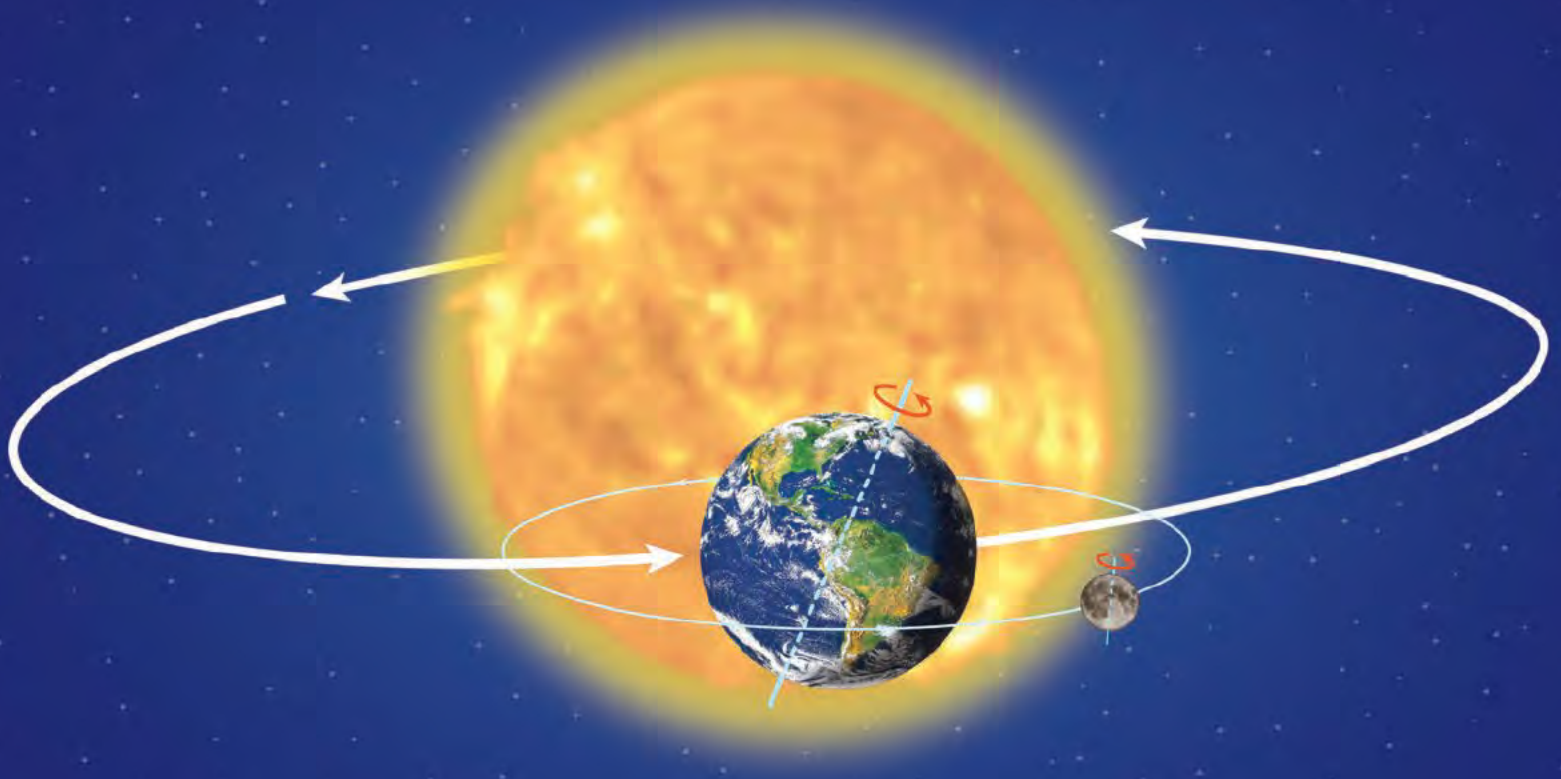


The Sun-Earth-Moon System Learning Guide



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TABLE OF CONTENTS

Lesson 1 - How the Earth Moves	2
Lesson 2 - Seasons on Earth.....	4
Pause & Review - Seasons on Earth	7
Lesson 3 - Gravity & Motion	8
Lesson 4 - Earth's Moon.....	10
Pause & Review - Earth's Moon	12
Lesson 5 - Phases, Eclipses & Tides	13
Pause & Review - Phases, Eclipses & Tides.....	18
Lesson 7 - Missions to the Moon.....	19
Lab Investigation - Moon Phases, Eclipses & Tides.....	20
Key Vocabulary Terms.....	24
Vocabulary Review	26
Assessment Review	28
Assessment.....	31
Assessment Key.....	33
NGSS Correlations	34



