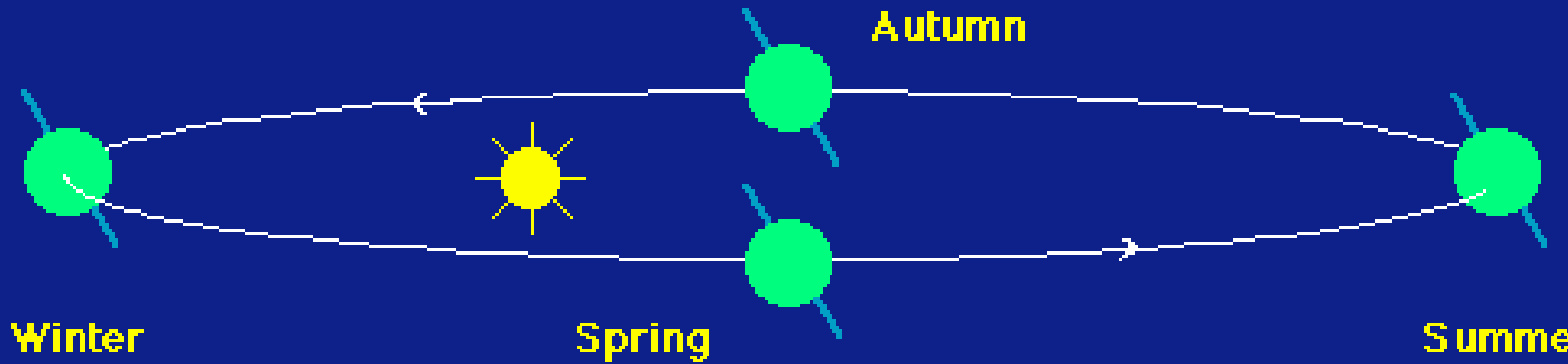
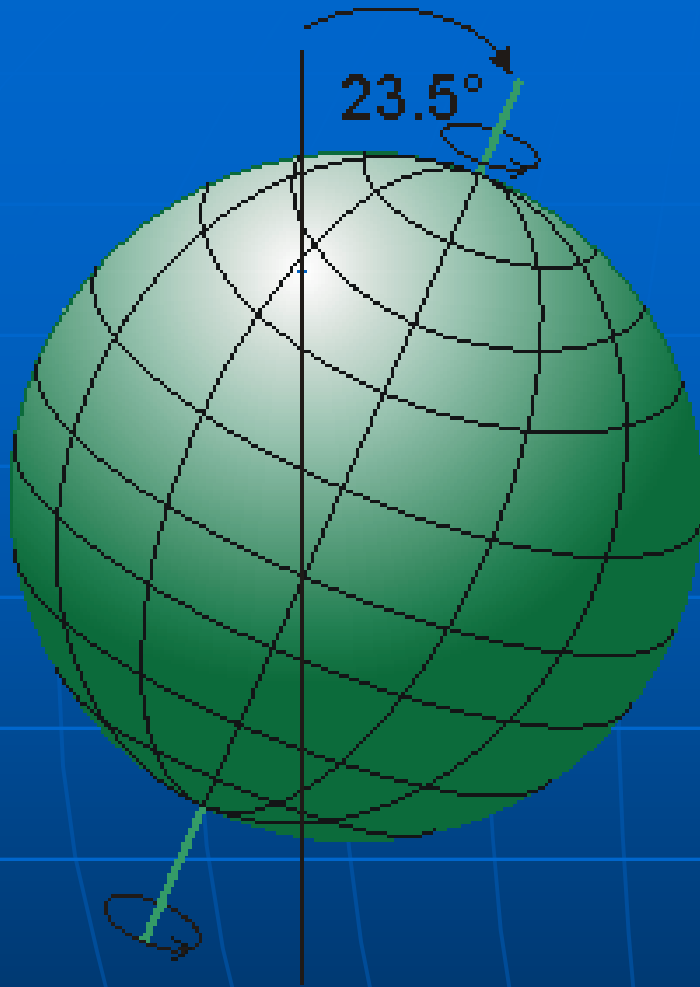


# Why do we have seasons?



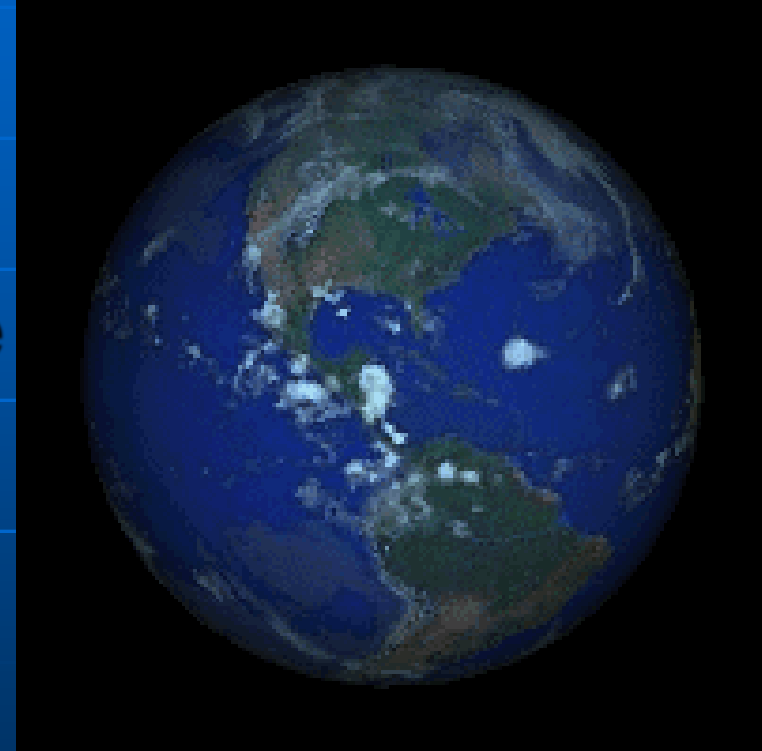


The Earth has seasons because it is tilted about 23.5 degrees from straight up and down. Think of the Earth as a spinning top, tipped over to one side. It remains tipped in the same direction as it travels around the Sun.

If Earth's axis was not tilted then everybody would have the same season all year!  
No more summer and winter!

## A Full Year Rotation Around the Sun.

This is the Earth during one full year (the animation then starts over again), as you would see if you looked straight at the earth from the Sun. As you can see, the part of the Earth that is directly facing the sun changes with the time of the year. It is the northern half for a while, then moves south of the equator, only to move back to the north again.



When the northern half of the Earth is pointing towards the Sun, the northern hemisphere of the Earth gets more direct sunlight. We call this the "summer" season for the north.

4of11

At this same time, the southern half of the Earth is pointed away from the Sun, so people in the southern hemisphere get less direct sunlight.

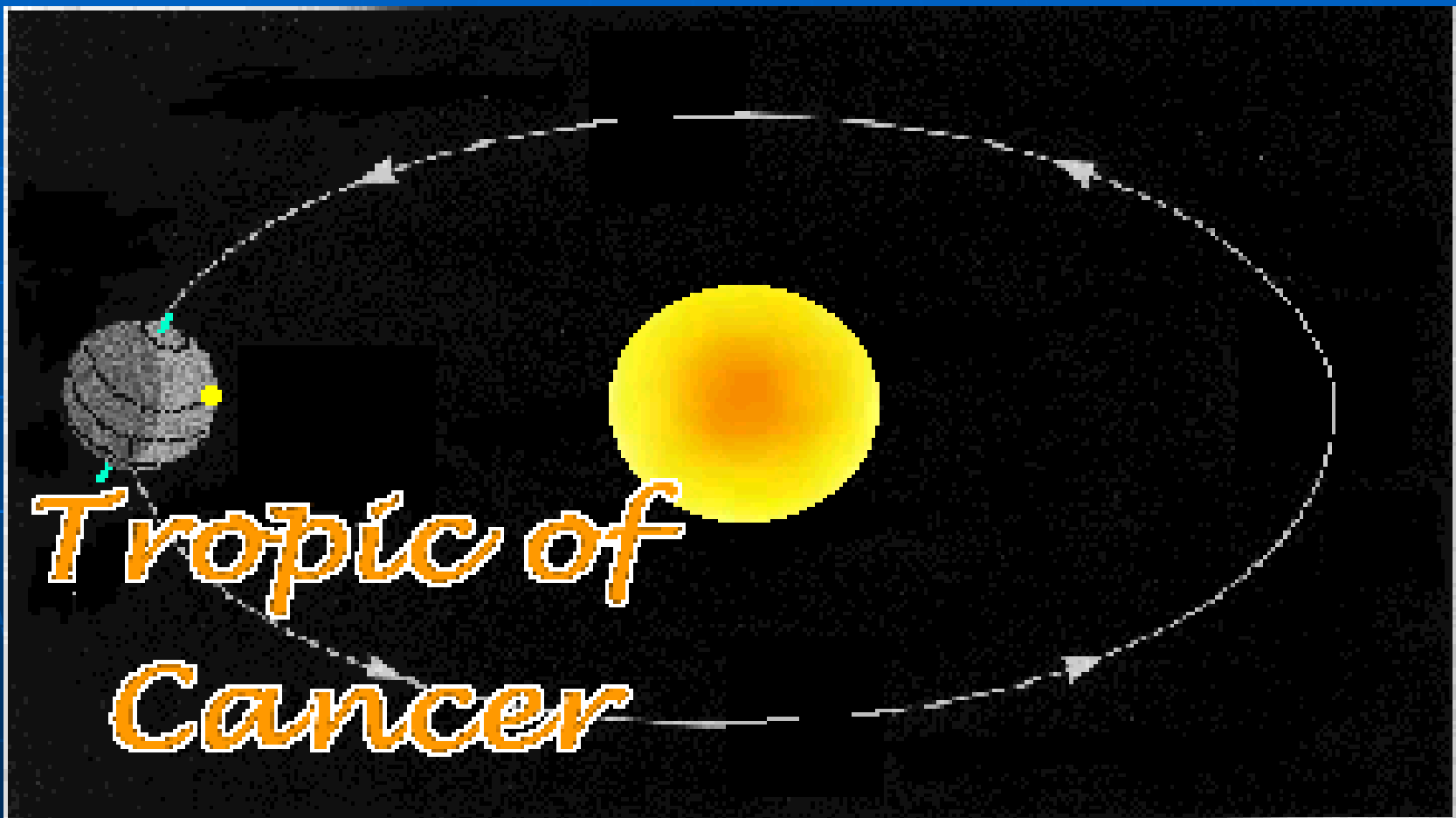


So, because of the tilt of the Earth's axis, the seasons in the south are the opposite of those in the north.

