

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Could Permafrost Thaw Change Everything? 10th Grade Climate Quiz

Examine 10 essential indicators of global change focusing on atmospheric carbon isotopes, albedo feedback loops, and ocean acidification trends.

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**1. Which of these gases is a potent greenhouse gas released specifically from thawing permafrost in the Arctic regions?**

- A. Argon
- B. Methane
- C. Helium
- D. Nitrogen

**2. The 'Albedo Effect' refers to the ability of dark surfaces like the ocean to reflect more sunlight than white surfaces like ice.**

- A. True
- B. False

**3. The process by which the ocean absorbs excess CO<sub>2</sub>, leading to a lower pH and harming shelled organisms, is called ocean \_\_\_\_\_.**

- A. Oxygenation
- B. Acidification
- C. Salination
- D. Evaporation

**4. Which transition in transportation technology is considered a major 'mitigation' strategy for reducing urban carbon footprints?**

- A. Expanding diesel bus fleets
- B. Electrification of public transit
- C. Increasing speed limits
- D. Building more asphalt parking lots

**5. Scientists use ice cores from Antarctica to reconstruct atmospheric carbon dioxide levels from hundreds of thousands of years ago.**

- A. True
- B. False

**6. What is the primary reason why sea levels rise as global temperatures increase?**

- A. Increased underwater volcanic activity
- B. More rainfall over the open ocean
- C. Thermal expansion of water
- D. Melting of sea ice in the Arctic

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**7. The use of reflective 'cool roofs' on buildings in hot cities is an example of an \_\_\_\_\_ strategy to deal with rising temperatures.**

- A. Adaptation
- B. Inversion
- C. Combustion
- D. Extraction

**8. Current global warming is unique because it is primarily driven by natural Milankovitch cycles rather than human activity.**

- A. True
- B. False

**9. Which of these is a direct consequence of a 'positive feedback loop' in the Arctic?**

- A. Higher albedo leading to cooler temperatures
- B. Increased tree growth slowing down ice melt
- C. Melting ice revealing dark water that absorbs more heat
- D. Oceans turning into freshwater lakes

**10. Agriculture contributes to climate change partly through the release of \_\_\_\_\_ oxide from the use of synthetic fertilizers.**

- A. Nitrous
- B. Carbonic
- C. Dihydrogen
- D. Sulfur