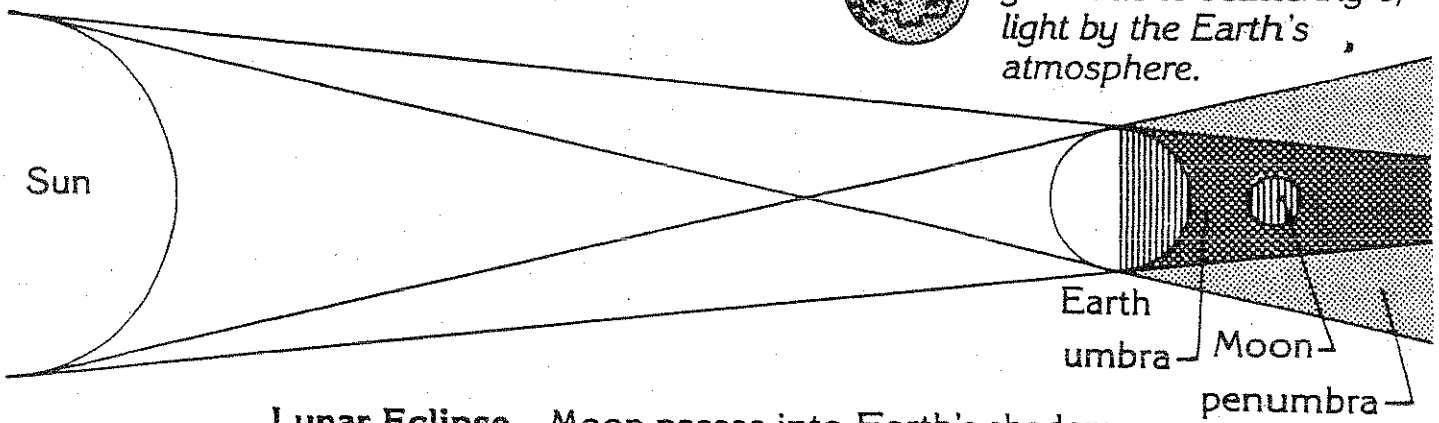


The sun's corona during total eclipse.



Solar Eclipse—Moon passes directly between the sun and Earth.

Total eclipse of moon shines with a dull orange glow due to scattering of light by the Earth's atmosphere.



Lunar Eclipse—Moon passes into Earth's shadow.

1. During a solar eclipse, the shadow of the _____ falls on the _____ ; in a lunar eclipse, the shadow of the _____ falls on the _____ .
2. The darkest part of a shadow is called the _____ ; the broader, outer part is called the _____ .
3. In a total solar eclipse, the sun's _____ is visible because the _____ blocks out the sunlight.
4. Why do partial eclipses of the moon occur more frequently than total solar eclipses?

_____

_____

_____

_____