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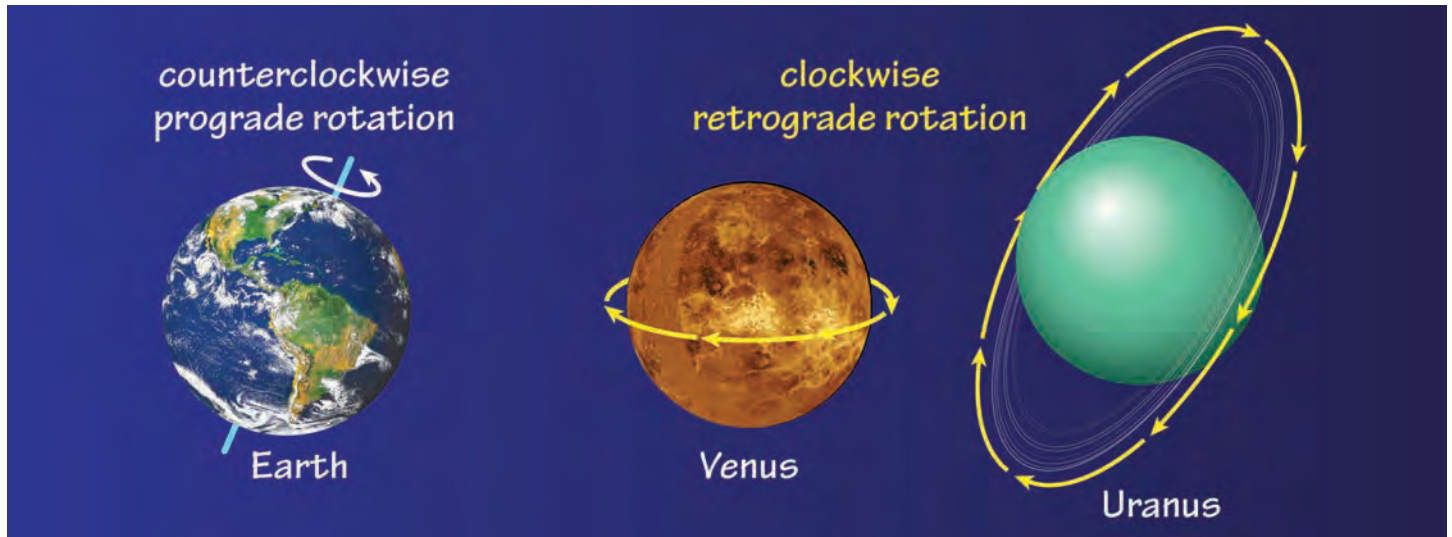
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HOW THE EARTH MOVES

Earth's Rotation

The spinning of the **Earth** on its axis is known as **rotation**. As viewed from space, the **Earth** rotates in a **counterclockwise** direction called **prograde rotation**. **Venus** and **Uranus** spin in a **clockwise** direction called **retrograde rotation**.



As the Earth **rotates** east, the Sun appears to move toward the west. We experience a period of **daylight** when the Earth is **facing the Sun** and a period of **darkness** when the Earth is **facing away** from the Sun.

The Earth **rotates** at **1,670 kilometers per hour**. The amount of time it takes for the Earth to rotate once is known as its **period of rotation**, or what we call a **day**. Earth's **period of rotation** is **24 hours**.



Earth's Revolution

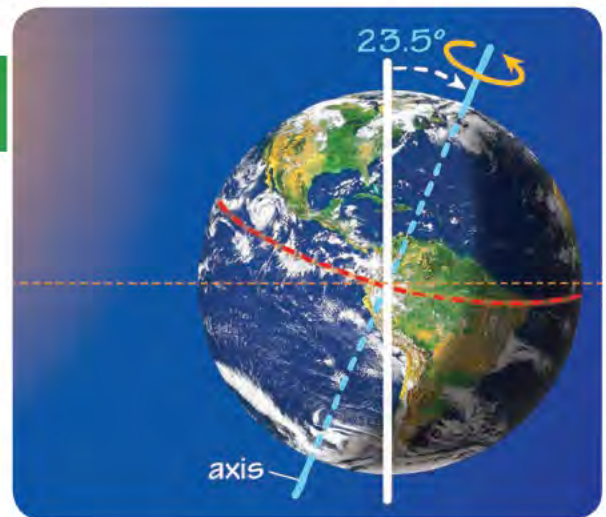
As the Earth spins on its **axis**, it also revolves around the Sun. It moves on an **elliptical orbit** path at a speed of **107,000 kilometers per hour**. The amount of time it takes for the Earth to revolve one time around the **Sun** is its **period of revolution**, or what we call a **year**. Earth's period of revolution is **365.25 days**.