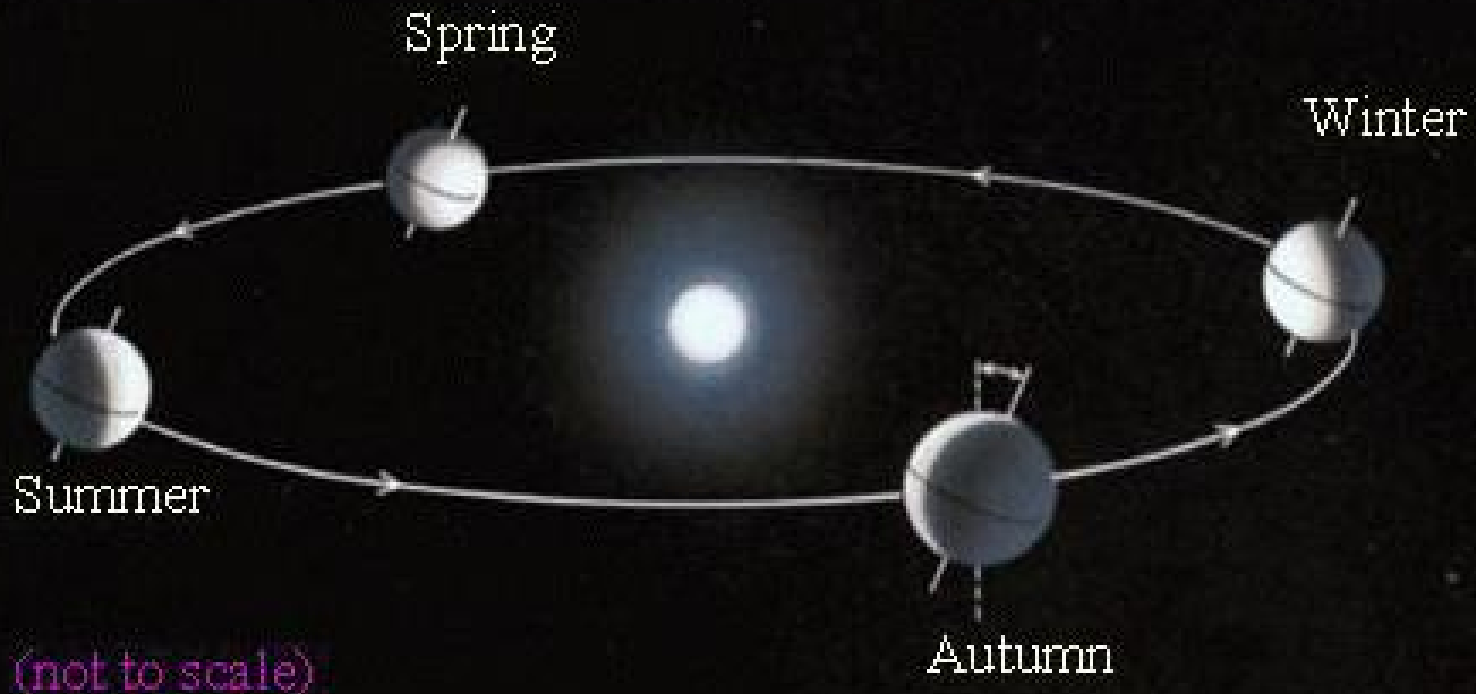
# Line of Latitude

5of11

with the most direct Sun light.



# *The Seasons*



Shown are the seasons for the Northern (our) Hemisphere.  
They are reversed in the Southern Hemisphere.

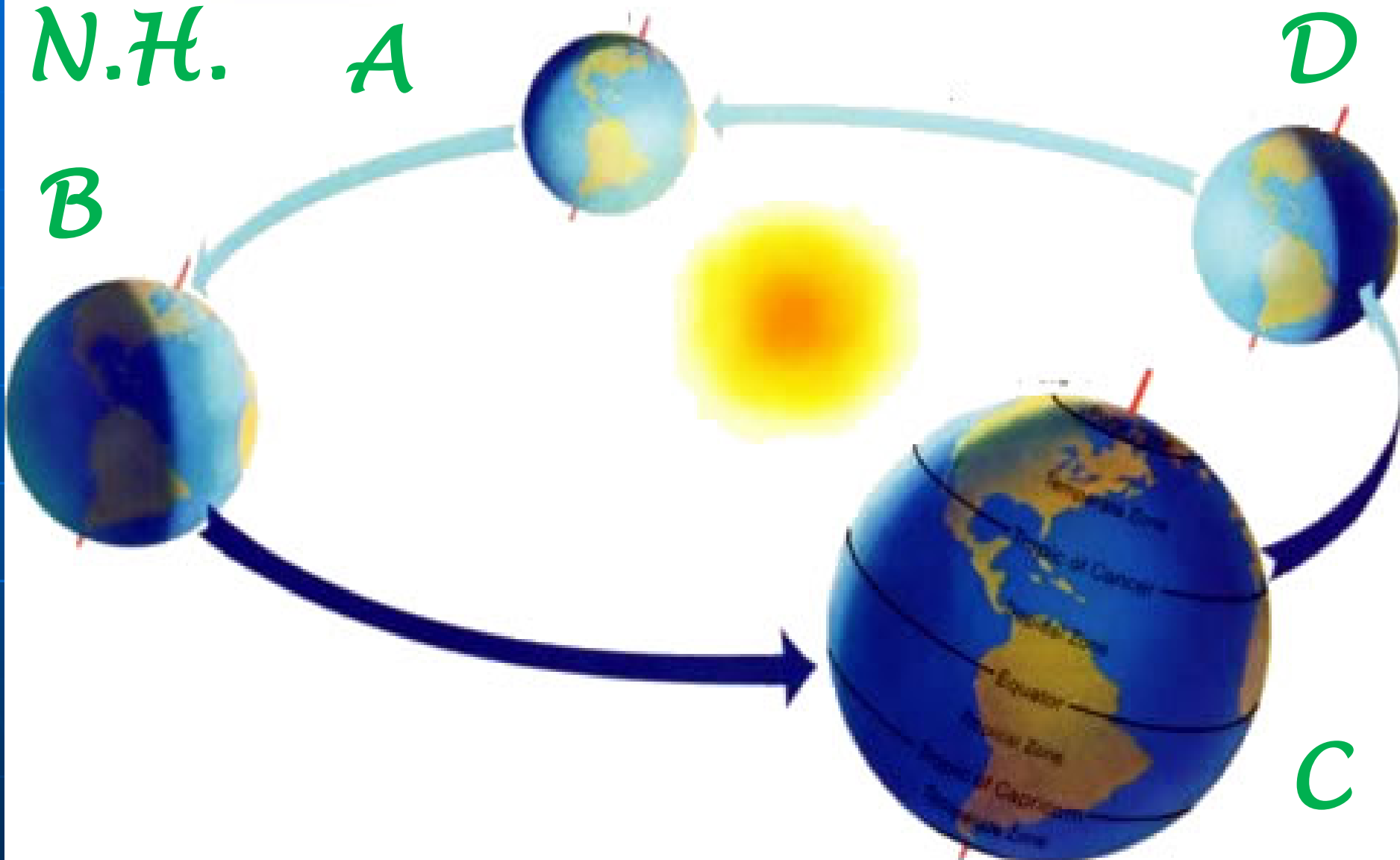
N.H.

A

D

B

C



N.H.

