

Insolation and Temperature

Insolation and Temperature

Angle of Insolation –

1. Angle that the sun's rays strike the Earth
2. The greater the angle the greater the intensity.
3. Greatest angle is 90°.
4. Duration of Insolation – The number of daylight hours.
5. Direct Ray – ray that strikes the earth at 90°

The area of the sunbeam is
spread over 1 square meter

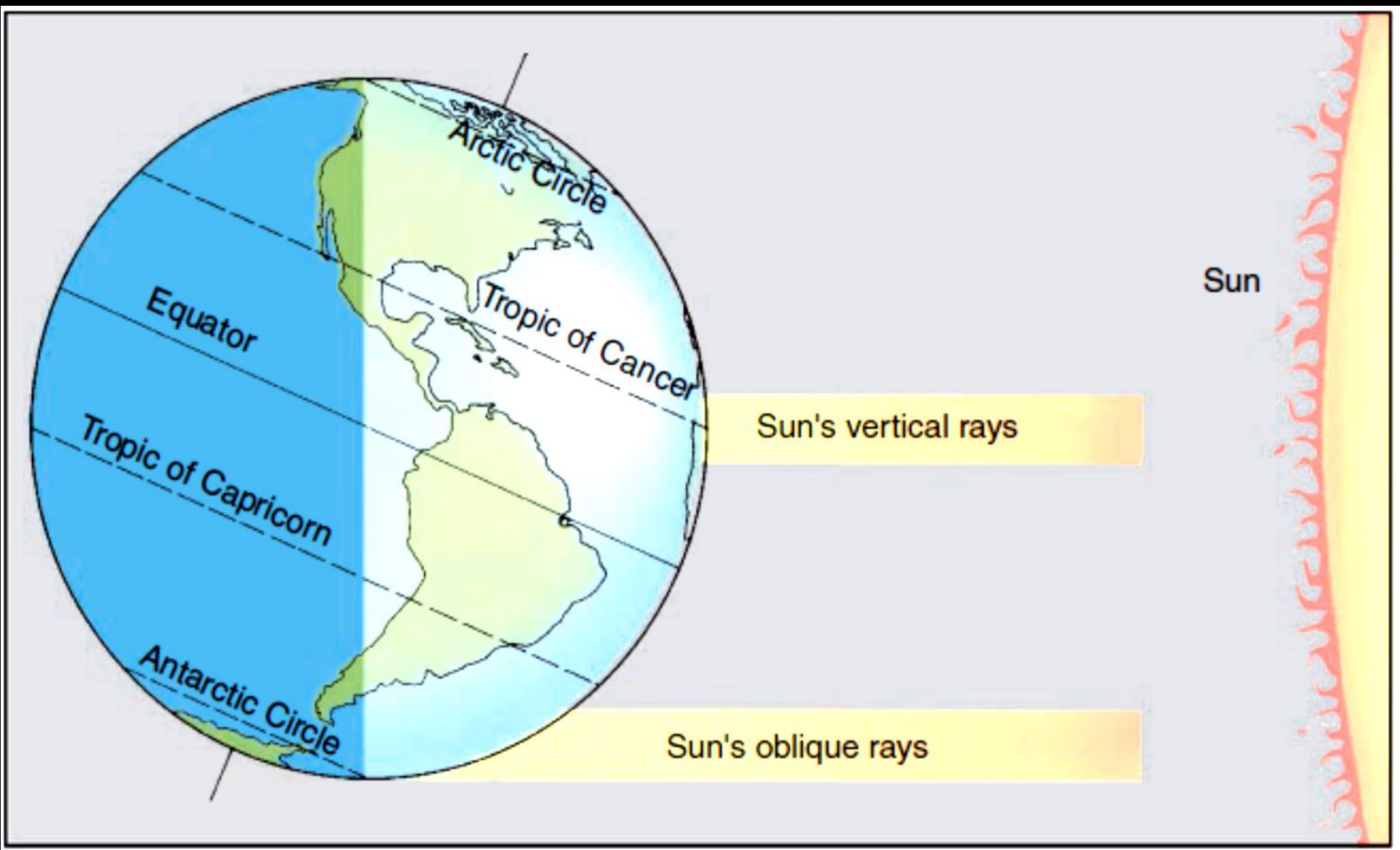


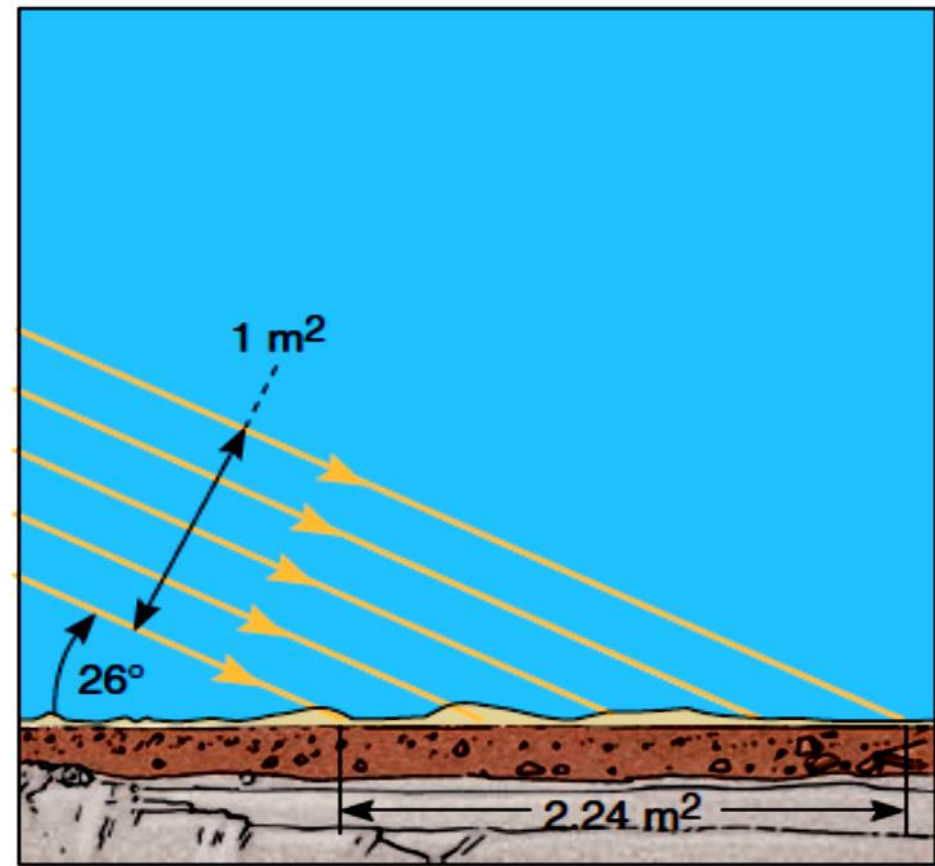
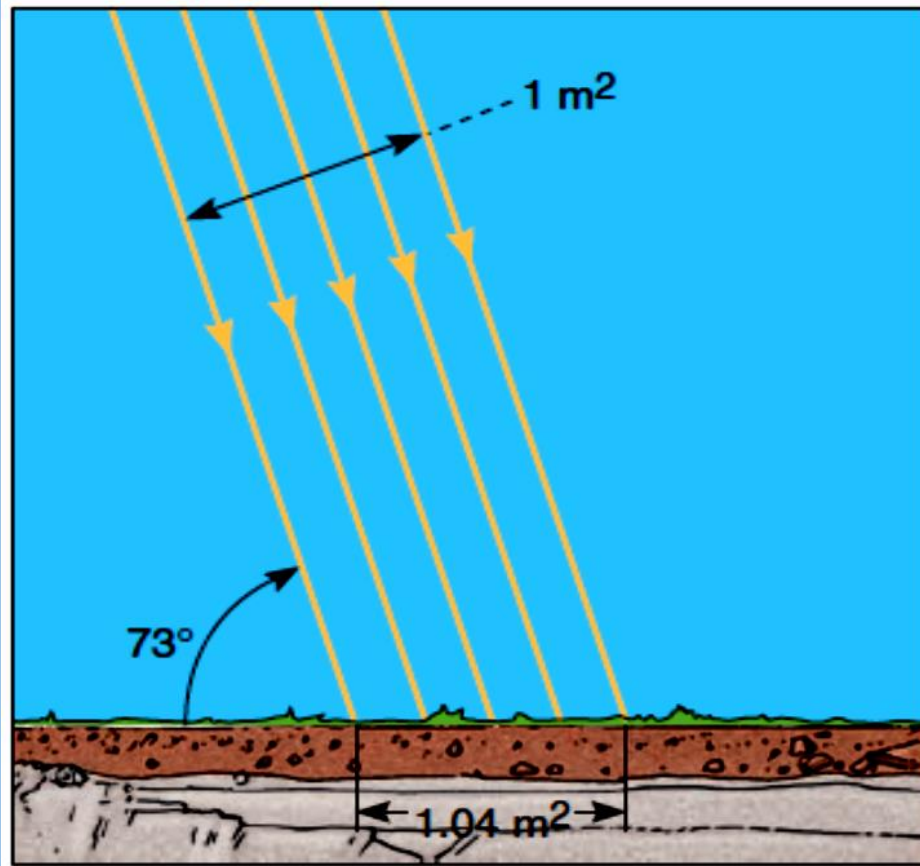
Select a latitude:

