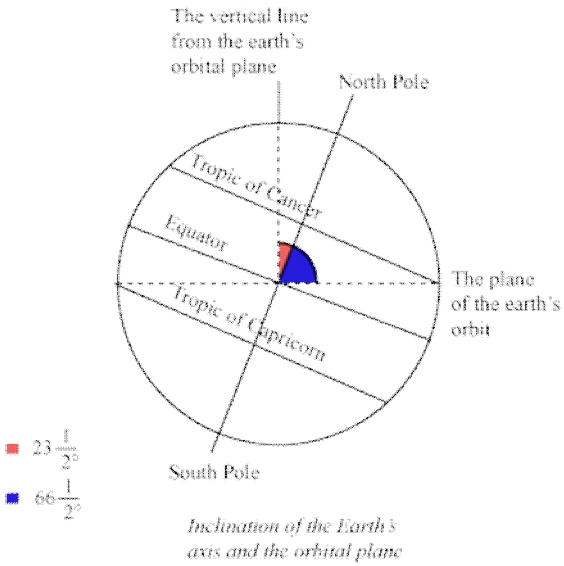
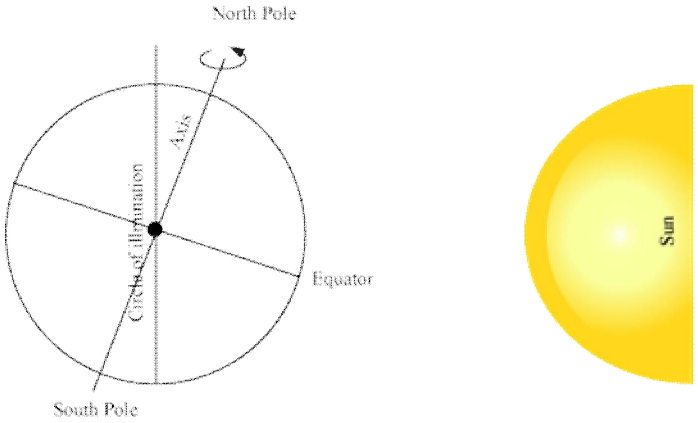
# Chapter 3
# Motions of the Earth

- The path of revolution of the earth and other planets around the sun is called orbit.
- The earth revolves around the sun in an elliptical orbit.
- The plane formed by the orbit is known as an orbital plane.
- Rotation of Earth
  - The movement of the earth on its own axis is called rotation. It is completed in 24 hours.
  - The axis of the earth makes an angle of 661/2° with its orbital plane.



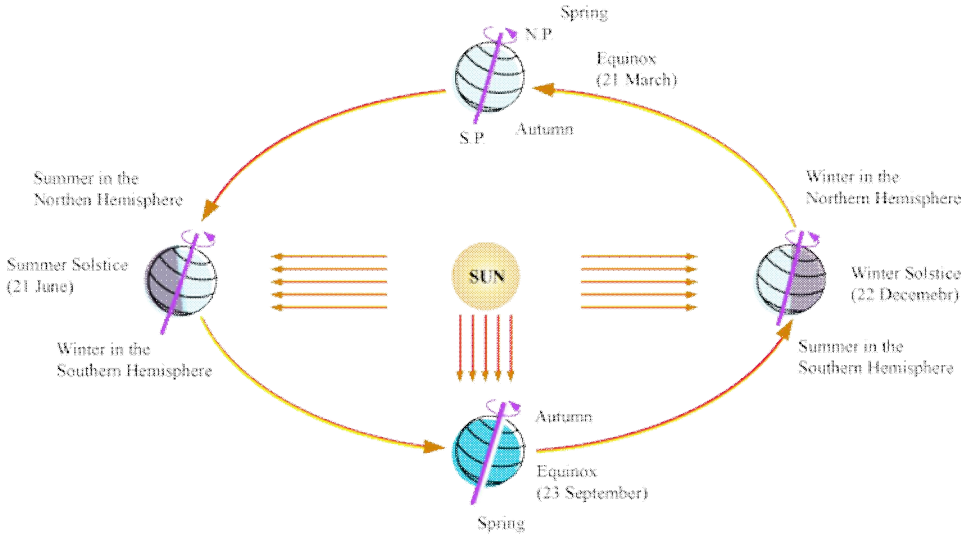
*Inclination of the Earth's axis and the orbital plane*

  - Rotation of the earth causes day and night.
  - The circle that divides the day from night on the globe is called the circle of illumination.



❖ Revolution of earth

- The movement of the earth around the sun on its orbit (path) is called revolution.
- The earth takes one year or 365 days and 6 hours to complete one revolution.
- The extra 6 hours are added up and every fourth year has an extra day in the calendar in the month of February. It is called a leap year.
- The revolution of the earth causes change in seasons.




*Revolution of the Earth and Seasons*

- Summer Solstice
  - Summer solstice occurs on 21st June when the Northern Hemisphere is tilted towards the sun and experiences summer.
  - The Tropic of Cancer receives sun rays directly overhead. It is the longest day of the year in the Northern Hemisphere.
  - The area beyond the Arctic Circle receives continuous sunrays for six months.
- Winter Solstice
  - Winter Solstice occurs on 22nd December when the Southern Hemisphere is tilted towards the sun.
  - The Tropic of Capricorn receives sun rays overhead at this time.
  - The Northern Hemisphere experiences winter and the Southern Hemisphere experiences summer.
  - Days are short in Northern Hemisphere while they are long in Southern Hemisphere.
- Equinox

- It occurs on 21st March and 23rd September when neither of the poles is tilted towards the sun and the equator receives sunrays directly overhead.
- Nights and days are of equal duration across the whole earth.
- On 23rd September, the Northern Hemisphere experiences autumn season and Southern Hemisphere experiences spring season.
- On 21st March, the Northern Hemisphere experiences spring season and Southern Hemisphere experiences autumn season.