

Answer Key for Greenhouse Effect Assessment Questions

1. What is the major cause of the greenhouse effect?
 - a) Gases in the atmosphere absorb heat from the Sun.
 - b) Gases in the atmosphere absorb heat from the Earth's surface. (correct)**
 - c) Gases in the ozone layer absorb heat from the Sun.
 - d) Gases in the ozone layer absorb heat from the Earth's surface.

2. If human civilization had never developed on Earth, would there be a greenhouse effect?
 - a) Yes, the greenhouse effect is caused by naturally occurring gases. (correct)**
 - b) Yes, the greenhouse effect is caused by plants giving off gases.
 - c) No, the greenhouse effect is caused by humans burning fossil fuels.
 - d) No, the greenhouse effect is caused by humans depleting ozone.
 - e) No, there is no conclusive evidence that a greenhouse effect exists.

3. What are greenhouse gases?
 - a) Gases in the atmosphere that absorb infrared energy. (correct)**
 - b) Gases in the atmosphere that absorb ultraviolet energy.
 - c) Gases in the atmosphere that cause rain to become acidic.
 - d) Gases in the atmosphere that are produced as plants grow.

4. Earth's atmosphere is warmer than it would be without a greenhouse effect. Which form of energy is absorbed by the atmosphere and mainly causes this increased temperature?
 - a) Radio waves
 - b) Infrared (correct)**
 - c) Visible light
 - d) Ultraviolet
 - e) X-rays

5. During the nighttime, Earth's surface mainly gives off (radiates) which form of energy?

- a) Radio waves
- b) Infrared (correct)**
- c) Visible light
- d) Ultraviolet
- e) X-rays
- f) Earth's surface does not give off energy during the nighttime.

6. Earth's atmosphere mainly gives off (radiates) which form of energy?

- a) Radio waves
- b) Infrared (correct)**
- c) Visible light
- d) Ultraviolet
- e) X-rays
- f) Earth's atmosphere does not give off energy.

7. Currently, the concentration of carbon dioxide in Earth's atmosphere is about 400 parts per million. During the Cretaceous Period, about 110 million years ago, the concentration of carbon dioxide in Earth's atmosphere was about 2,000 parts per million. Based on your knowledge of the greenhouse effect, how do you think the average temperature on Earth 110 million years ago compared to the temperature in modern times?

- a) Temperatures were warmer 110 million years ago than they are in modern times. (correct)**
- b) Temperatures were **cooler** 110 million years ago than they are in modern times.
- c) Temperatures 110 million years ago were **about the same as** they are in modern times.
- d) More information is needed to answer this question.

8. Currently, the concentration of carbon dioxide in Earth's atmosphere is about 400 parts per million. During the Pleistocene Epoch, about 150 thousand years ago, the concentration of carbon dioxide in Earth's atmosphere was about 200 parts per million. Based on your knowledge of the greenhouse effect, how do you think the average temperature on Earth during the Pleistocene Epoch compared to the temperature in modern times?

- a) Temperatures were **warmer** 150 thousand years ago than they are in modern times.
- b) Temperatures were cooler 150 thousand years ago than they are in modern times. (correct)**
- c) Temperatures 150 thousand years ago were **about the same as** they are in modern times.
- d) More information is needed to answer this question.