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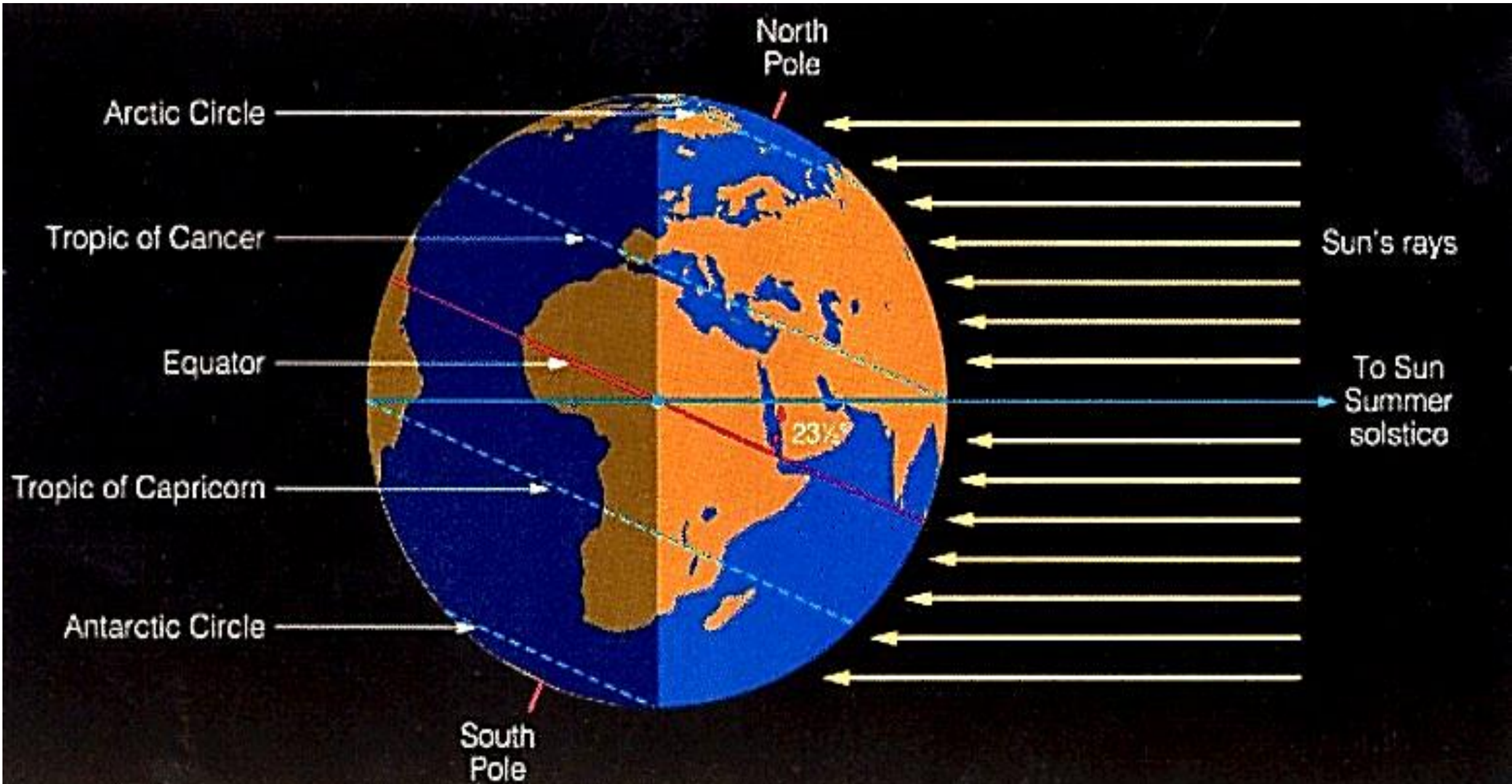
Credits





The angle at which the sun's rays strike Earth's surface determines the amount of solar energy received per unit of surface area. This amount in turn affects the seasons. The diagram represents the June condition, when solar radiation strikes the surface perpendicularly on the Tropic of Cancer, creating summer conditions in the Northern Hemisphere. In the Southern Hemisphere, the sun's rays are more oblique and spread over larger areas, thus receiving less energy per unit of area, making this the winter hemisphere.

