# Station #1: Tilt of Earth

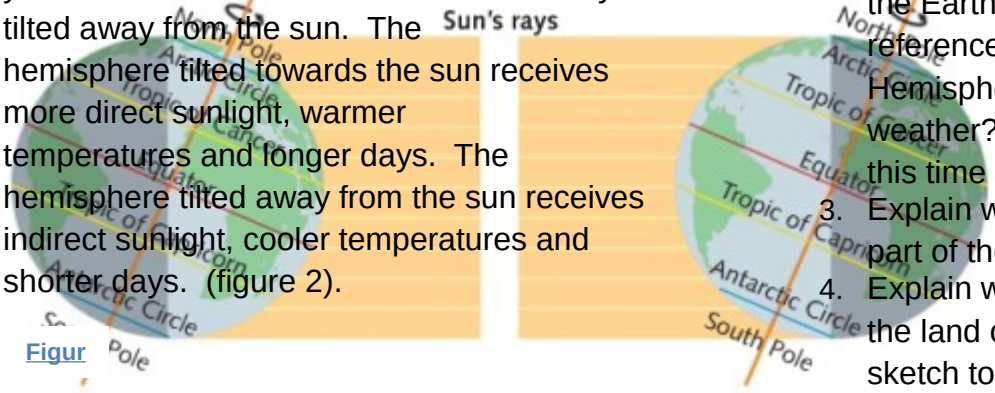
**Investigation Question: How does Earth's tilt affect contribute to the sun's rays hitting it?**

- Answer the following questions as a group.
- Please write your answers in full sentences.

**Introduction:**

When the impact to Earth occurred that resulted in the formation of the moon, the Earth's axis was changed and tilted to an angle of 23.5° from the perpendicular of the orbital plane. The Earth rotates in a counterclockwise rotation from East to West around its axis (figure 1).

This tilt causes each of the hemispheres (north and south) to spend half of their year tilted toward the sun and half of their year tilted away from the sun. The hemisphere tilted towards the sun receives more direct sunlight, warmer temperatures and longer days. The hemisphere tilted away from the sun receives indirect sunlight, cooler temperatures and shorter days. (figure 2).

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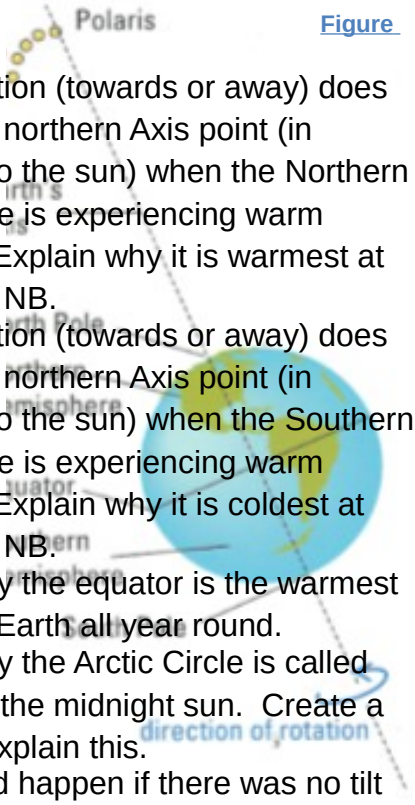


Figure

1. What direction (towards or away) does the Earth's northern Axis point (in reference to the sun) when the Northern Hemisphere is experiencing warm weather? Explain why it is warmest at this time in NB.
2. What direction (towards or away) does the Earth's northern Axis point (in reference to the sun) when the Southern Hemisphere is experiencing warm weather? Explain why it is coldest at this time in NB.
3. Explain why the equator is the warmest part of the Earth all year round.
4. Explain why the Arctic Circle is called the land of the midnight sun. Create a sketch to explain this.
5. What would happen if there was no tilt to the Earth?
6. What is the difference between the Earth's rotation and the Earth's revolution?

During the summer and winter solstice the North Pole (Arctic Circle) and South Pole (Antarctic Circle) receive 24 hours of daylight or 24 hours of darkness. This is due to the fact that the Earth is tilted either completely towards or away from the sun. Each of these areas are referred to as the land of the midnight sun.

During the winter solstice, and for a number of days after it, the North Pole receives 24 hours of darkness and the South Pole receives 24 hours of daylight. This is also true during the summer