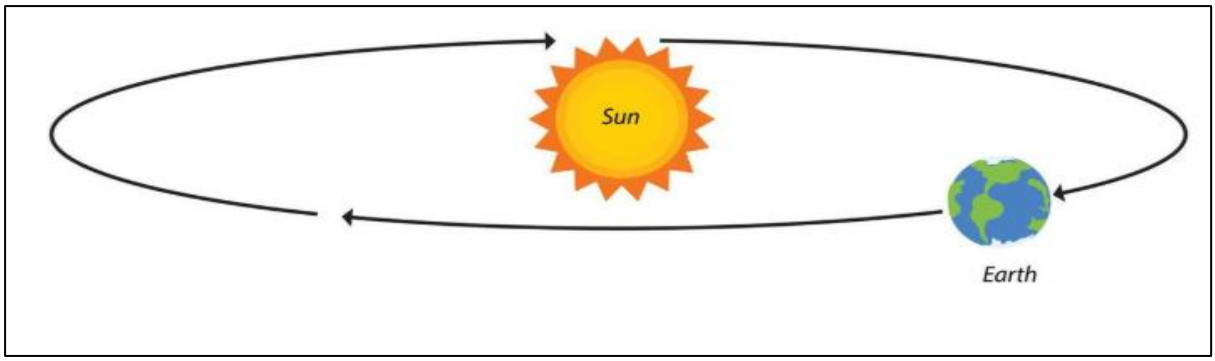
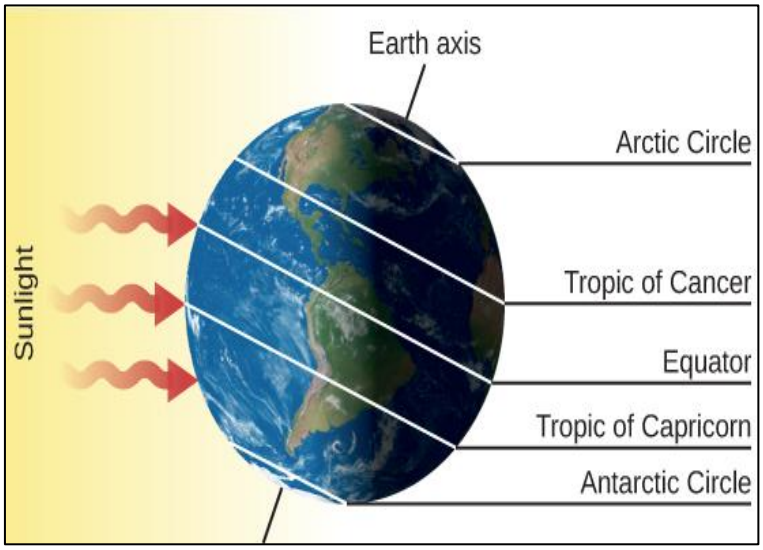
EARTHS REVOLUTION AROUND THE SUN



Revolution refers to the Earth's movement around the Sun along an elliptical (oval-shaped) orbit.

- One revolution = 365¼ days.
- This is why we add an extra day every 4 years—a leap year.
- The orbit is elliptical, not a perfect circle.
- Earth travels at an average speed of about 30 km/s.

