

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

## Could You Rebuild a Circular Economy? 9th Grade Sustainability Quiz

Examine the intersections of ecological footprints and lifecycle assessments through 10 advanced problems requiring systems-thinking and ethical evaluation.

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**1. When assessing the sustainability of a product, a 'LCA' (Life Cycle Assessment) is used. Which stage of the LCA specifically evaluates the environmental impact of extraction of raw materials such as lithium for batteries?**

- A. Cradle-to-gate analysis
- B. End-of-life disposal
- C. The operational phase
- D. Cradle-to-grave closure

**2. The concept of 'Intergenerational Equity' suggests that the current generation has a moral obligation to ensure that future humans have access to at least the same level of natural capital as we do today.**

- A. True
- B. False

**3. In the context of sustainable urban planning, the strategy of \_\_\_\_\_ focuses on creating self-contained communities where resident needs are met within a short walk or bike ride, reducing carbon emissions from transport.**

- A. Gentrification
- B. The 15-Minute City
- C. Urban Sprawl
- D. Industrial Zoning

**4. Which of the following describes the 'Rebound Effect' (Jevons Paradox) in environmental economics?**

- A. Increasing recycling rates leads to a total decrease in waste production.
- B. Improvements in energy efficiency lead to an overall increase in resource consumption.
- C. The process of nitrogen returning to the soil through organic decomposition.
- D. A project becoming more profitable once it shifts to renewable energy.

**5. Biomimicry is a design principle that seeks sustainable solutions by emulating nature's time-tested patterns and strategies, such as designing wind turbines based on the fins of humpback whales.**

- A. True
- B. False

**6. The 'Triple Bottom Line' is an accounting framework that incorporates three dimensions of performance: Social, Environmental, and \_\_\_\_\_.**

- A. Political

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- B. Ethical
- C. Economic
- D. Technological

**7. How does the 'Precautionary Principle' influence international environmental policy and sustainability law?**

- A. By requiring proof of absolute safety before any trade occurs.
- B. By allowing industrial expansion until scientific proof of harm is 100% certain.
- C. By advocating for preventive action even if some cause-and-effect relationships are not yet fully established scientifically.
- D. By taxing companies only after a spill or environmental disaster has occurred.

**8. In a 'Linear Economy,' the systemic goal is to keep resources in use for as long as possible through repair, refurbishment, and upcycling.**

- A. True
- B. False

**9. A nation's \_\_\_\_\_ is a measure of the demand placed by a person or nature on the Earth's ecosystems, comparing human consumption of natural resources with Earth's capacity to regenerate them.**

- A. Carbon Credit
- B. Ecological Footprint
- C. Gross Domestic Product
- D. Biocapacity Deficit

**10. Which strategy represents a 'Systems Thinking' approach to solving water scarcity in an agricultural region?**

- A. Drilling deeper wells to access remaining groundwater.
- B. Providing short-term subsidies for farmers to buy bottled water.
- C. Analyzing the connections between crop choice, soil health, regional climate patterns, and local economic incentives.
- D. Building a single desalination plant without considering energy source or brine disposal.