SEASONS ON EARTH

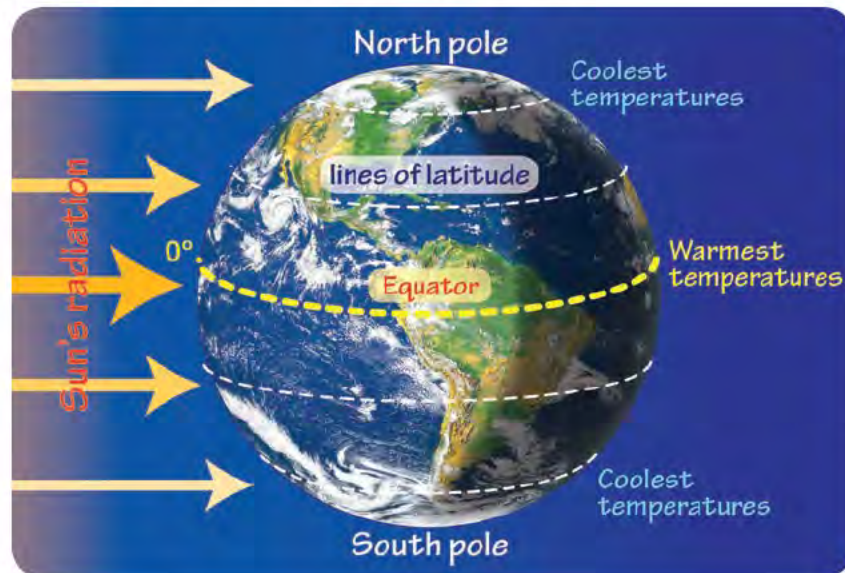
Earth's Tilt Causes Seasons

As the Earth **revolves** around the Sun, the planet tilts **23.5 degrees** on its **axis of rotation**. The degree to which various points on the globe are pointing toward or away from the **Sun** determines the **seasons**. The Northern and Southern hemispheres experience opposite seasons throughout the year.



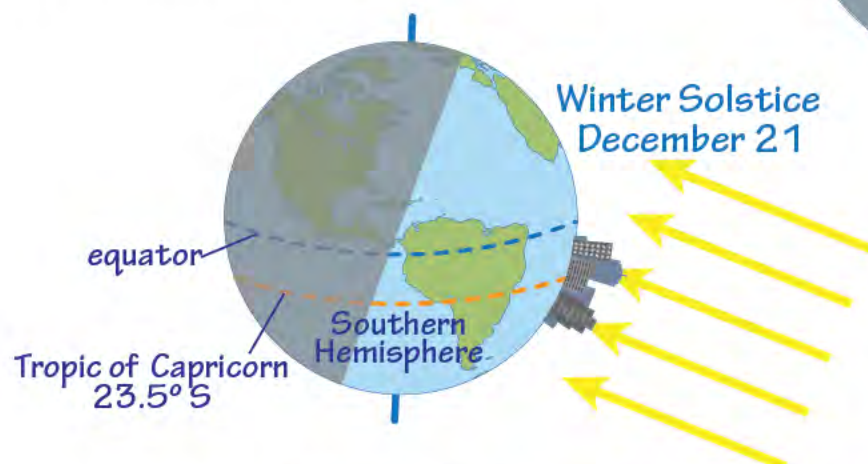
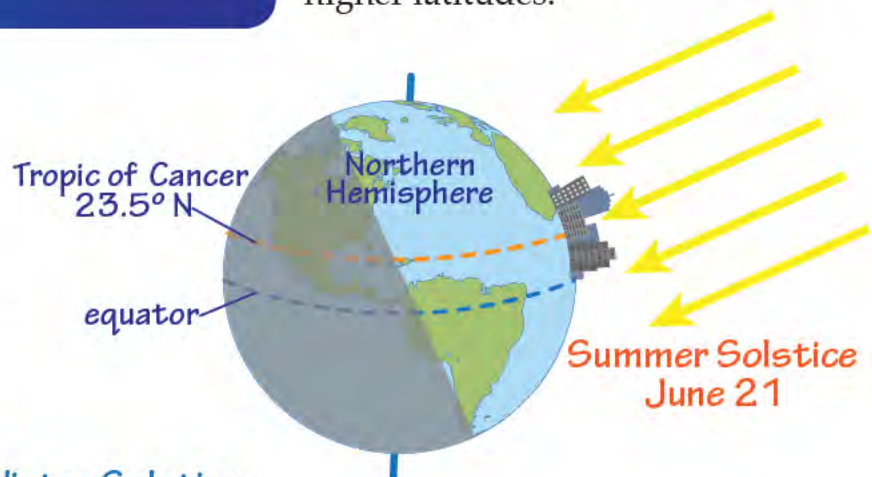
Latitude and the Sun

Latitude is a key factor affecting the **climate** in a particular location on Earth. Because the Earth is a globe, the Sun's rays hit more directly at the **equator** than near the poles. This means the Sun's energy is **more concentrated near the equator** and more spread out near the poles. Average temperatures become cooler moving from the **equator** to higher latitudes.



Solstice

In the Northern Hemisphere, the **summer solstice** occurs on **June 21** when the Sun's rays are directly hitting the **Tropic of Cancer**, 23.5 degrees north of the equator.



Six months later, the **winter solstice** occurs on **December 21** when the most direct sunlight hits the **Tropic of Capricorn** in the Southern hemisphere.