Angle of earth's axis

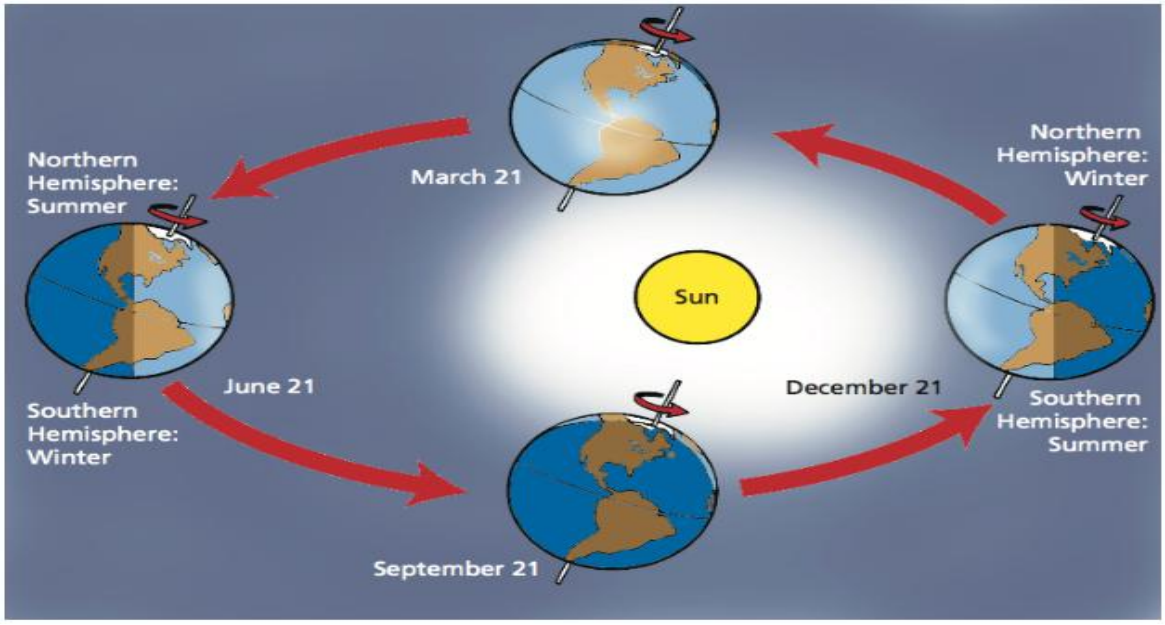


The angle of the Earth's axis is one of the most important facts in understanding seasons and climate.

- The Earth's axis is tilted at 23.5° from vertical.
- This means Earth is not standing straight up as it orbits the Sun.
- Instead, it leans 23.5 degrees relative to the line perpendicular to its orbital plane.
  Because Earth's axis is tilted: Different parts of Earth receive different amounts of sunlight during the year.

This tilt + Earth's revolution = the seasons

Southern hemisphere tilted away from the sun.



Southern hemisphere tilted towards the sun.

Equinox and Solstice

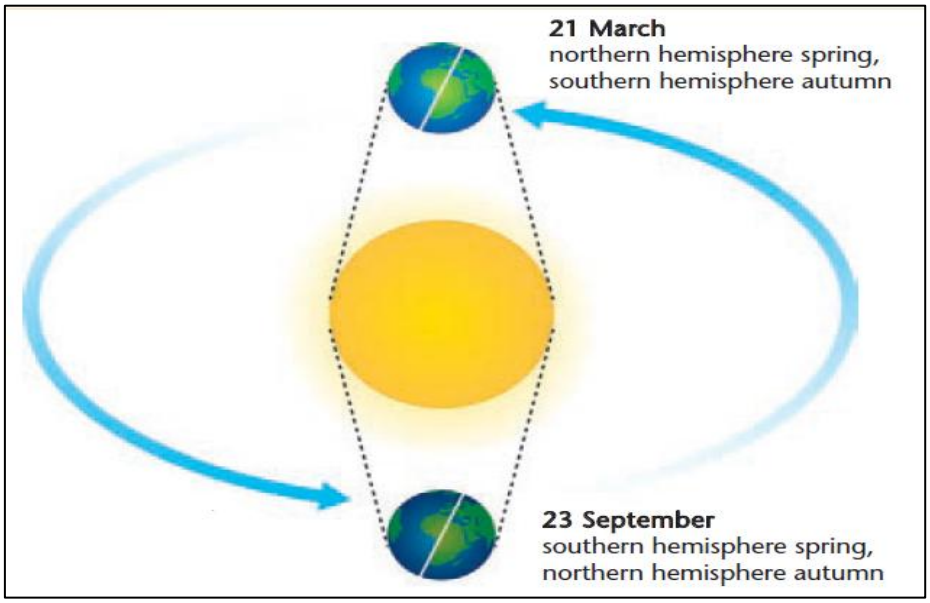
Equinox "Equinox" means equal night."