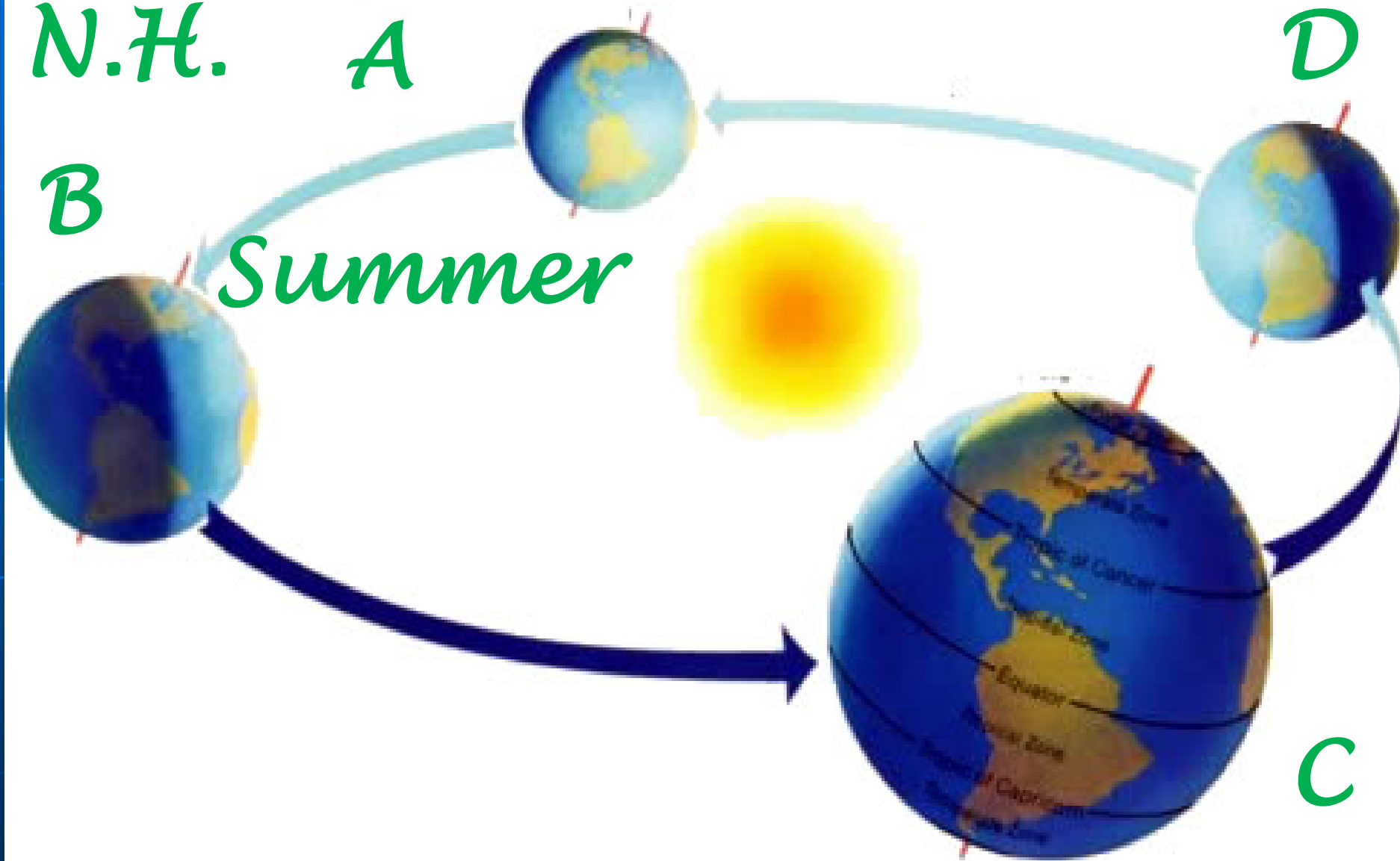
A

D

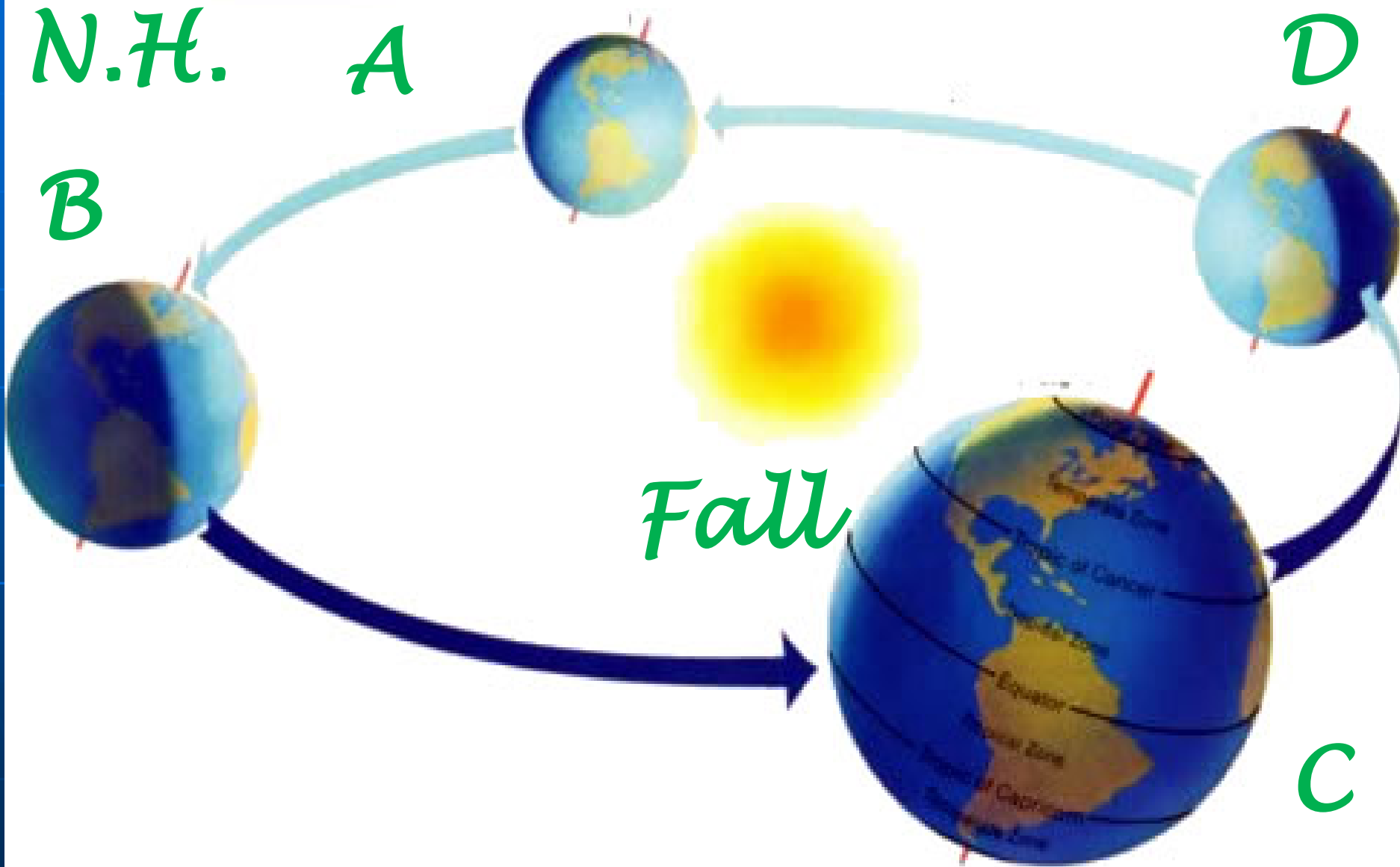
B

Summer

C







N.H.

A

B

D

Fall

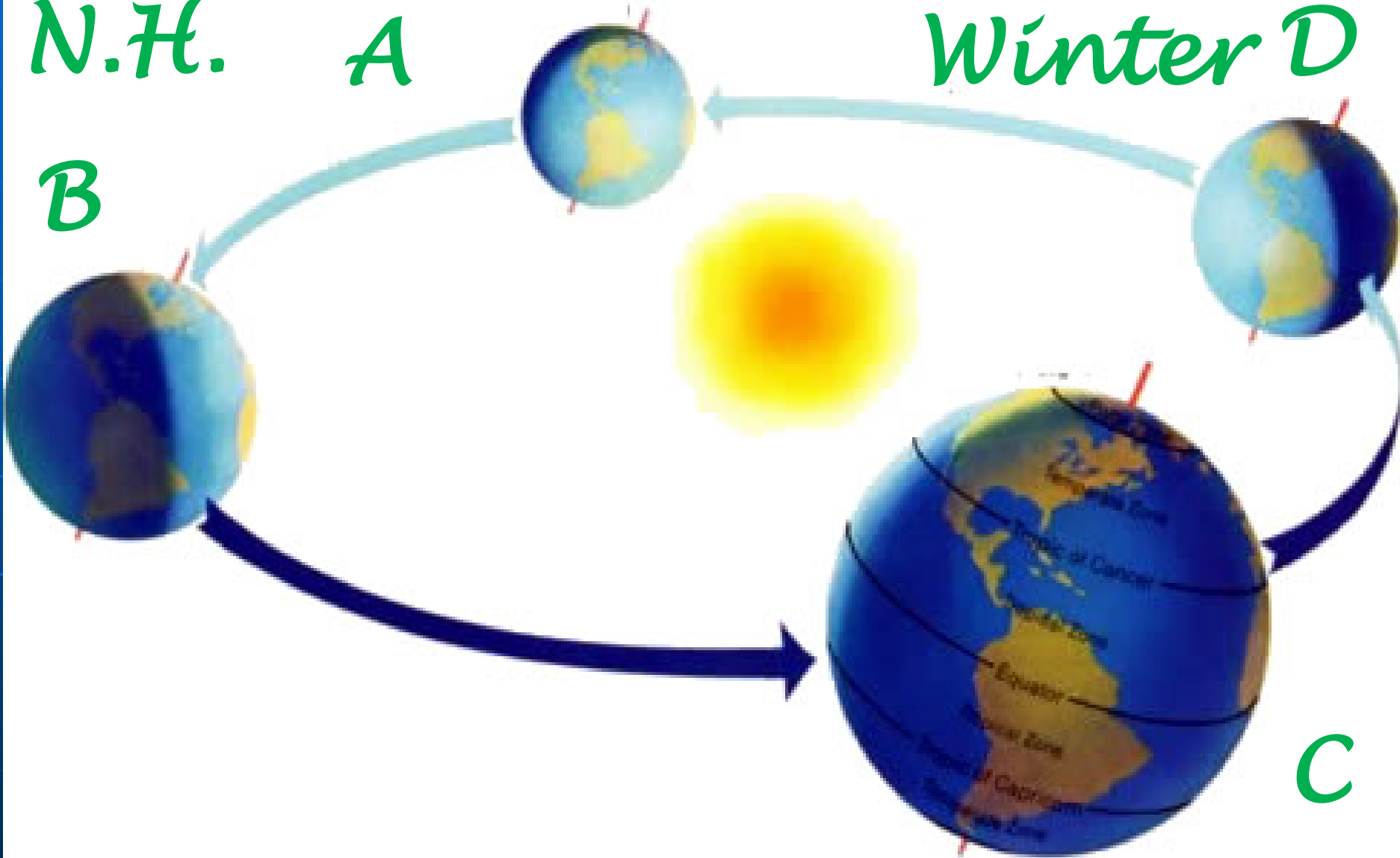
C

N.H.

