

Name: _____ Date: _____

Glacial Ghost Hunt: A 6th Grade Climate Feedback Quiz

Evaluate how albedo shifts and permafrost thaw accelerate global warming through complex feedback loops in this advanced analytical assessment.

1. In the Arctic, as white sea ice melts, it reveals dark ocean water. This dark water absorbs more heat, causing more ice to melt. What scientific concept best describes this self-reinforcing cycle?

- A. A negative feedback loop
- B. A positive feedback loop
- C. Atmospheric convection
- D. The Coriolis Effect

2. Scientists measure the ability of a surface to reflect solar radiation using the term ____; ice has a high value, while asphalt has a low value.

- A. Insulation
- B. Refraction
- C. Albedo
- D. Luminescence

3. Thawing permafrost in the Tundra is considered a 'carbon sink' because it traps methane underground forever as the temperature rises.

- A. True
- B. False

4. Which of these is a significant 'hidden' source of methane that results from agricultural practices rather than just fossil fuel combustion?

- A. Volcanic eruptions
- B. Rice paddy cultivation
- C. Wind turbine friction
- D. Oceanic desalination

5. The 'Greenhouse Effect' is essential for life, but human-enhanced levels of ____ are causing the atmosphere to retain too much thermal energy.

- A. Nitrogen gas
- B. Argon
- C. Infrared radiation
- D. Greenhouse gases

6. If a coastal city builds a floating 'sponge district' that allows water to flow through parks during floods instead of destroying buildings, this is an example of:

- A. Carbon Sequestration

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- B. Climate Mitigation
- C. Climate Adaptation
- D. Geoengineering

7. The 'Industrial Revolution' marks a significant turning point in Earth's climate history because it began the era of mass fossil fuel consumption.

- A. True
- B. False

8. When CO₂ dissolves into the ocean, it reacts with water to form carbonic acid, a process known as Ocean ____, which weakens the shells of shellfish.

- A. Calcification
- B. Acidification
- C. Oxygenation
- D. Distillation

9. Which strategy describes 'Mitigation' rather than 'Adaptation'?

- A. Moving a village inland to avoid rising sea levels
- B. Engineering new types of salt-tolerant corn
- C. Mandating that all city buses run on electricity
- D. Expanding emergency sirens for extreme heat waves

10. Global warming and Climate Change are the exact same thing; 'Global Warming' refers to the increasing intensity of rain and snowstorms.

- A. True
- B. False