Revolution of the Earth

A. Fill in the Blanks

Complete each sentence with the correct term.

1. The Earth's axis is tilted at an angle of approximately _____ degrees.
2. The two days of the year when the sun is directly overhead at the equator are called _____.
3. A _____ is added to the calendar every four years to keep it synchronized with the Earth's revolution.
4. The primary reason for the seasons is the Earth's _____ combined with its revolution.
5. During the June solstice, the _____ Hemisphere experiences its longest day of the year.

B. Match the Following;

Match the term in Column A with its correct description in Column B.

Column A	Column B
1. Solstice	A. The path an object takes around another object in space.
2. Equinox	B. The movement of Earth around the Sun, taking about one year.
3. Orbit	C. A day when the Earth's axis is tilted most toward or away from the Sun.
4. Revolution	D. A year with 366 days, occurring every four years
5. Leap Year	E. A day when the length of day and night is nearly equal everywhere.

C. Practice Problems

Answer the following questions in more detail. Use complete sentences where necessary.

1. What is the difference between Earth's rotation and revolution?
2. Explain why we have a "leap year" every four years.
3. What is the shape of the Earth's orbit? Is the Earth always the same distance from the Sun?
4. What is the degree of the Earth's axial tilt?
5. If it is winter in the Northern Hemisphere, what season is it in the Southern Hemisphere? Explain why.

6. What is a solstice? Name the two solstices.
7. What is an equinox? Name the two equinoxes.
8. During which season does a hemisphere receive the most direct sunlight? Why?
9. What would happen to the length of a year if the Earth's orbit were much larger?
10. Does the speed of the Earth's revolution stay constant throughout its orbit? Why or why not?

D. Warm-up Questions

Answer the following basic questions to test your foundational knowledge.

1. What is the scientific term for the Earth's journey around the Sun?
2. What is the main phenomenon on Earth caused by its revolution and axial tilt?
3. Approximately how long does it take for the Earth to complete one full revolution?
4. What is the name of the path that the Earth follows around the Sun?
5. The Earth revolves around which celestial body?

E. Challenge Questions

These questions require critical thinking. Provide detailed explanations for your answers.

1. Imagine the Earth's axis was not tilted (a tilt of 0 degrees). How would this affect the seasons on Earth?
2. A common misconception is that seasons are caused by the Earth being closer to or farther from the Sun. Explain why this is incorrect, using evidence related to the seasons in the Northern and Southern Hemispheres.
3. Describe what the "day" and "night" cycle would be like for someone living at the North Pole around the time of the June solstice.
4. If the Earth's revolution took 500 days but its axial tilt remained 23.5 degrees, how would our seasons be different?
5. What is the significance of the Tropic of Cancer and the Tropic of Capricorn in relation to the Sun's position during the solstices?

F. Word Problems & Application

Apply your knowledge to solve these real-world scenarios

1. Maria lives in Argentina. She video calls her cousin, David, who lives in New York, USA, in July. Maria is wearing a heavy sweater, while David is in a t-shirt. Explain this difference in clothing based on Earth's revolution.

2. An astronomer announces that on March 20th, the length of daylight and nighttime will be almost exactly equal across the globe. What is the scientific name for this day?
3. A child was born on February 29, 2016. In the year 2030, how many times will they have been able to celebrate their birthday on their actual birth date? Explain.
4. A farmer in the Northern Hemisphere knows that her crops get much more sunlight per day in June than in December. What two factors related to revolution and tilt cause this?
5. You are planning a trip to see the "midnight sun" in northern Norway, where the sun doesn't set. Which month would be the best time to go: January or June? Why?

G. True or False

1. Earth's revolution is the cause of day and night. _____
2. The Earth's orbit around the Sun is a perfect circle. _____
3. On a solstice, the length of day and night is equal everywhere on Earth. _____
4. The seasons are the same in the Northern and Southern Hemispheres at the same time. _____
5. A revolution of the Earth takes exactly 365 days. _____