A

Winter D

B



C

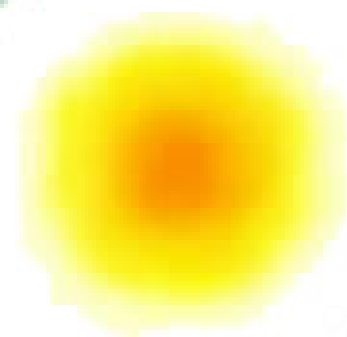
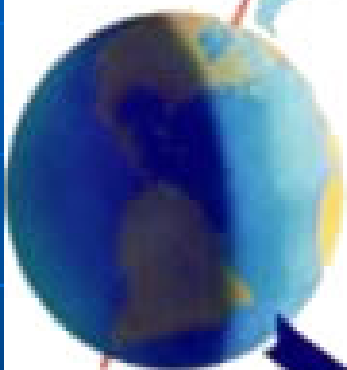
N.H.

A

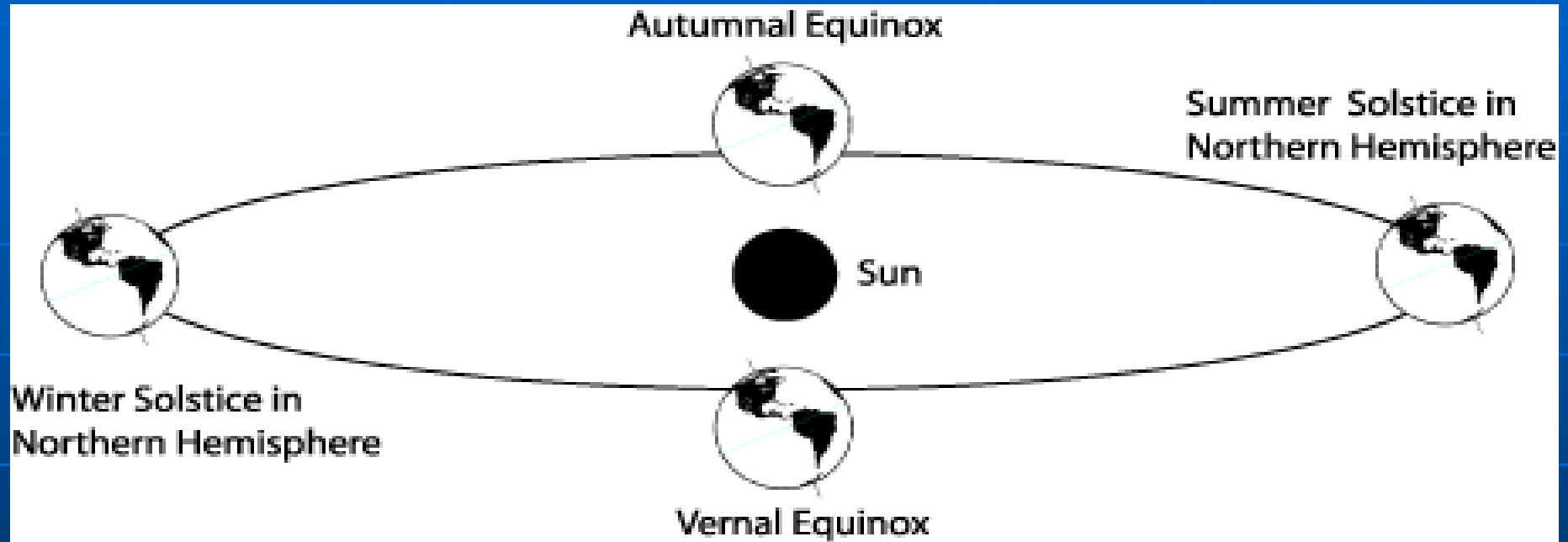
Spring

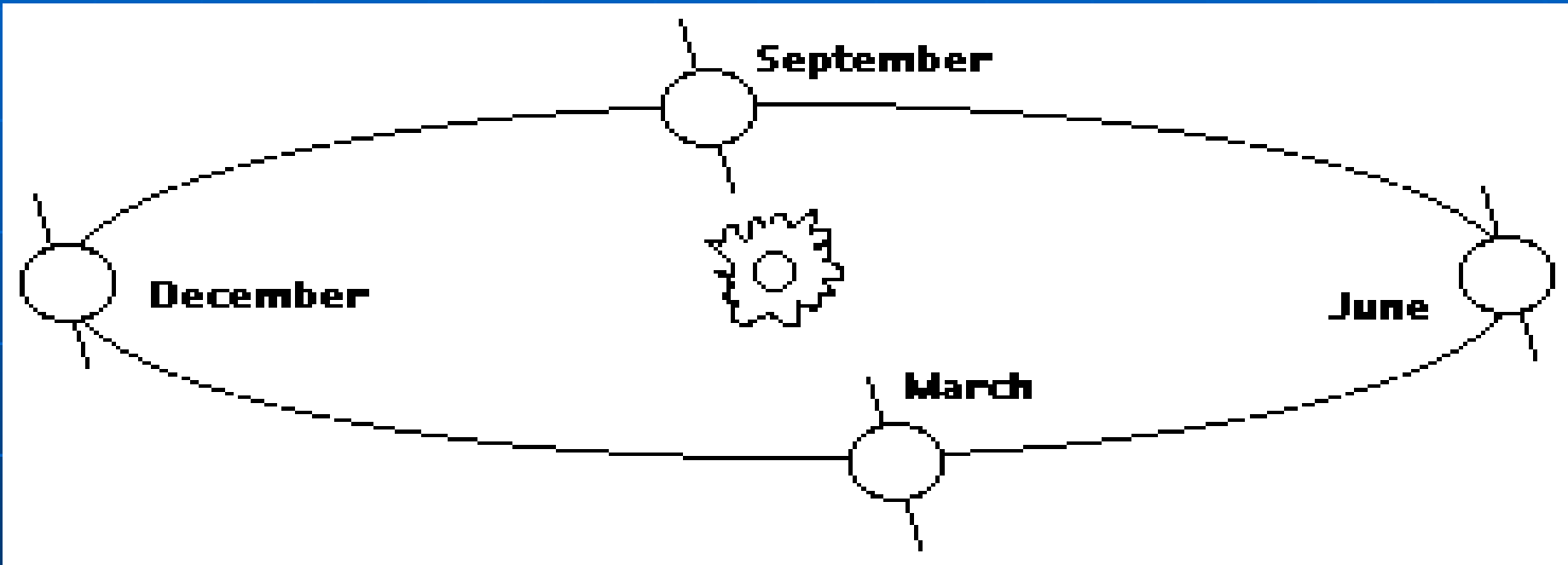
D

B



C



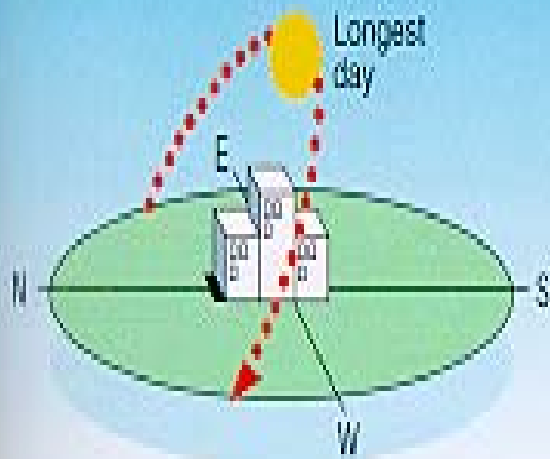


# What changes the angle at which sunlight strikes the earth?

As the sun rises in the east and sets in the west, it follows a path that changes with the seasons.

