

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

## When the Atmosphere Gets Feverish: 6th Grade Climate Analysis

Interpret data on albedo effects and permafrost feedback loops to prepare for a classroom debate on global sustainability strategies.

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**1. The 'Albedo Effect' refers to how much sunlight a surface reflects. If Arctic sea ice continues to melt and is replaced by dark ocean water, what is the most likely result?**

- A. The ocean will reflect more sunlight, cooling the planet.
- B. The planet's temperature will remain stable due to evaporation.
- C. More solar energy will be absorbed, accelerating global warming.
- D. The salt content of the water will trap heat below the surface.

**2. Scientists analyze bubbles trapped in \_\_\_\_\_ to study the composition of the Earth's atmosphere from hundreds of thousands of years ago.**

- A. Volcanic ash layers
- B. Deep sea sediment
- C. Ice cores
- D. Tree rings

**3. True or False: The 'Enhanced Greenhouse Effect' is a natural process that has kept Earth warm enough for life for millions of years.**

- A. True
- B. False

**4. Which of these represents a 'Positive Feedback Loop' in the context of climate change?**

- A. Planting more trees to absorb carbon dioxide from the air.
- B. Thawing permafrost releasing methane, which leads to more warming.
- C. Switching from coal power to wind turbines to lower emissions.
- D. Using air conditioning more frequently during a summer heatwave.

**5. While CO<sub>2</sub> is the most discussed gas, \_\_\_\_\_ is a greenhouse gas that is 25 times more potent at trapping heat and is often released by landfills and rice paddies.**

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

**6. True or False: Thermal expansion—the tendency of water to increase in volume as it gets warmer—is a major contributor to rising sea levels.**

- A. True
- B. False

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**7. What is the primary difference between 'Weather' and 'Climate'?**

- A. Weather describes the atmosphere over decades; climate is daily.
- B. Climate refers to the specific temperature in one city only.
- C. Weather is short-term conditions; climate is long-term averages.
- D. There is no scientific difference between the two terms.

**8. The process of 'Ocean \_\_\_\_\_' occurs when the sea absorbs excess CO<sub>2</sub>, which lowers the pH of the water and harms shell-building organisms.**

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

**9. True or False: Volcanic eruptions can actually cause short-term global cooling by releasing ash and particles that block sunlight.**

- A. True
- B. False

**10. Which of the following is considered a 'Mitigation' strategy rather than an 'Adaptation' strategy?**

- A. Building homes on stilts to prepare for flooding.
- B. Switching a city's bus fleet from diesel to electric power.
- C. Developing new irrigation systems for drier farmland.
- D. Restoring coastal mangroves to act as storm buffers.