

## THE GLOBAL WARMING TEST

### ○ Question 3:

The main cause of Global Warming is:




- a) pollution from factories and automobiles
- b) orbital eccentricities of Earth and variations in the Sun's output
- c) the **Greenhouse Effect**

**Sorry . . . that is incorrect.**

The Greenhouse Effect is **not** the major factor controlling Global Warming. The news media and certain politicians often speak of "global warming" and "greenhouse effect" interchangeably, like they were one and the same. This is misleading, because global warming occurs in cycles caused mainly by changes in the sun's energy output and the sun's position relative to the earth.

### Major Causes of Global Temperature Shifts

#### (1) Astronomical Causes

- **11 year and 206**  **year cycles:** Cycles of **solar variability** ( [sunspot activity](#)  )
- **21,000 year cycle:** Earth's combined **tilt** and **elliptical orbit** around the Sun ( [precession of the equinoxes](#) )
- **41,000 year cycle:** Cycle of the **+/- 1.5° wobble in Earth's orbit** ( [tilt](#) )
- **100,000 year cycle:** Variations in the **shape of Earth's elliptical orbit** ( [cycle of eccentricity](#)  )

#### (2) Atmospheric Causes

- **Heat retention:** Due to atmospheric gases, mostly gaseous water vapor (not droplets), also carbon dioxide, methane, and a few other miscellaneous gases-- the **"greenhouse effect"**

- **Solar reflectivity:** Due to **white clouds, volcanic dust, polar ice caps**

### (3) Tectonic Causes

- **Landmass distribution:** Shifting continents (**continental drift**) causing changes in circulatory patterns of ocean currents. It seems that whenever there is a large land mass at one of the Earth's poles, either the north pole or south pole, there are ice ages.
- **Undersea ridge activity:** "**Sea floor spreading**" (associated with continental drift) causing variations in ocean displacement.

For more details see:

<http://www.ngdc.noaa.gov/paleo/milankovitch.html>

[http://www.abc.net.au/science/news/enviro/EnviroRepublish\\_233658.htm](http://www.abc.net.au/science/news/enviro/EnviroRepublish_233658.htm)



Question 4

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