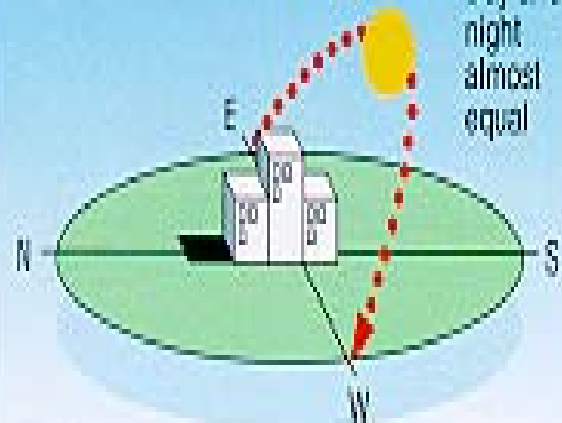
## Summer solstice

June 21



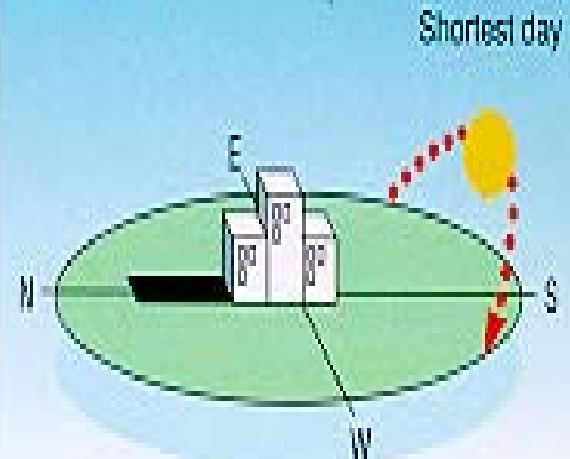
## Spring or Fall equinox

March 21,  
September 21



## Winter solstice

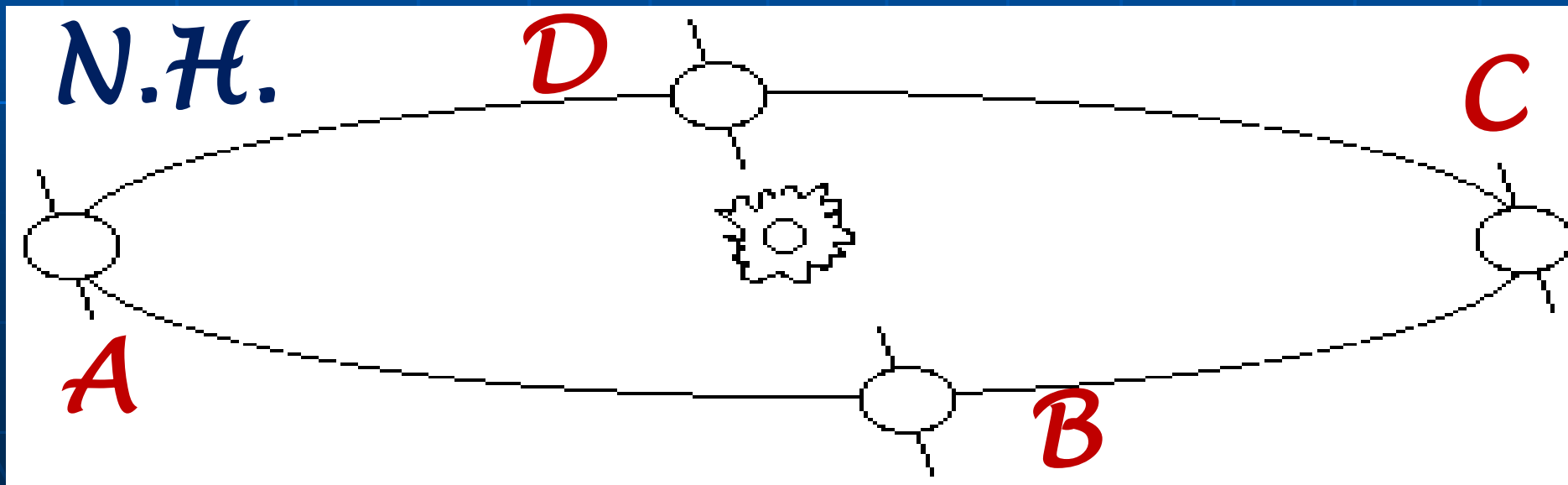
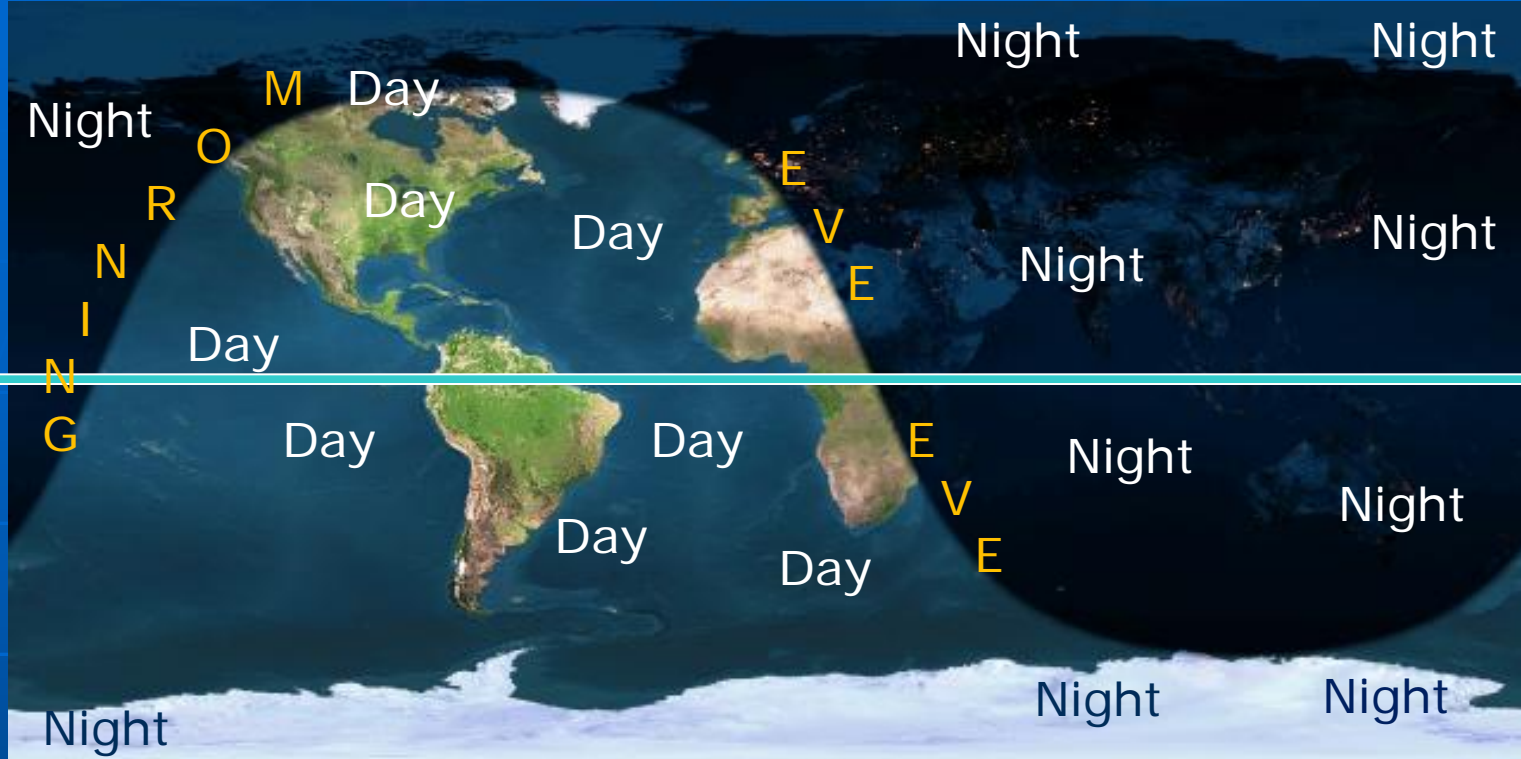
December 21



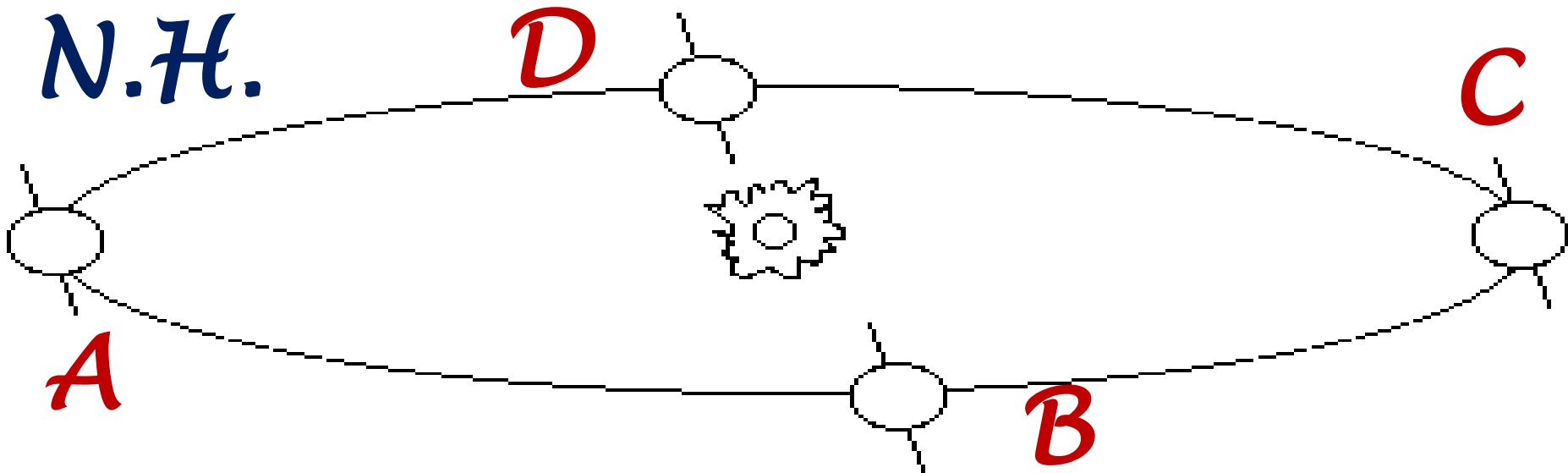
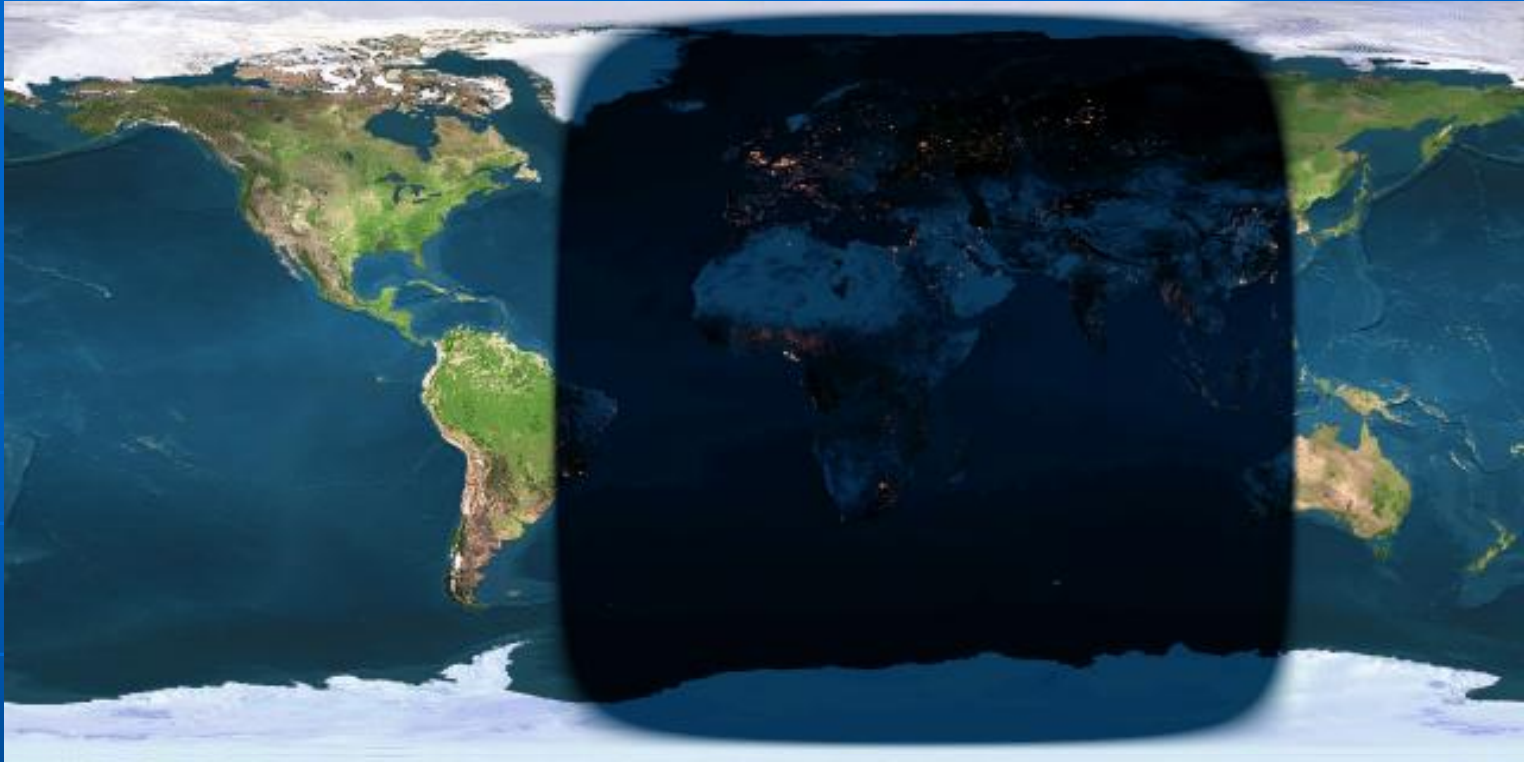
- During winter the sun's highest point in the sky is quite low. During the summer the sun gets much higher and provides more direct, concentrated heating.

