

## Answer Key

1. Infrared
2. Infrared radiation heats the Earth and provides a temperature range that is suitable to support life.
3. They cause the atmosphere to thicken, which in turn traps more heat from the sun (less infrared escapes the atmosphere) and causes the Earth to get warmer.
4. Roger Revel
5. 1957
6. Weather balloon
7. Middle Pacific
8. CO<sub>2</sub> goes down in the spring and summer because of the vegetation in the northern hemisphere. The northern hemisphere has more land mass with more vegetation. When it's spring and summer in the northern hemisphere, plants absorb CO<sub>2</sub> from the atmosphere for photosynthesis, causing CO<sub>2</sub> in the atmosphere to go down. CO<sub>2</sub> goes up in the winter and fall because the trees lose their leaves and no CO<sub>2</sub> from the atmosphere is absorbed.
9. The water from the seasonal melt of the glaciers supplies the rivers that drain these mountains. This water is used by millions of people. When the glaciers melt entirely, about 50% of the runoff from this drainage system will be lost and there will be a massive shortage of water in this region.
10. By drilling into large ice sheets, scientists can examine the ice cores. The snow that falls on the glacier traps bubbles of gas from the atmosphere, which indicates how much CO<sub>2</sub> was in the air that year of snowfall.
11. 650,000 years
12. 300 ppm
13. Much higher today than it has EVER been. In 50 years it will be more than double what it has ever been...off the charts!
14. Direct relationship between CO<sub>2</sub> and temperature because CO<sub>2</sub> is a greenhouse gas which causes our atmosphere to get thicker and trap more infrared radiation.
15. answers will vary.
16. 2005
17. leads to an increase in storms (hurricanes, tornadoes, typhoons)
18. They both increase as well and this leads to larger, more powerful storms.
19. In two ways: first it takes the precipitation and relocates it due to changes in atmospheric circulation and second, warming atmosphere sucks the moisture from the soil causing certain regions to become drier.
20. They are sinking because the permafrost is melting.
21. It's melting due to increasing temperature.
22. The ice cap acts like a mirror and reflects sunlight off of it. Ocean water absorbs the sun's rays and warms up. When the ice cap melts, more heat is absorbed by the ocean, which accelerates the process of warming.
23. The freshwater entering the ocean caused the conveyor to shut off. This shut off the warm water and wind traveling to Europe and created an ice age there that lasted 1000 years.

24. Rising temperature allows certain species to flourish and causes other species to die. It changes seasonal cycles in organisms. Also, many insects die off in winter due to cold and when the winters are too warm, this doesn't happen. This can lead to infestation.
25. When sea-based ice melts, it will not cause sea level to rise, but land based ice will because it was not originally present in the ocean and has now added mass of water. One consequence is that people living on islands have had to move because the island has been drowned in rising sea levels.
26. 1) overpopulation, 2) technology, 3) our way of thinking
27. United States (as much as South America, Africa, the Middle East and Asia combined).
28. NO
29. Answers will vary
30. 3 misconceptions: scientists disagree that global warming is happening, saving the environment hurts the economy, and things cannot change. Answers will vary.