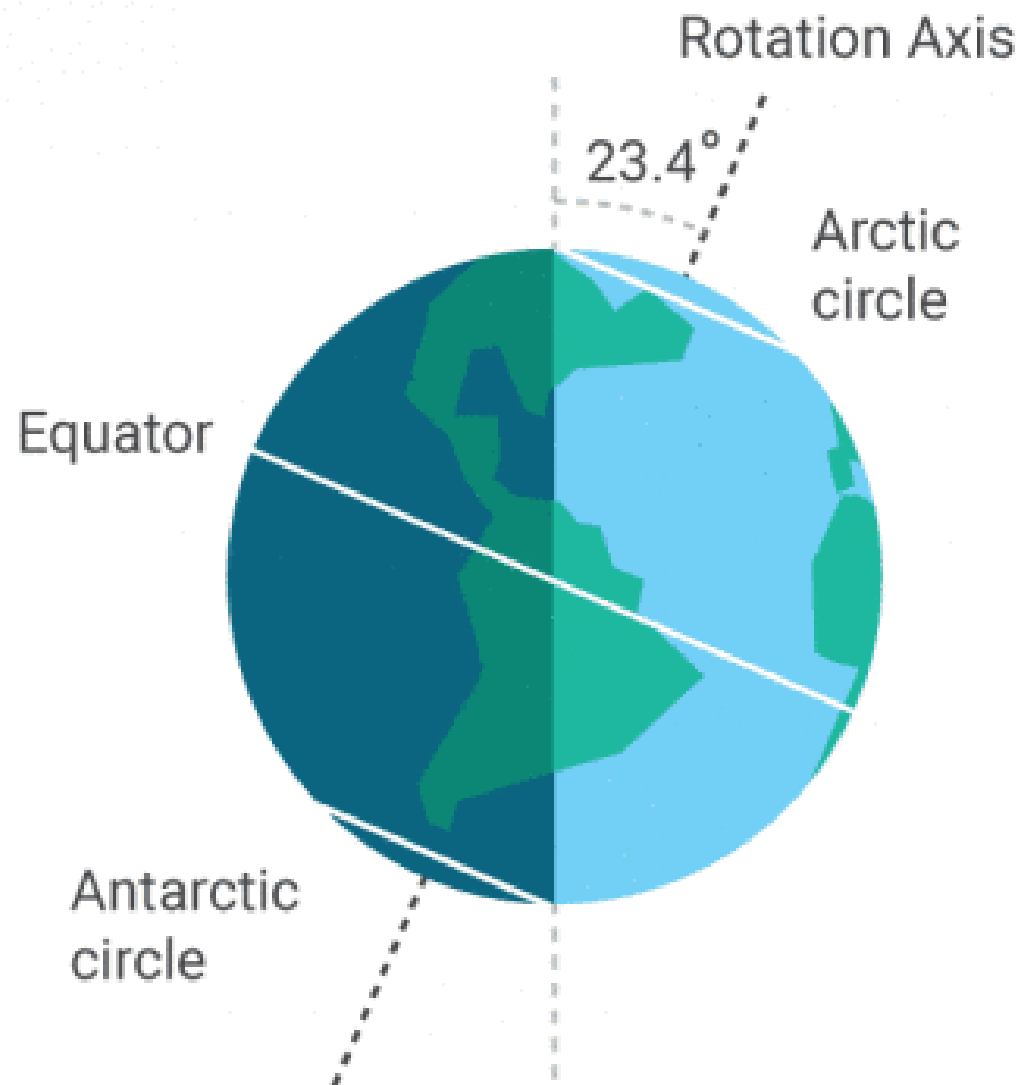
Seasons and Insolation



Seasons and Insolation

1. Summer Solstice (Summer in NH)

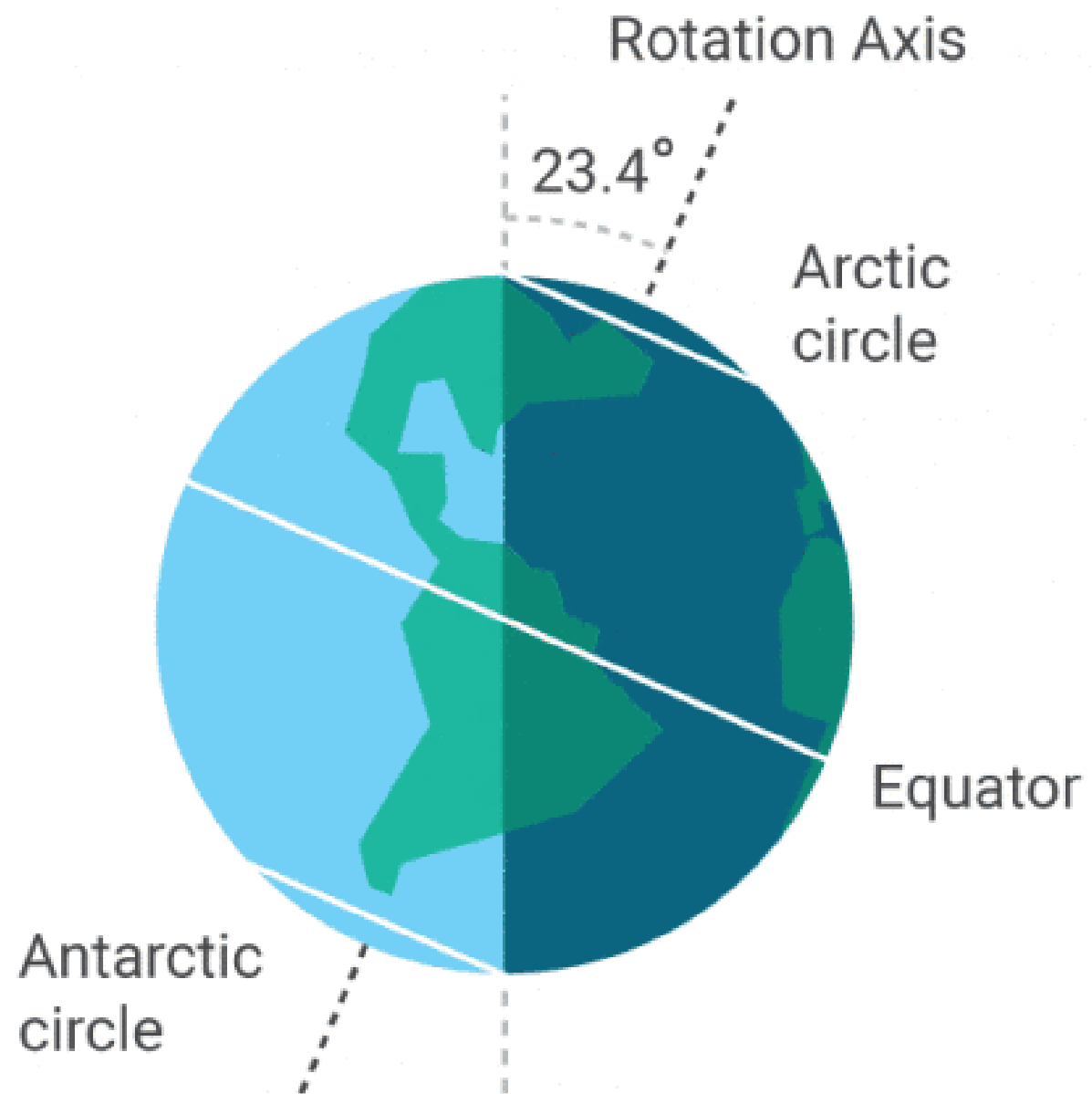
- a. Direct ray is at the Tropic Of Cancer – 23.5° N
- b. Greatest angle of Insolation in NY
- c. Greatest duration of Insolation – 15 hours
- d. N. Hemisphere tilted toward sun