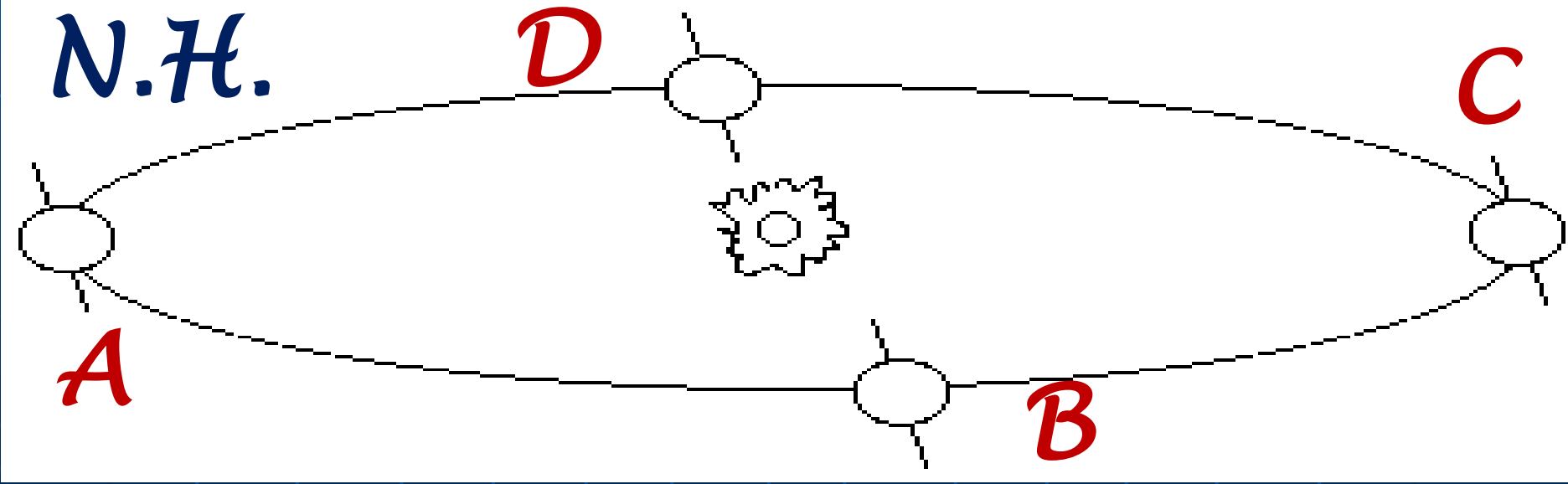
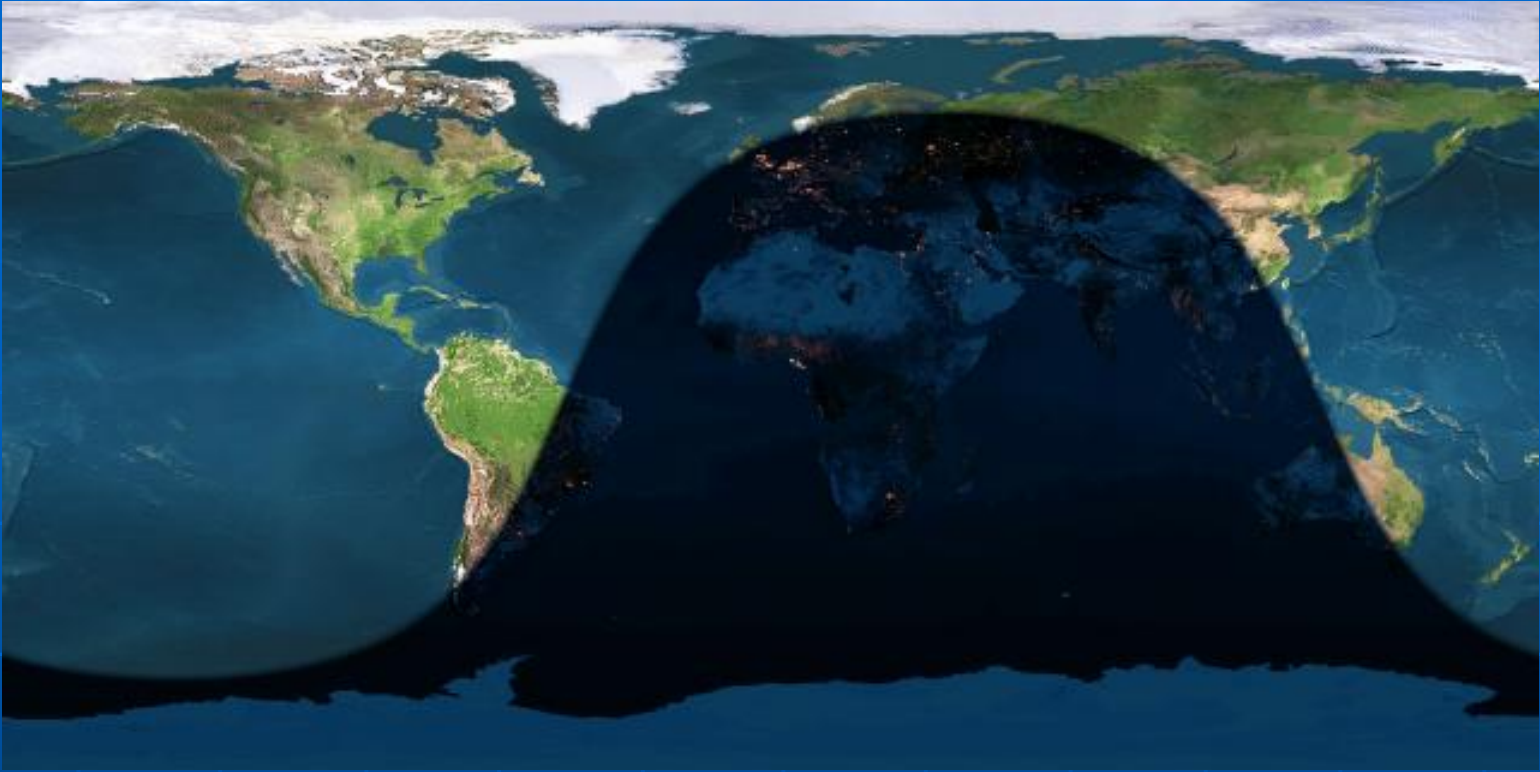
# Web Sites