It is the time of the year when day and night are exactly equal in length everywhere on Earth.

- March 20–21 → March (autumn) Equinox.
- September 22–23 → September (spring) Equinox.

The Sun shines directly on the Equator, so:

- Both hemispheres receive equal sunlight.
- Day = Night (12 hours each)
- The earth does not tilt towards or away from the sun



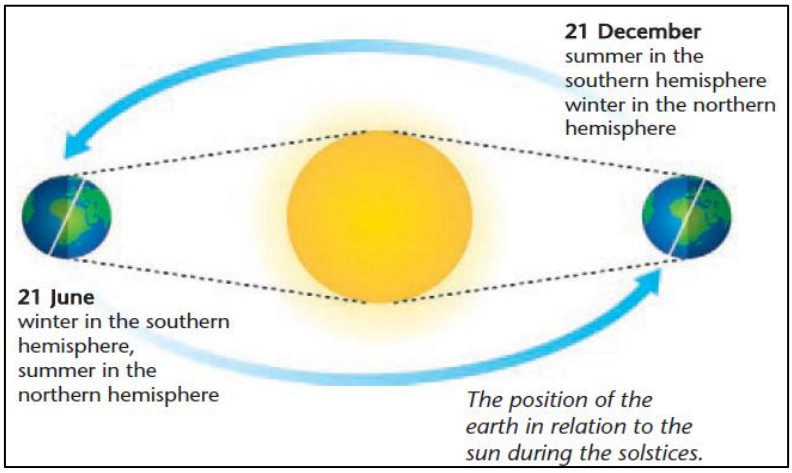
Solstice" means sun stands still."

It is the time when the Sun reaches its highest or lowest point in the sky.

- June 20–21 → June Solstice
- December 21–22 → December Solstice

The Sun shines directly on either Tropic of Cancer or Tropic of Capricorn because of the 23.5° axial tilt.

- **June Solstice Sun overhead at Tropic of Cancer**
- Northern Hemisphere → Summer (longest day)
- Southern Hemisphere → Winter (shortest day)(This includes South Africa)
- **December Solstice Sun overhead at Tropic of Capricorn**
- Southern Hemisphere → Summer (longest day)
- Northern Hemisphere → Winter (shortest day)



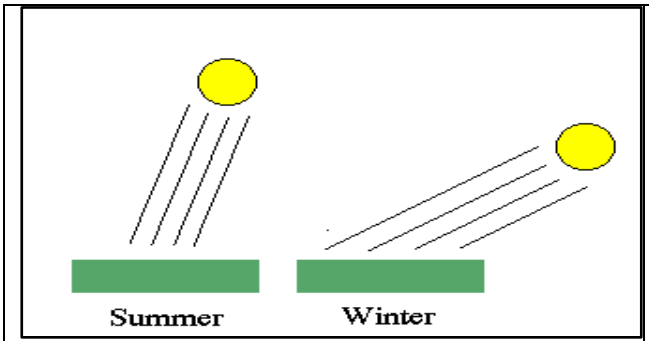
The position of the earth in relation to the sun during the solstices.

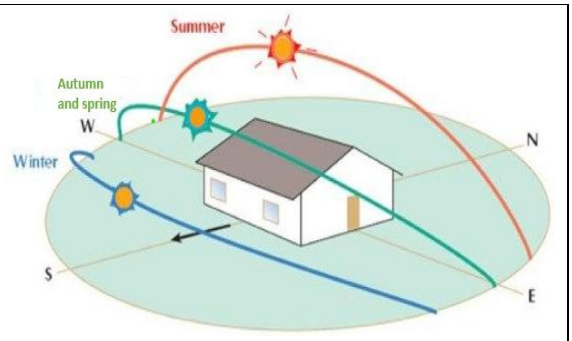
Angle of the midday sun

The angle of the midday sun is the height of the Sun above the horizon at noon.