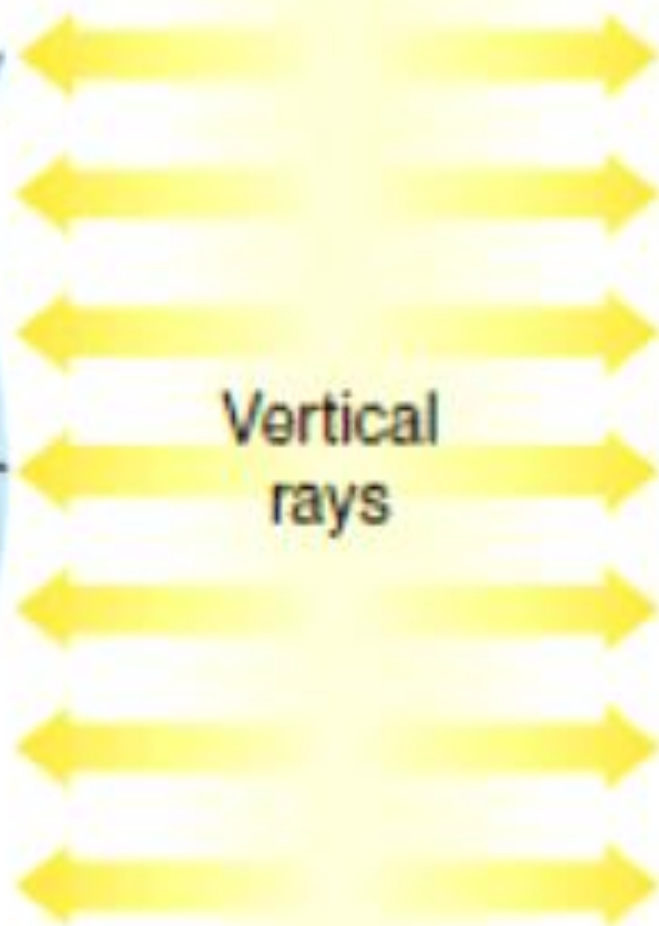
Seasons and Insolation

1. Winter Solstice (Winter in NH)
 - a. Direct ray is at the Tropic Of Capricorn – 23.5° S
 - b. Lowest angle of Insolation in NY
 - c. Shortest duration of Insolation – 9 hours
 - d. N. Hemisphere tilted away from the sun