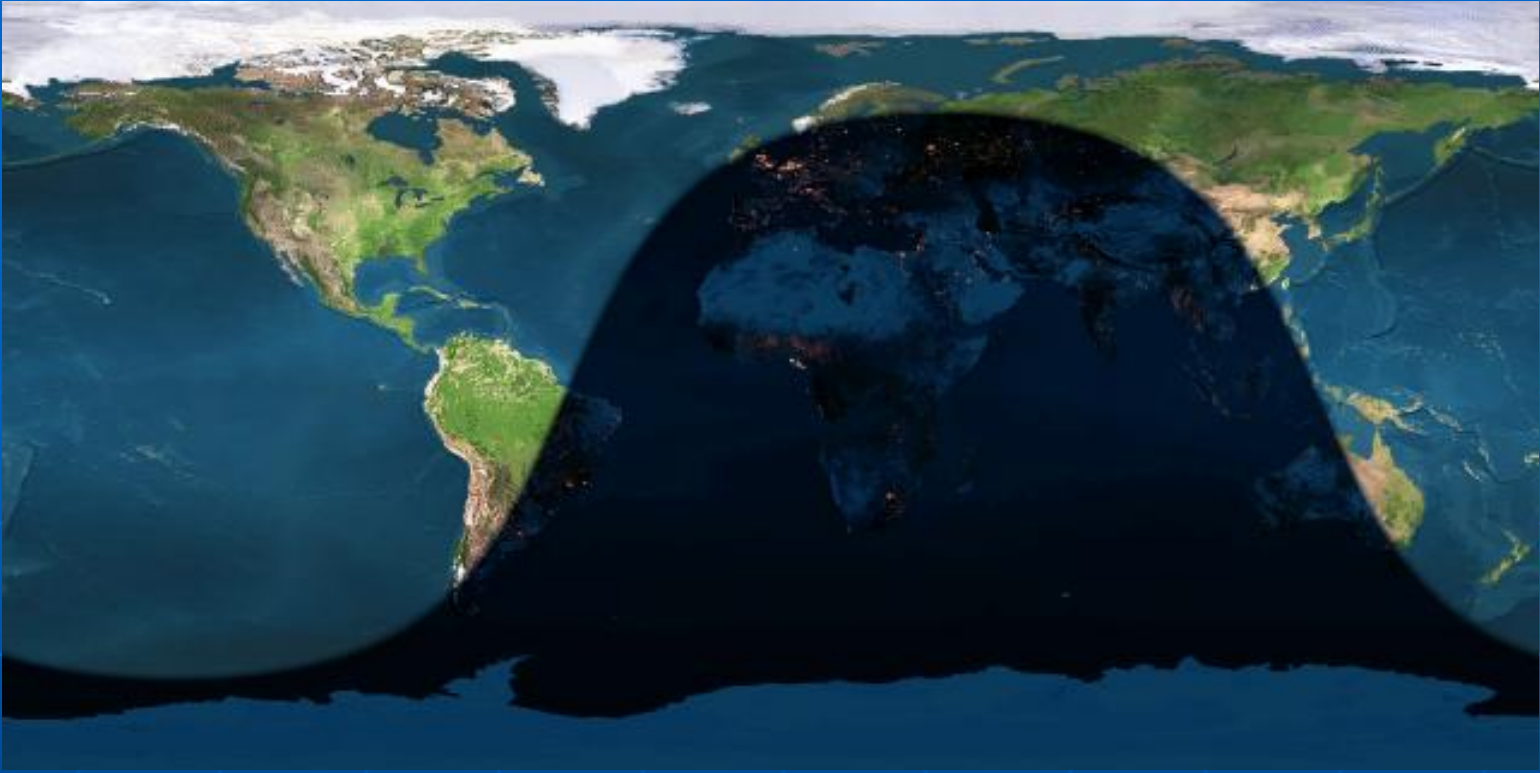
- Rotation--The Eath Spins to show the days  
[http://esminfo.prenhall.com/science/geoanimations/animations/01\\_EarthSun\\_E2.html](http://esminfo.prenhall.com/science/geoanimations/animations/01_EarthSun_E2.html)
- Rotation --Stop/Play The Earth doesn't spin.
- <http://www.astro.uiuc.edu/projects/data/Seasons/seasons.html>
- Quiz
- <http://observe.arc.nasa.gov/nasa/earth/seasons/seasonsquiz.html>



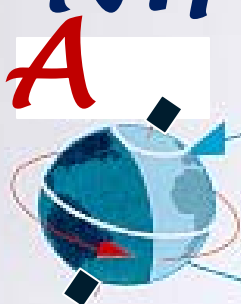








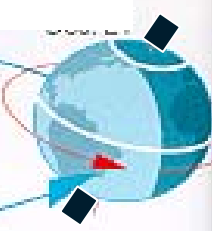
N.H.  
**A**



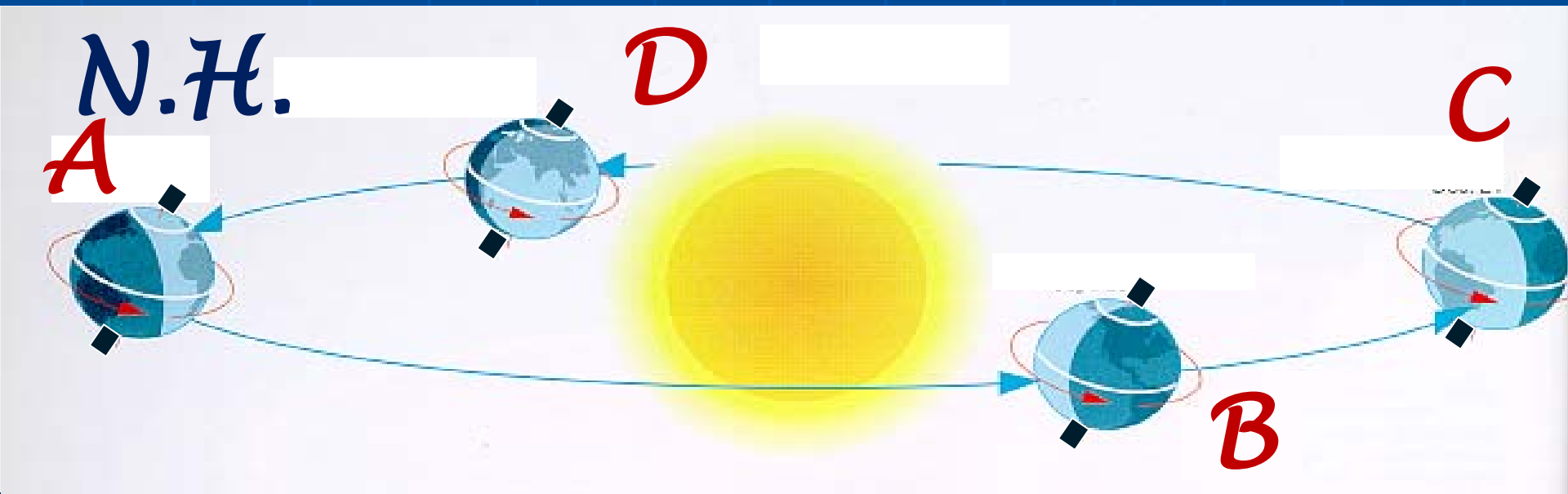
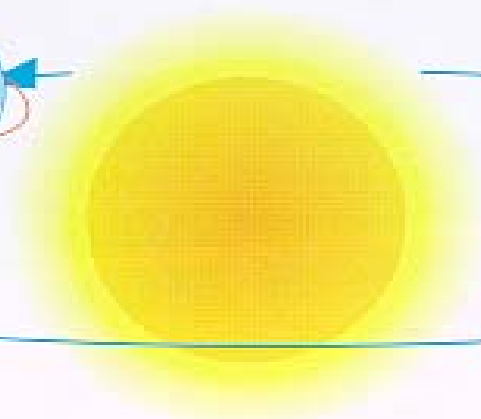
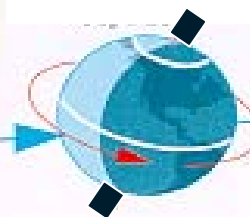
**D**



**C**



**B**





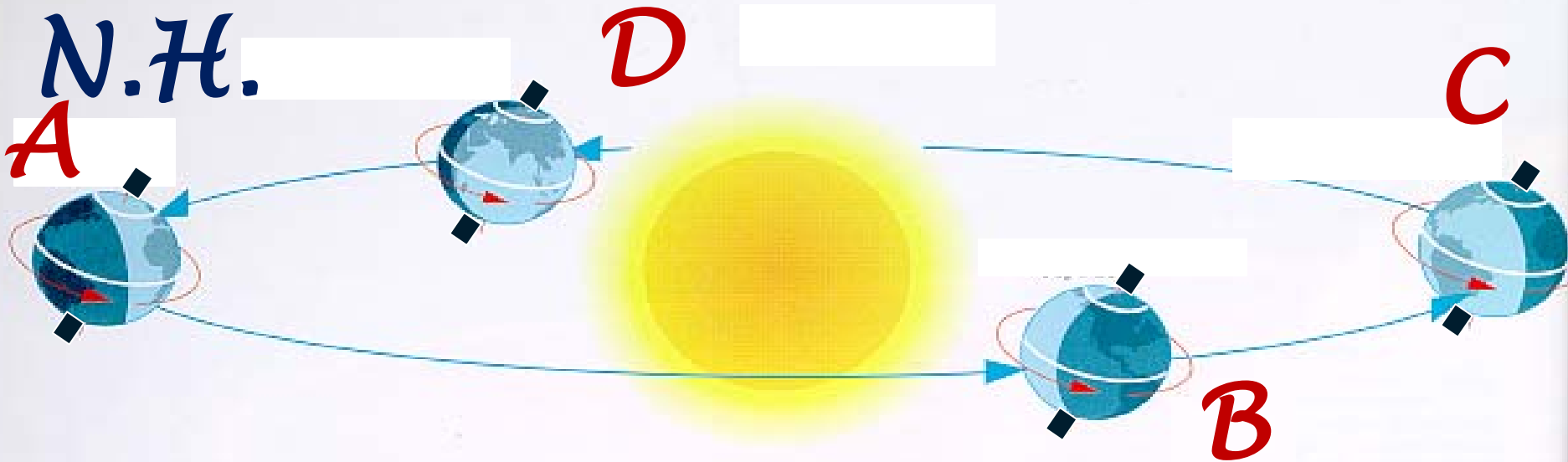
N.H.

