CH 21: ACTIVITY 1 & 2 REVIEW:

EARTH'S CHANGING CLIMATES & INTERACTIONS WITHIN EARTH'S ATMOSPHERE

Questions:

1. **In the past 50 years, where in the world has the temperature changed the most?**

In the past 50 years, the temperature has changed the most in the northern hemisphere, particularly in the Arctic.

2. **What two things can happen when energy from the Sun interacts with the ground?**

Energy from the Sun can be reflected back into space, or it can be absorbed by Earth's surface.

3. **How does atmospheric carbon dioxide affect global temperature?**

Increased levels of atmospheric carbon dioxide cause increases in the temperature.

4. **What happens when the sunlight hits greenhouse gas molecules?**

Nothing happens to the temperature when sunlight hits greenhouse gases.

5. **What happens when infrared radiation hits the greenhouse gas molecules? How does the temperature change as a result?**

When infrared radiation hits greenhouse gases, it is absorbed and deflected. The greenhouse gas is excited by the radiation (it glows), and the infrared radiation is re-emitted in a different direction. The temperature increases as a result.

6. **Based on the Earth system model and the molecular model, how do carbon dioxide (CO_2) and other greenhouse gases cause Earth's atmosphere to warm? (Choose all correct answers.)**

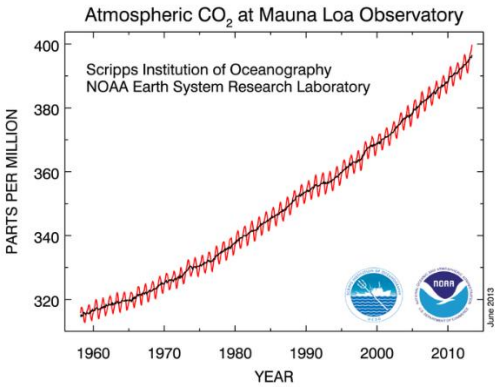
Greenhouse gases

a. absorb incoming solar radiation.
b. reflect incoming solar radiation.
c. absorb outgoing infrared radiation.
d. emit outgoing infrared radiation.

C,D

7. **What are some of the causes of the carbon dioxide increase over the past 50 years?**

Some causes of the carbon dioxide increase over the past 50 years are burning of fossil fuels and removal and burning of forests.



8. **Why does the carbon dioxide level fluctuate during a single year (the red "wiggles" in the CO2 plot)?**

The carbon dioxide level fluctuates within a single year because of plant growth. During the growing season, plants take up carbon dioxide, decreasing the atmospheric levels. During the non-growing season, plants decay, releasing carbon dioxide back into the atmosphere.