The temperature is hottest close to midday, even in winter.

The height of the sun in the sky depends on the position of the earth in its revolution around the sun.





Angle of the sun in the southern hemisphere

Activity

GRADE 8

SOCIAL SCIENCES (GEOGRAPHY)

Topic: The Earth's Revolution Around the Sun

Multiple Choice Questions

1. The Earth takes one full revolution around the Sunin:

   a) 24 hours

   b) 30 days

   c) 365 ¼ days

   d) 12 hours

2. The Earth's revolution causes:

   a) Day and night

   b) Seasons

   c) Tides

   d) Earthquakes

3. The term orbit means:

   a) A line showing the equator

   b) The pathway the Earth follows around the Sun

   c) A type of climate

   d) A star pattern

4. When it is summer in the Southern Hemisphere, it is _____ in the Northern Hemisphere:

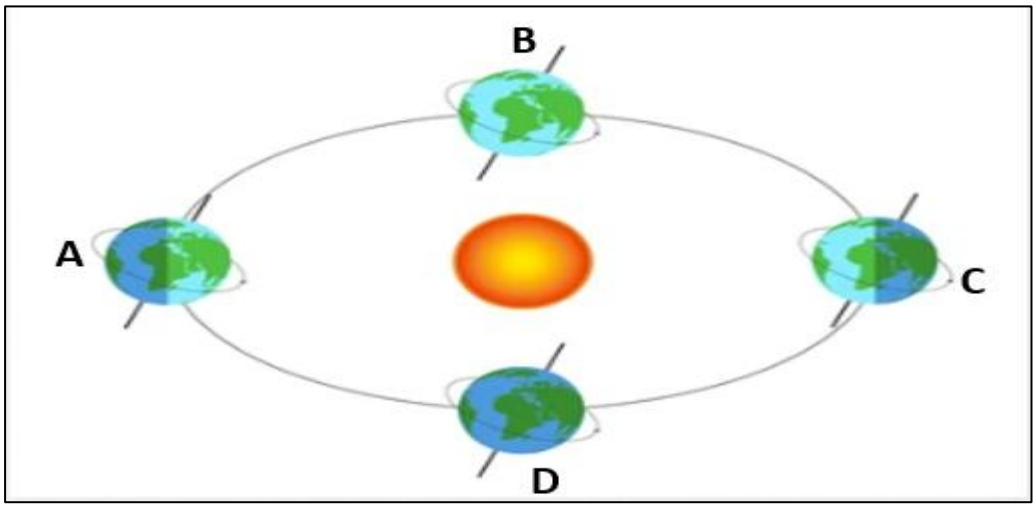
   a) Spring

   b) Autumn

   c) Winter

   d) Summer

1.2 Study the diagram of the Earth's revolution around the Sun, then answer the questions.



1.2.1 Label the four key positions in the Earth's revolution:

Summer Solstice

Autumnal Equinox

Winter Solstice

Spring Equinox

1.2.2. Which position marks the longest day in the Southern Hemisphere?

1.2.3 Which position marks the shortest day in the Southern Hemisphere?

1.2.4 Why do equinoxes have equal day and night hours?

1.3 Answer in full sentences.

1.3.1 Explain what is meant by the Earth's revolution

1.3.2 Describe two reasons why the seasons change during the Earth's revolution.

1.3.3 How does the tilt of the Earth affect the amount of sunlight different areas receive?

1.3.4 Give one example of how seasons affect human activities.

1.4 Paragraph Writing (6 Marks)

Write a short paragraph of 6–8 sentences explaining how the Earth's tilt and revolution cause seasonal differences in the Northern and Southern Hemispheres. Include examples of day length, temperature, and sunlight.