

Name _____

Date _____

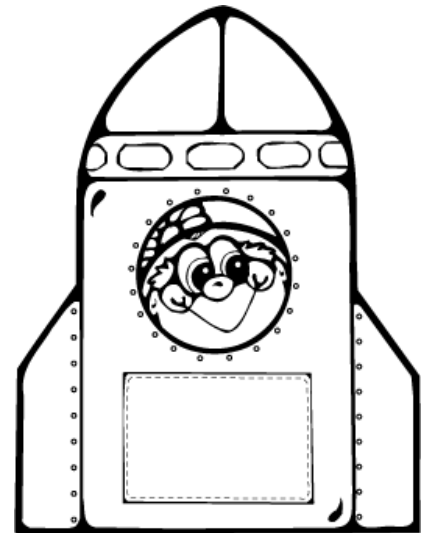
Cycles and Patterns Related to the Earth, Sun and Moon

The spinning of Earth on its axis causes **Day and Night**. The sun and the gravity pull from the sun causes the earth to spin at a pole though so as the earth spins around the sun it also spins on its axis to cause day and night.

The earth rotates on its axis as it moves (orbits) around the sun. The side facing the sun is lit up by the sun (day). The side facing away from the sun is not being lit up by the sun (night).

The cycle is caused by the rotation of the Earth on its axis.

Our Earth is like a ball floating in space and orbiting the Sun. The sun gives off allot of light and the side (hemisphere) of the Earth facing the star is illuminated by it. This hemisphere is said to be in day light. The other hemisphere (facing away from the Sun) is in shadow and this hemisphere is said to be in darkness.



However, the ball that is the Earth is rotating on its own axis and this means that if you are standing on the day-lit side of the Earth, you are carried round to the dark side and then back into the day lit side. **This rotation therefore causes the cycle of day and night.**

In broad terms, the entire day-night cycle is referred to as a **day**. One day contains a daytime segment and a night time segment almost everywhere.

However, because the axis of rotation of the Earth is tipped over some 23.5 degrees relative to the plane in which it goes round the Sun, the Arctic and Antarctic regions are illuminated for 6 months at a time and are then in darkness for 6 months. Here a day lasts 1/2 a year.

The actual reason for **seasons** has to do with the tilted angle of the Earth's axis. No matter how close or far the Earth is to the Sun, it always maintains the same angle on its axis; in other words, it's always tilted the same way. This means that for part of the path around the Sun, the Southern Hemisphere is tilted toward the Sun, and for part of the path, it is tilted away from the Sun. When it is tilted toward the Sun, the Southern Hemisphere receives a greater amount of sunlight; this occurs in the Antarctic summer. When it is tilted away from the Sun, the Southern Hemisphere receives less sunlight; this occurs in the Antarctic winter.

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Cycles and Patterns Multiple Choice Questions

- 1. What causes day and night?**
 - a) Earth spinning around sun
 - b) Earth spinning on its own axis
 - c) Sun orbiting earth
 - d) None of the above

- 2. The part of the earth facing the sun at any given moment is considered**
 - a) Day
 - b) Night

- 3. We have different seasons because**
 - a) Different distances of earth from sun
 - b) Different spinning speeds of earth
 - c) Tilted angle of the Earth's axis
 - d) None of the above

- 4. The axis of rotation of the Earth is tipped over some _____ degrees relative to the plane in which it goes round the Sun.**
 - a) 21.5
 - b) 22.5
 - c) 23.5
 - d) 24.5

- 5. How many days are there in one year?**
 - a) 233
 - b) 313
 - c) 340
 - d) 365

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Cycles and Patterns

Answers

1. **b**
2. **a**
3. **c**
4. **c**
5. **d**

Explanation of Answers

1. The spinning of Earth on its axis causes **Day and Night**. The sun and the gravity pull from the sun causes the earth to spin at a pole though so as the earth spins around the sun it also spins on its axis to cause day and night.
2. The sun gives off a lot of light and the side (hemisphere) of the Earth facing the star is illuminated by it i.e. day.
3. The actual reason for **seasons** has to do with the tilted angle of the Earth's axis.
4. The axis of rotation of the Earth is tipped over some 23.5 degrees relative to the plane in which it goes round the Sun.
5. 365 days.

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Cycles and Patterns Writing Activity

- 1. Briefly explain the phenomenon on day and night i.e. what causes day and night?**

- 2. What is the concept behind the four seasons we have in a year? What causes four seasons?**

- 3. Name the four seasons.**

- 4. The length of daylight and darkness varies with season. Why is it so?**
