



Earth

Directions: Circle the term in the puzzle that fits each clue. The terms read across or down. Then write the term on the line.

M S P H E R E T R L E S
 R E V O L U T I O N L D
 E Q U A T O R L T L O A
 S U M M E R Z T A I S Y
 E I A N E R W P T E I Y
 A N X L E E L L I P S E
 S O L S T I C E O M O A
 A X I S M I W I N T E R

- _____ 1. occurs when the Sun is directly over the equator
- _____ 2. earth's spinning that causes night and day
- _____ 3. solstice that occurs in December in the southern hemisphere
- _____ 4. round, three-dimensional object whose surface at all points is the same distance from its center
- _____ 5. a complete orbit made by Earth around the Sun
- _____ 6. imaginary line around which Earth spins
- _____ 7. property of Earth that causes seasons
- _____ 8. shape of Earth's orbit
- _____ 9. solstice that occurs in December in the northern hemisphere
- _____ 10. time it takes Earth to rotate on its axis
- _____ 11. time it takes Earth to revolve around the Sun
- _____ 12. two times during the year, the Sun is directly over this imaginary line that circles Earth halfway between the poles.
- _____ 13. occurs when the Sun reaches its greatest distance north or south of the equator

SECTION
1

Enrichment

Determining Hours of Daylight

Directions: The illustrations show the length of day at every 10° of latitude for the winter and summer solstices. On each figure, begin at the equator, which has daylight hours of 12 hours and 0 minutes, and label every 10 degrees north and south of the equator to the 60° latitude north and south. Mark the final north and south latitude shown 66.5° . From this latitude to the poles, the daylight hours remain the same. Use the figures to help you answer the questions.

Figure 1

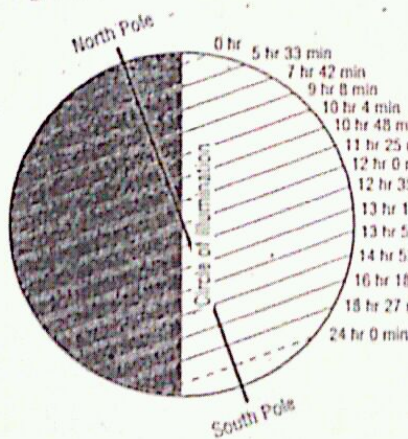
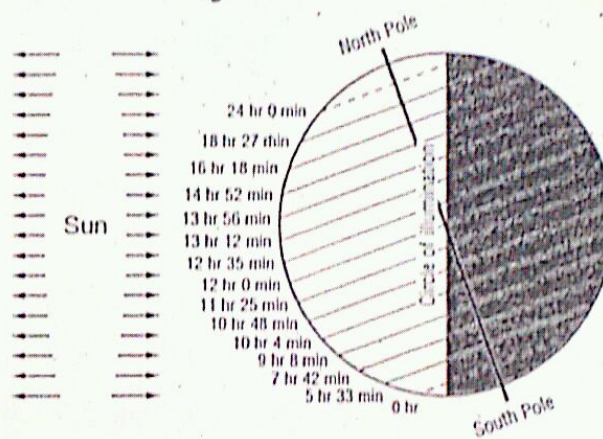


Figure 2



1. Which figure shows the summer solstice for the northern hemisphere? How do you know?

2. If you lived at 50° north latitude, how many hours of daylight would you have during the summer solstice? During the winter solstice?

3. If you lived at the north pole, how many daylight hours would you have at the summer solstice?

4. Look at a map and find the latitude where you live. About how many hours of daylight do you have during the summer solstice? During the winter solstice?

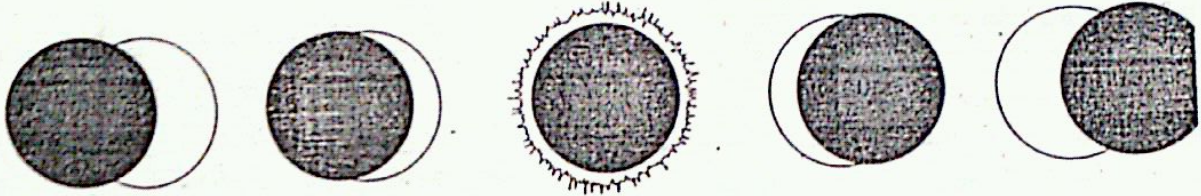
SECTION
2

Enrichment

Comparing Eclipses

Directions: The following observations were made during two eclipses. Study each sketch. Then answer the questions. Note that the moon revolves eastward in its orbit and goes eastward across the sky during an eclipse.

Total solar eclipse



Total lunar eclipse



1. What makes the shadow during a solar eclipse? During a lunar eclipse?

2. When a person experiences a total solar eclipse, where is that person standing?

3. Is the east side or the west side of the Sun covered first during a solar eclipse?

4. Is the east side or the west side of the Moon covered first in a lunar eclipse?

5. Which of the above eclipses helps show that Earth is a sphere? Why?

6. Why does a lunar eclipse last longer than a solar eclipse?

SECTION
3
Enrichment
Interpreting Facts

Directions: Use the information in the table and a calculator to answer the following questions.

| Facts About the Moon | |
|---|---|
| Diameter at the equator: 3,476 km | Period of rotation: about 27.3 Earth days |
| Circumference at the equator: 10,920 km | Period of revolution around Earth: about 27.3 days |
| Density: 3.3 g/cm ³ | Length of day and night: about 15 Earth days each |
| Gravity: 1/6 of Earth's | Temperature: high: 127°C daytime low: -170°C nighttime |
| Distance from the Earth: closest: 356,400 km farthest: 406,700 km average: 384,400 km | Atmosphere: almost none |

1. Earth's circumference at the equator is 39,843 km. How many times larger is Earth's circumference than the Moon's circumference? _____
2. How many times will the Moon revolve around Earth in 92 days? _____
3. How many times will the Moon rotate on its axis in 92 days? _____
4. If a rock has a mass of 0.15 kg on the Moon, what will its mass be on Earth? _____
5. If a space colonist weighs 800.1 N on Earth, what would the colonist weigh on the Moon?

6. Use the average distance to the Moon to answer this question. If astronauts travel to the Moon and back to Earth again in 144 hours, how many kilometers per hour do they travel?

7. If the space colonists travel at 6,000 km/h, how long will it take them to get to the Moon from Earth when the Moon is at its farthest point from Earth? Its nearest point to Earth? Round your answers to the nearest hour.

8. With the extremes of temperatures on the Moon, what would a Moon colony need to protect people from the temperatures?

