HOW DOES LATITUDE AFFECT THE EARTH'S CLIMATE?

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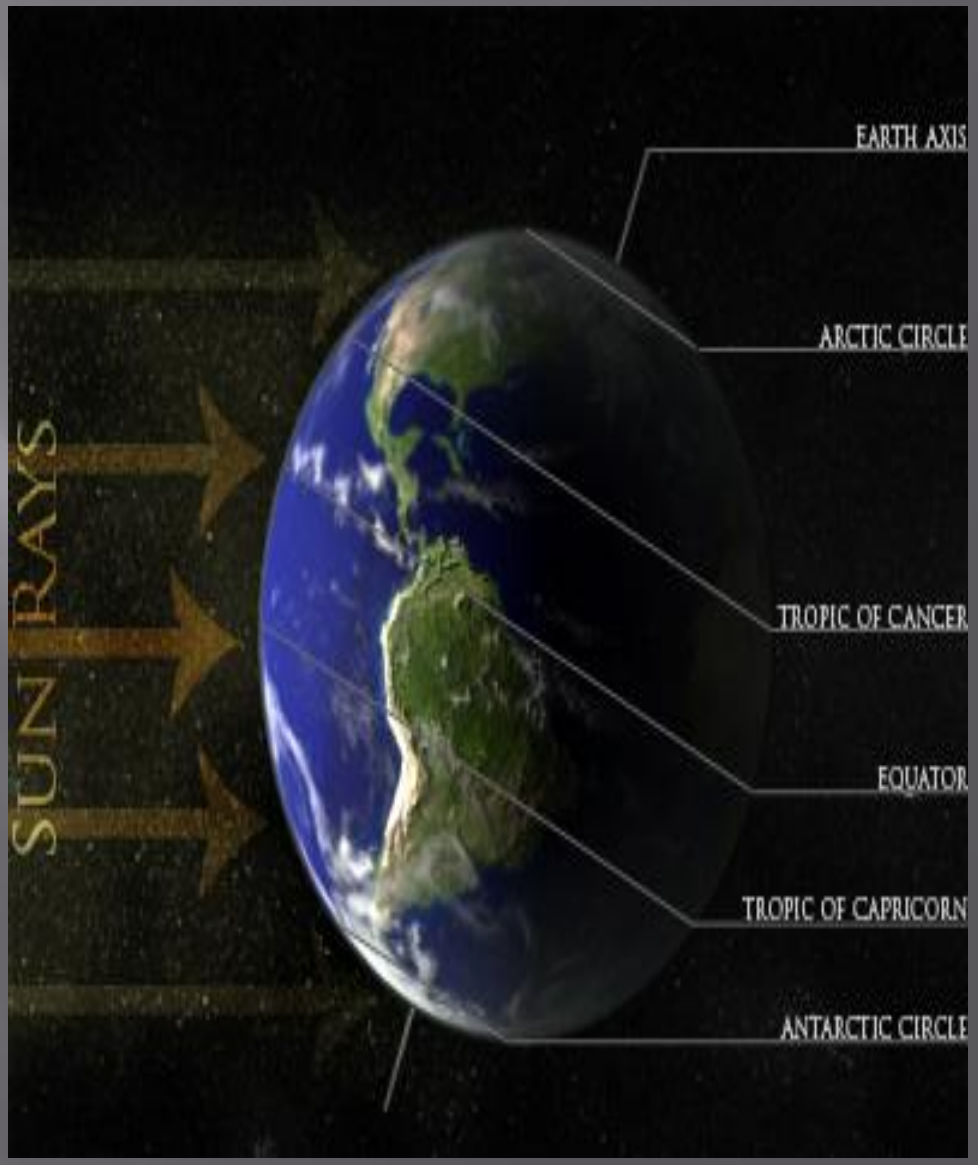
HYPOTHESIS

If the Sun's rays strike the Earth's surface nearer the equator, the incoming solar radiation is spread over a smaller area than at higher latitudes.



MATERIALS

1. Plastic Globe
2. Flash Light
3. Marker
4. Empty Toilet/Paper Towel Roll

Tape the end of an empty toilet paper roll to the end of a flashlight.

