

SUMMARY QUESTIONS:

1. List the **three causes of seasons on Earth**.
 - a) The tilt of the earth at 23.5 degrees
 - b) The earth's tilt is constant (always points towards north star)
 - c) The earth's revolution around the sun

2. How does the tilt of the earth contribute to the occurrence of the seasons?

The earth tilts at an angle of 23.5°. This causes the amount of sunlight an area receives to vary.

3. How does the parallelism of the Earth's axis contribute to the occurrence of the seasons?

The earth's tilt is constant, it does not wobble.

4. How does the revolution of the Earth around the Sun contribute to the occurrence of the seasons?

Depending on where the earth is in its revolution around the sun, sometimes the northern hemisphere is tilted towards the sun and sometimes it is tilted away from the sun.

5. a) What happens in the Northern Hemisphere on June 21?

The summer solstice – the longest *day* of the year.

 - b) Where is the Tropic of Cancer? Why?

23.5° North of the equator because the earth tilts at that angle.
 - c) Where is the Arctic Circle? Why?

66.5° North. (See Demo)
 - d) Where is daylight constant on June 21?

North of the Arctic Circle (66.5°N)
 - e) What happens to the daylight period in the Northern Hemisphere after June 21? Why?

The number of daylight hours decrease because the sun does not get as high in the sky.

ANSWER KEY

6. a) What happens in the Northern Hemisphere on December 22?
The winter solstice – longest night of the year
- b) Where is the Tropic of Capricorn? Why?
23.5° south of the equator because the earth tilts at that angle.
- c) Where on Earth is daylight constant on December 22?
South of the 66.5°S
- d) What happens to the daylight period in the Northern Hemisphere after December 22? Why?
The number of nighttime hour decreases because the sun gets higher in the sky.
7. a) Why are daylight and nighttime of equal length on an **equinox**?
Neither hemisphere is tilted towards the sun. All areas receive the same number of daylight hours.
- b) Give the names and dates of the equinoxes.
Vernal Equinox – March 21
Autumnal Equinox – September 21
- c) Where is the sun straight overhead at an equinox?
At the equator
- d) Describe what happens at the North Pole and the South Pole at each equinox.
12 hours of darkness, 12 hours of daylight
8. What evidence is there that distance from the sun is not a cause of seasons?
The sun is not in the exact center of the earth's orbit. The earth is closer to the sun in the winter than in the summer.
9. How does the path of the sun across the sky differ on the first day of summer from the first day of winter?
On the first day of summer, the sun gets very high in the sky. On the first day of winter the sun does not rise very high in the sky.