1: The wonders of seasonal change exhibited by the nature are varied. Seasons change.
Winter is the season with severe cold and snow fall. Winter is followed by spring season with leaves and fl owers in different hues. Then the autumn season sets in with the trees shedding their leaves. Autumn is f ollowed by summer with dry wind and severe heat. In order to reduce the heat, rainfall occurs, often follow ed by floods. As the clouds recede, the winter returns again. It is not only the season that changes. The le ngth of day and night varies daily. The distance between the earth and the sun varies. The relative positio n of the sun also changes. Poles have continuous days for six months followed by six months night, j Diffe rent longitudes have different time. The i east and west of the same meridian have different jj dates and ti me even. This chapter deals with j the above mentioned facts and help us to j make use of them in our dai ly life.

→ Rotation : The daily motion of the earth on its axis is called rotation.

→ Revolution : The earth revolves around the sun in an elliptical orbit. This motion is known as revolution. The earth takes about one year to complete one revolution.

→ Leap year : A year in which February has 29 days is called leap year. Leap year occurs once in four ye ars.

→ Perihelion : The day on which the sun and the earth is the closest, about 147 million km.

Perihelion and Aphelion

The Greek words ‘peri’ means “near’ and ‘helious’ means “sun’. Perihelion falls on January 3 every year. The Greek word ‘ap’ means ‘away from’. Aphelion falls on July 4 every year.

→ Aphelion : The day on which the sun and the earth is the farthest, about 152 million km.

→ Parallelism of the earth’s axis : The earth maintains the tilt of 23Vi° from the orbital plane throughout its revolution. This is known as parallelism of the earth’s axis.

→ Apparent movement of the sun : The position of the sun in relation to earth varies apparently between Tropic of Cancer (2314°N) and Tropic of Capricorn (23‘/2°S). This is known as the apparent movement of the sun.

→ Equinoxes : On March 21 and September 23, the sun’s apparent position is over the equator. The lengt h of day and night will be equal on these days in both the hemispheres. These days are called equinoxes.

→ Summer Solstice : The sun will be vertically over the Tropic of Cancer on June 21 and this day is know n as the summer solstice in the Northern Hemisphere. It is the longest day and the shortest night in the N orthern Hemisphere.

→ Winter Solstice: The sun will be vertically over j the Tropic of Capricorn on December 22 and this day is known as the winter solstice Northern Hemisphere. It is the longest night and the shortest day in the Nort hern Hemisphere.

→ Spring season : The season of transition from winter to summer.

→ Autumn season : The season of transition from} the severity of summer towards winter.

→ Utharayanam : The northward apparent! movement of the Sun from Tropic of Capricorn
to Tropic of Cancer.

→ Dakshinayanam : The southward apparent movement of the Sun from Tropic of Cancer to Tropic of Capricorn.

→ Local time : The time estimated at each place. based on the apex position of the sun (12 Noon) j is termed as local time.

→ Greenwich meridian : The zero degree longitude is known as Greenwich meridian. The line passes through Greenwich, the place where ? the Royal British Observatory is situated.

→ Standard time : The local time at the longitude that passes through the middle of a country is selected as the common time for the whole country, j This is known as standard time.

→ Prime meridian : Time calculated worldwide is based on the Greenwich line and so it is known as prime meridian.

→ Greenwich Mean Time : The local time at the prime meridian is known as GMT.

→ International Date Line : The imaginary line of 180° longitude.