METHODS

- Hold the flashlight about 30 cm from the equator.

  -Have a partner draw a circle around the area the light shines on.
- Move the flashlight up slightly to aim at the "mid-latitudes."

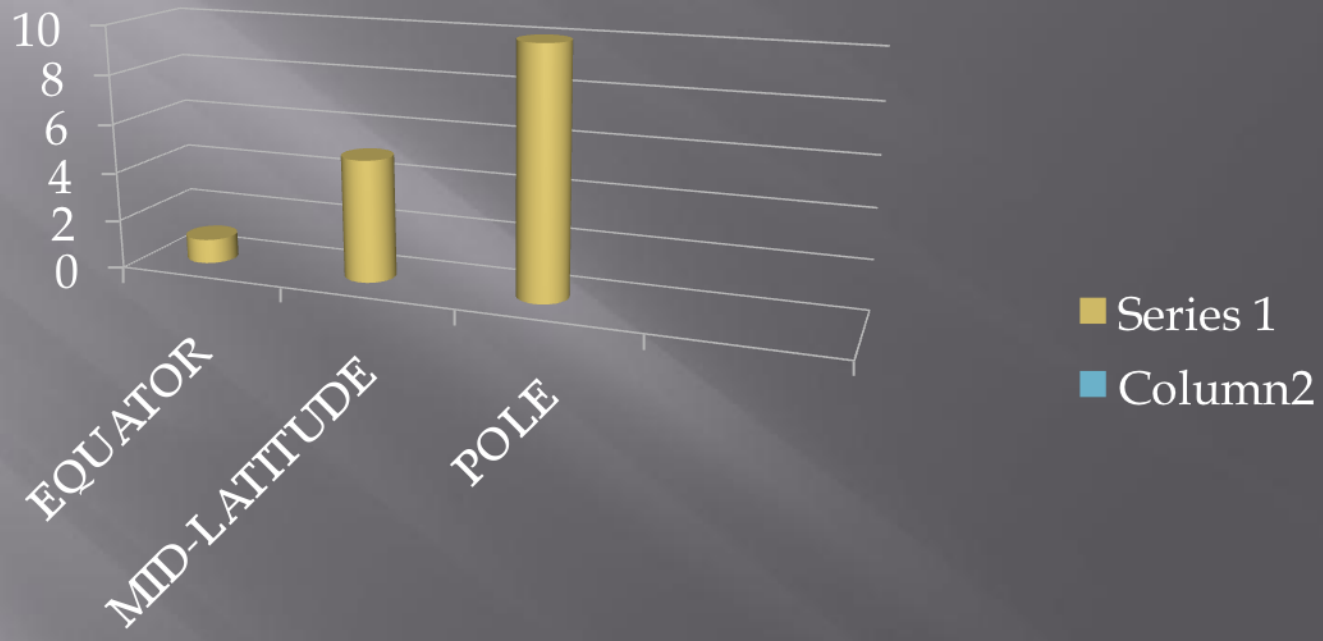
  -Again, draw the lighted area.
- Repeat step 3, but this time aim the light at the "poles".

RESULTS

- As a result of our experiment, we discovered that the sun's rays hit the equator directly, thus making it the hottest place on the earth.
- When the light is shining onto the poles it is angled so the sun's rays do not reach all the way to the poles making a shadowed area.
- This shadowed area explains the extreme cold weather the poles experience.

WHEN THE SUN'S RAYS STRIKE EARTH'S SURFACE

AMOUNT OF SURFACE AREA



LATITUDES

TEMPERATURES AT THE LATITUDES

	HIGH TEMPERATURES	MODERATE TEMPERATURES	LOW TEMPERATURES
EQUATOR		N/A	N/A
MID LATITUDE	N/A		N/A
POLES	N/A	N/A	

Conclusion

- The higher the latitude of an area, the smaller the angle at which the sun's rays hit Earth and the smaller the amount of solar energy received by the area.

SUN CONCENTRATION ON THE EQUATOR

Conclusion Cont.

Sun Concentration on the Mid-Latitude

Sun Concentration on the Poles