The Sun's Rays



A
June 21



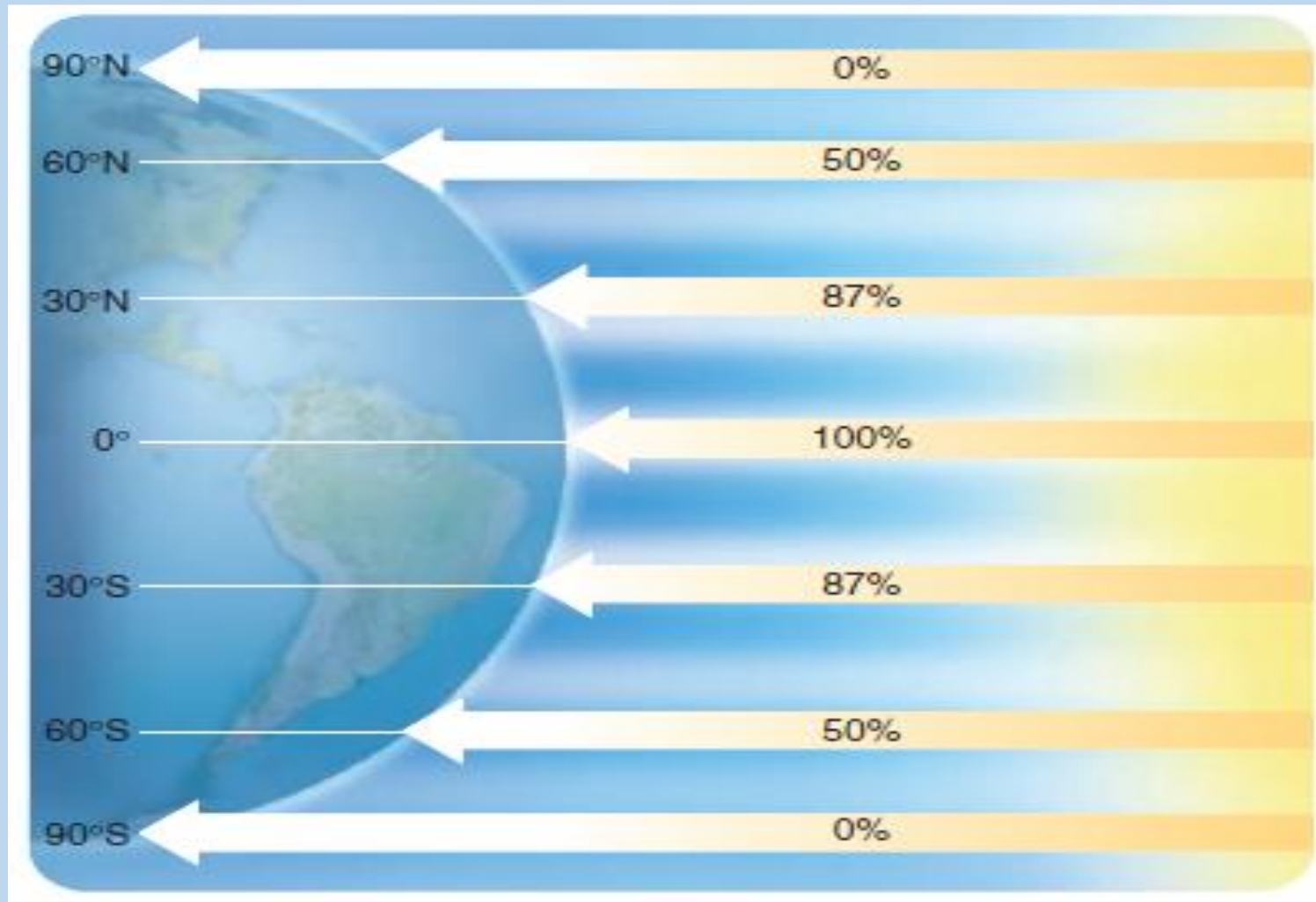
C
December 21



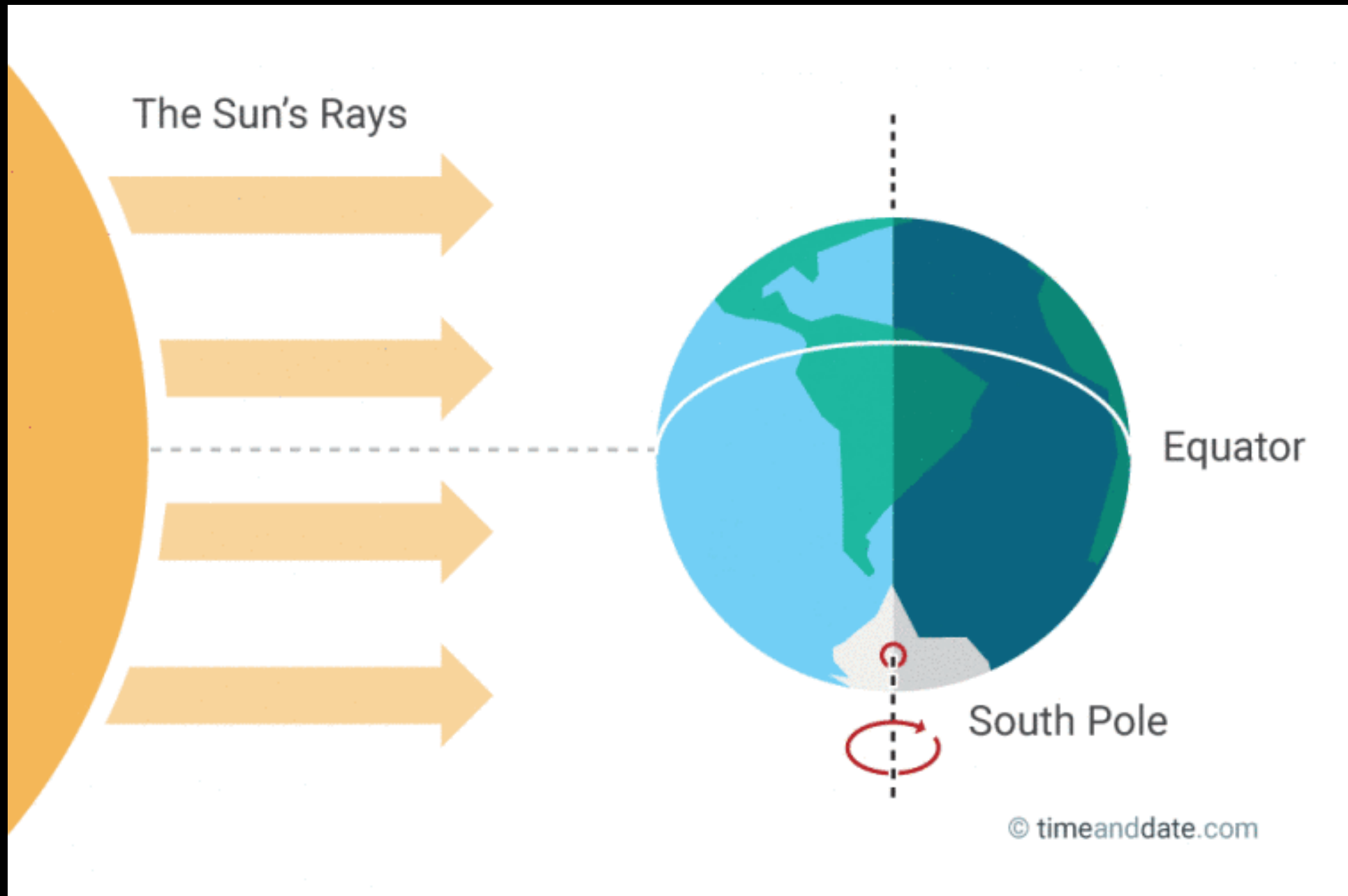
Seasons and Insolation

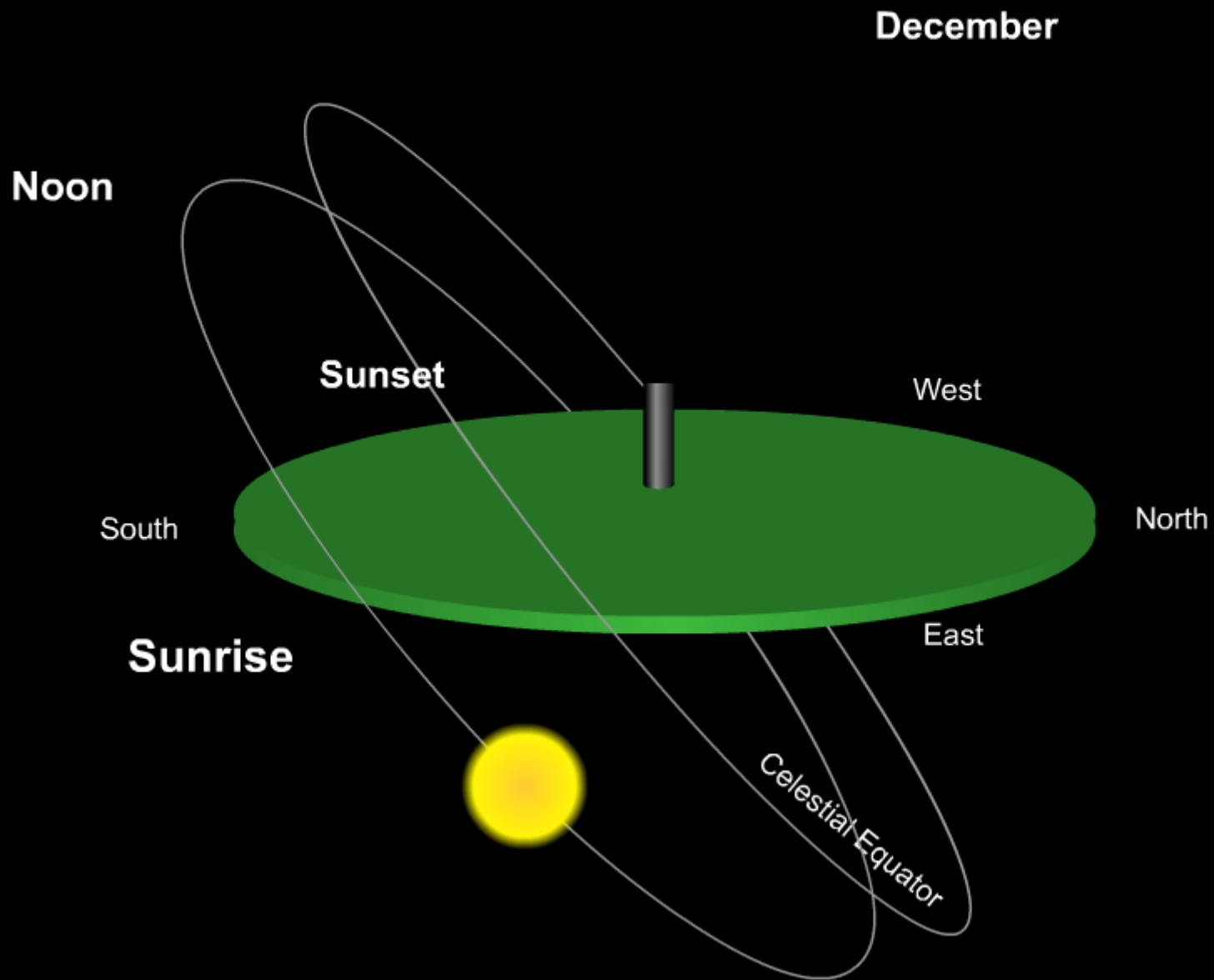
1. Equinoxes

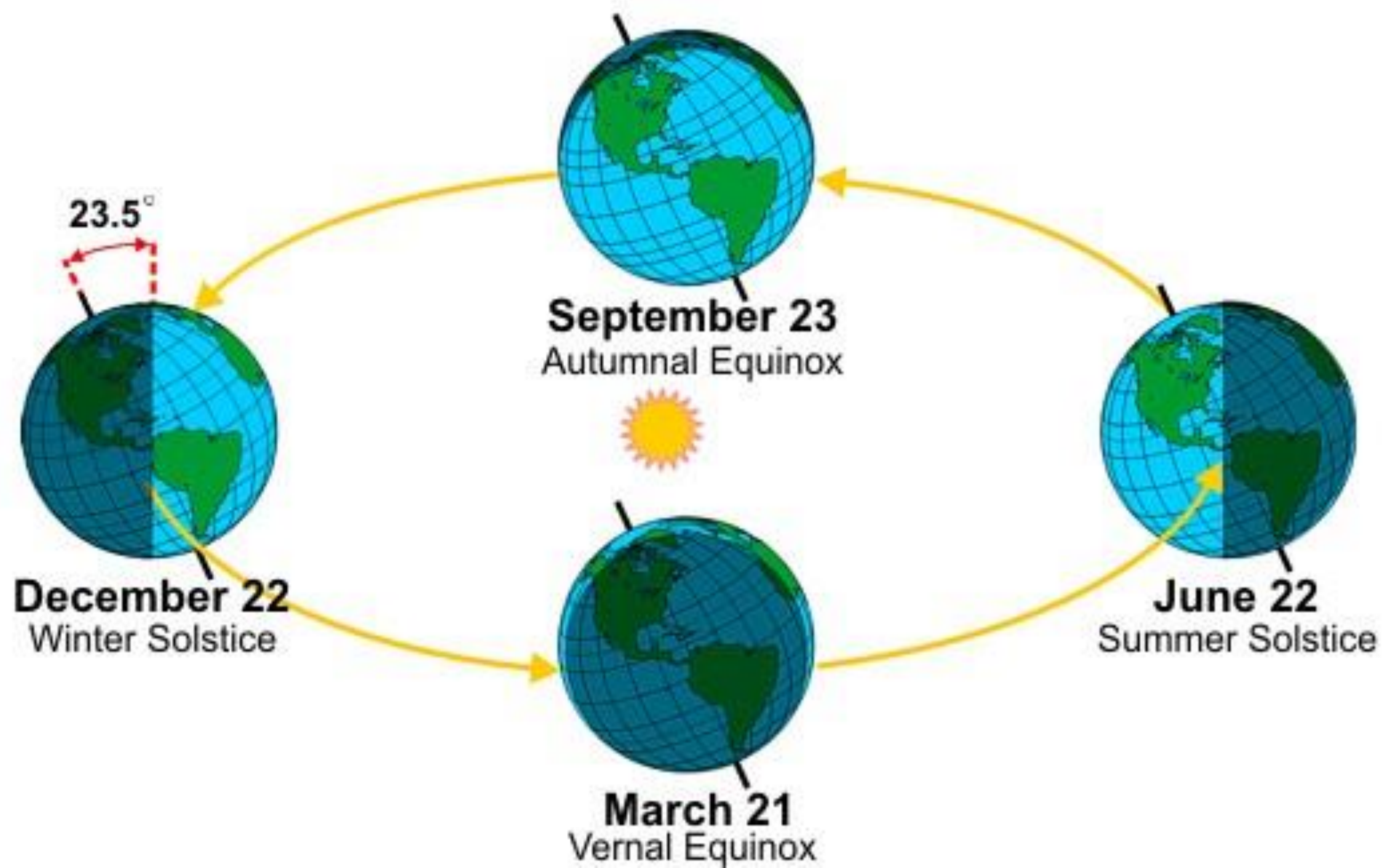
- a. March 21 – Spring/Vernal Equinox
- b. September 23 – Fall/Autumnal Equinox
- c. Direct ray at the Equator
- d. 12 hours of day and night everywhere on Earth.
- e. Equinox-Equator-Equal day and night



Finally, on or about September 22, Earth will reach a position known as an **equinox**. On this date (the autumnal equinox in the Northern Hemisphere), day and night will be of equal length at all locations on Earth. Thus, on the equinox, conditions are identical for both hemispheres. As you can see in the diagram above at position B, Earth's axis points neither toward nor away from the sun (imagine the axis is pointed at the reader); the circle of illumination passes through both poles, and it cuts Earth in half along its axis.









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