Light and Space Practice Questions

Give 2 reasons why light is **not** matter.

Light is a form of energy, it has no mass nor volume

2. List 5 properties of light.

1) Light travels very fast
2) Light carries energy
3) White light is made up of different colours
4) Light can be reflected/absorbed
5) Light cannot bend around an object

3. During a firework show, you see the explosion of a firework, then hear the explosion 2 seconds later. Explain why you don't see and hear the firework at the same time.

Light travels much faster than sound, so the light from the firework gets to our eyes before the sound gets to our ears.

4. Write the word being described by each of the following definitions:

a. The spinning of a body on its own axis. rotation

b. Half of a sphere. The Earth has a northern and southern one of these. hemisphere

c. The movement of one object around another. revolution

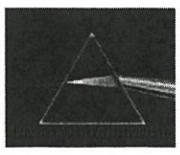
d. The path that one object takes as it moves around another. orbit

e. The imaginary line (from North to South) about which an object spins. axis

5. What are the colours that make up white light? Write them in order.

Red, orange, yellow, green, blue, indigo, violet

(Roy G Biv)



6. Fill in the blanks in each of the following sentences:

a. The Earth takes 24 hrs to rotate once on its own axis.

b. The Earth has seasons because its axis is tilted.

c. In summer, there is more (more or less) daylight than in the winter.

d. The earth's axis is tilted at an angle of 23°.

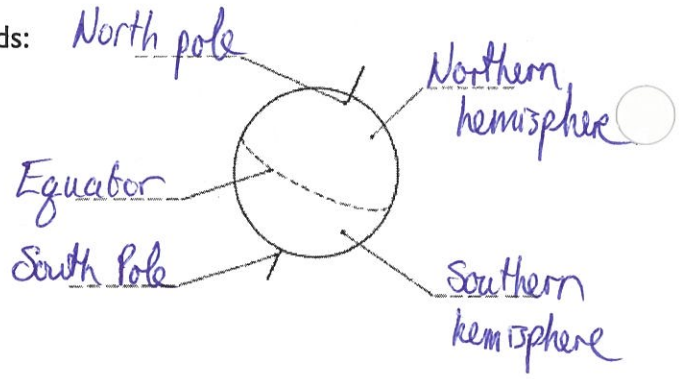
e. When it's spring in the Southern hemisphere, it's fall in the Northern hemisphere.

f. If you were to look down at the direction of Earth's revolution from above, you would see that it revolves in a counter-clockwise direction.

g. In December, the South pole tilts toward (toward or away) from the sun.

7. Label the parts of the Earth below using the following words:

- North pole
- South pole
- Equator
- Northern hemisphere
- Southern hemisphere



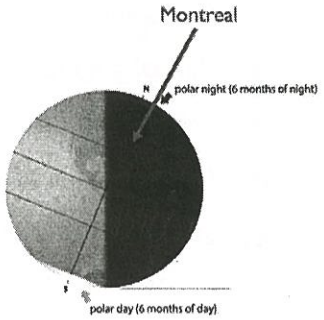
8. The image on the right shows the location of Montreal on the Earth.

a. Is it daytime or nighttime in Montreal? Justify your answer.

Nighttime because Montreal is turned away from the sun.

b. What season is it in Montreal? Justify your answer.

Winter because the Northern hemisphere is tilted away from the sun



9. February normally has 28 days, but every 4 years we have a "leap year" where a 29th day is added onto the calendar in February. The next one will be February 29th, 2020. Explain why leap years exist.

Because it takes 365 and 1/4 days for one revolution. Instead of beginning a new year after 1/4 day, we combine these quarter days into one full day that we add to the calendar (February 29th) every four years.

10. Write the season(s) being described in each of the following definitions:

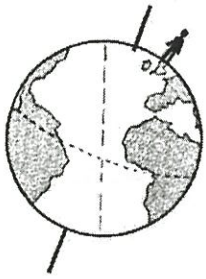
a. One hemisphere is receiving sunlight directly. Summer

b. One hemisphere is receiving sunlight at an angle. winter

c. Both hemispheres are receiving equal amounts of sunlight. ~~spring or fall~~

11. The diagrams below show a person positioned at a certain point on the Earth. In which diagram is he experiencing summer? Explain why.