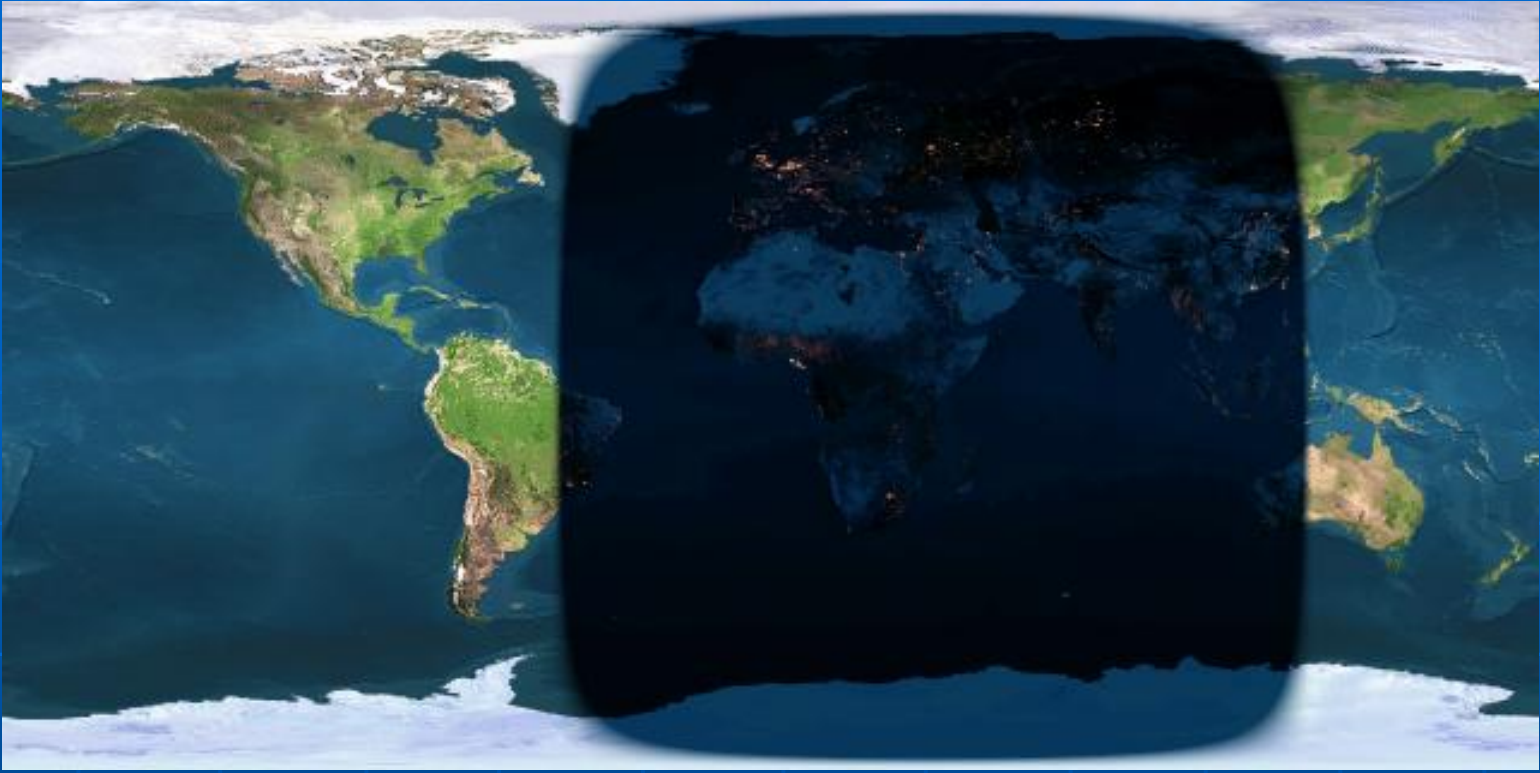
A

D

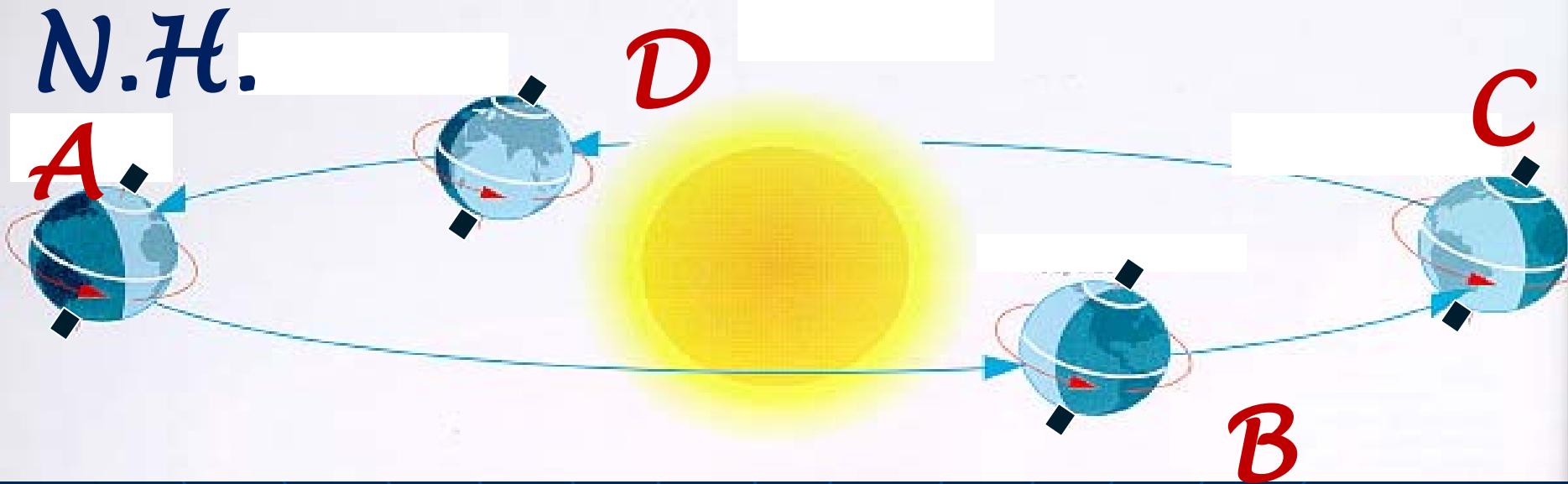
C

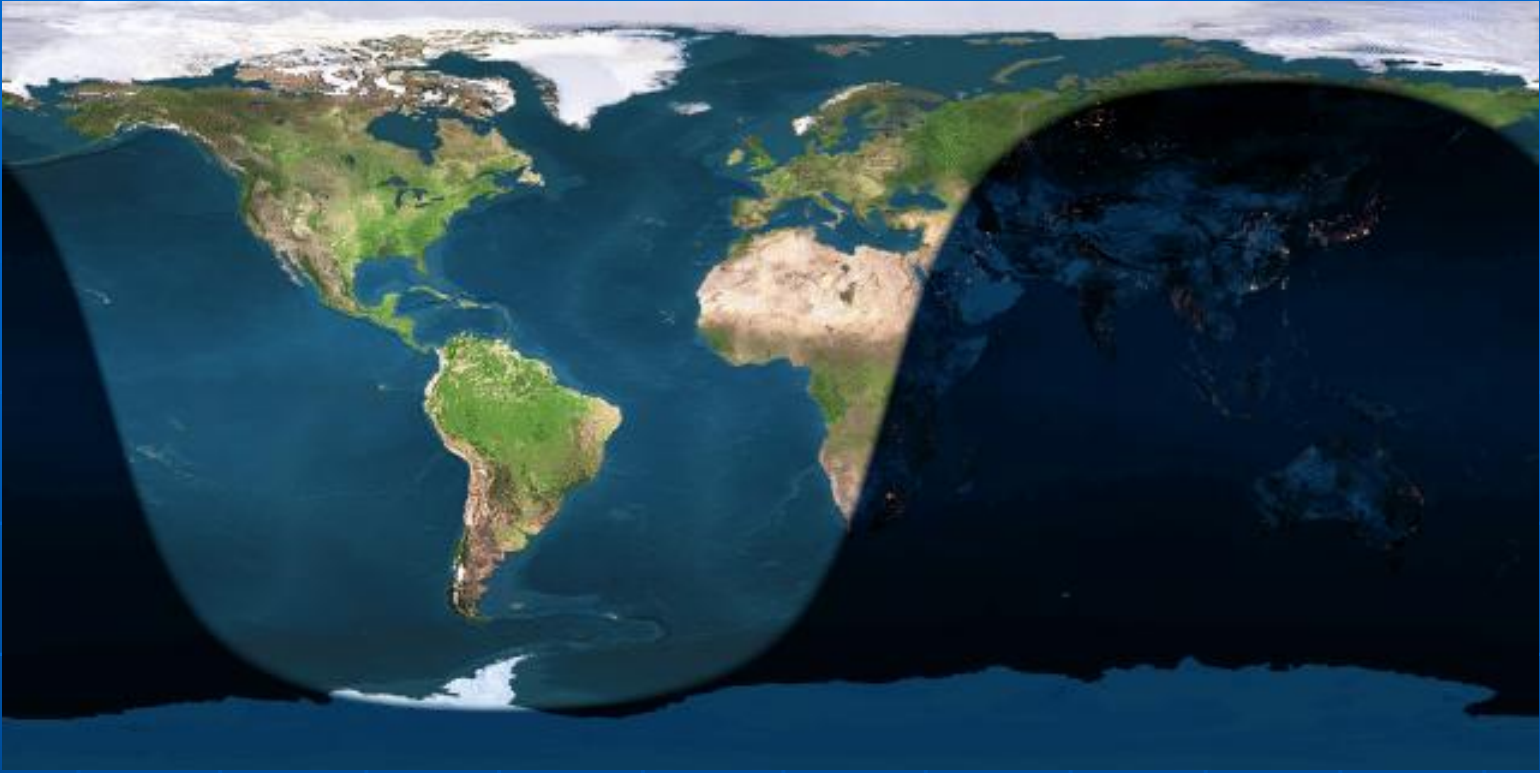
B





N.H.





N.H.  
A

D

C

B

