

Name: _____ Date: _____

Blast the Heat: 9th Grade Climate Dynamics Mission

Analyze the energy balance of our atmosphere through foundations of greenhouse gases and industrial impacts before moving to advanced carbon cycle modeling.

1. Which of these gases is primarily released during the manufacturing of cement and aluminum, acting as a potent driver of the greenhouse effect?

- A. Oxygen
- B. Carbon dioxide
- C. Argon
- D. Nitrogen

2. The process where permafrost melts and releases stored carbon, leading to further warming, is known as a _____ loop.

- A. Negative feedback
- B. Stagnant
- C. Positive feedback
- D. Linear

3. The greenhouse effect is a naturally occurring process that keeps Earth's surface warm enough to support life.

- A. True
- B. False

4. Which agricultural practice is a significant source of Nitrous Oxide (N₂O), a greenhouse gas much more powerful than CO₂?

- A. Organic composting
- B. Applying synthetic fertilizers
- C. Crop rotation
- D. Drip irrigation

5. The shift in local weather patterns and global temperatures caused by human activity is scientifically categorized as _____.

- A. Anthropogenic climate change
- B. Natural variability
- C. Seasonal adjustment
- D. Solar radiation

6. Melting sea ice is the primary cause of global sea-level rise.

- A. True
- B. False

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7. What happens to the pH of the ocean as it absorbs more carbon dioxide from the atmosphere?

- A. It becomes more basic
- B. It stays the same
- C. It becomes more acidic
- D. It turns into freshwater

8. A massive volcanic eruption can temporarily _____ the Earth by releasing aerosols that reflect sunlight.

- A. Cool
- B. Heat
- C. Dehydrate
- D. Magnetize

9. The ozone hole is the main cause of global warming.

- A. True
- B. False

10. Which of the following describes 'climate' rather than 'weather'?

- A. A sudden thunderstorm in Chicago
- B. The average annual rainfall in the Amazon rainforest
- C. A heatwave lasting for three days
- D. Snowfall on a Tuesday morning