Diagram A



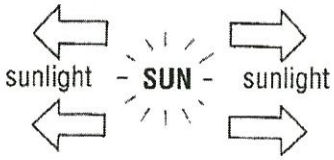


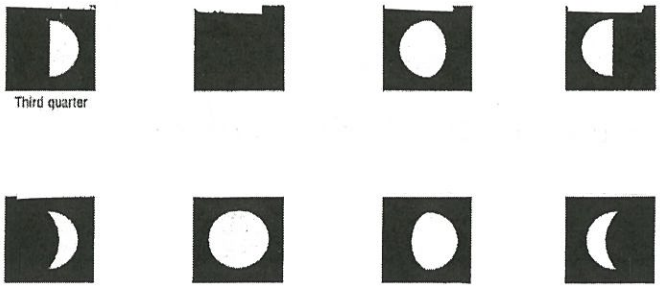
Diagram B

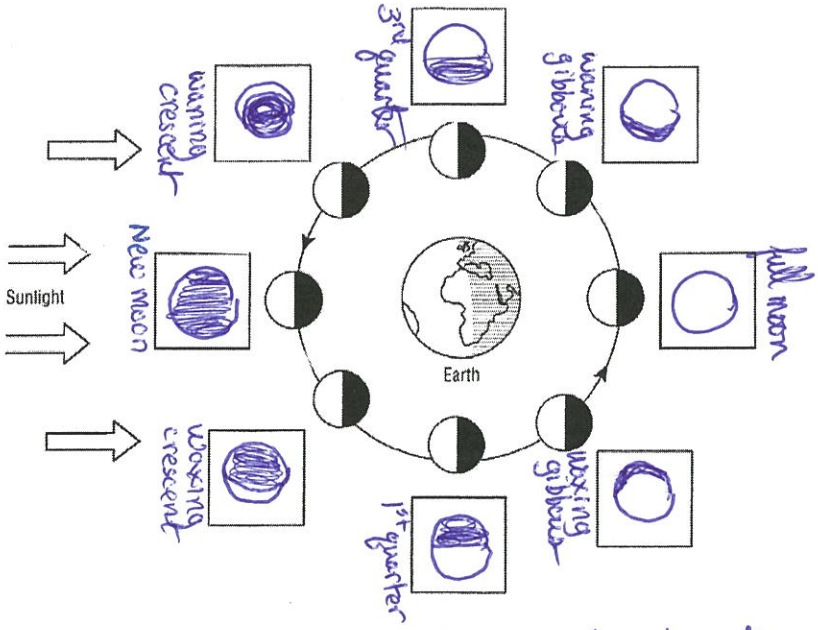
Diagram A, because the Northern hemisphere (where the person is standing) is tilted toward the sun.

12. What is the difference between a **solstice** and an **equinox**? Explain your answer.

A solstice occurs when one hemisphere receives sunlight head on, while the other hemisphere receives sunlight at an angle. (June and Dec 21st) An equinox occurs when both hemispheres receive the same amount of sunlight (March and ~~Sept~~ 21st)

13. Use these pictures to help you draw how the moon appears on Earth at the different stages of its revolution around the Earth. Write the name of each moon phase as well.





14. How long does it take the moon to orbit the Earth? Approximately 1 month

15. The moon is not luminous, meaning it does not give off its own light. Explain why we can still see it.

The moon reflects sunlight. It's appearance and shape depend on its position as it orbits the Earth.

16. Explain the difference between a **lunar** and **solar** eclipse.

In a lunar eclipse, the Earth is between the sun and moon.
In a solar eclipse, the moon is between the sun and the Earth

17. Explain why eclipses don't happen very often.

The moon's orbit is tilted, so they rarely all line up