

Name: _____ Date: _____

Keeping It Triple Bottom Line: 10th Grade Sustainability Quiz

Evaluate the intersection of life-cycle assessments, ecological footprints, and circular economy models to solve real-world environmental trade-offs.

1. The 'Cradle-to-Cradle' design framework differs from traditional manufacturing primarily by:

- A. Focusing solely on biodegradable materials
- B. Eliminating the concept of waste by creating closed-loop cycles
- C. Reducing the carbon footprint of shipping logistics
- D. Increasing the extraction of raw rare-earth minerals

2. The 'Tragedy of the Commons' suggests that individuals acting in their own self-interest will eventually deplete shared resources, even if it is not in anyone's long-term interest.

- A. True
- B. False

3. In the context of the Triple Bottom Line, a company that focuses on fair labor practices and community engagement is prioritizing the _____ pillar.

- A. Economic
- B. Environmental
- C. Social
- D. Governance

4. Which of these represents a 'Rebound Effect' (Jevons Paradox) in environmental policy?

- A. A new solar farm replaces a coal plant, reducing CO₂.
- B. Improved fuel efficiency leads people to drive significantly more miles, offsetting fuel savings.
- C. A carbon tax causes a company to move its factory to a different country.
- D. Composting organic waste reduces methane emissions in local landfills.

5. The amount of biologically productive land and sea area an individual or population requires to produce the resources they consume is known as an ecological _____.

- A. Threshold
- B. Footprint
- C. Handprint
- D. Backprint

6. Intergenerational equity refers strictly to the financial debt passed from one generation to the next.

- A. True
- B. False

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7. Which agricultural method is specifically designed to sequester carbon while maintaining soil biodiversity?

- A. Monoculture cropping
- B. Vertical hydroponics
- C. Regenerative agriculture
- D. High-intensity chemical tilling

8. Using a life-cycle assessment (LCA), a researcher would evaluate the environmental impact of a product from ____.

- A. Purchase to disposal only
- B. Raw material extraction to end-of-life
- C. Manufacturing to retail sale
- D. Design phase to warehouse arrival

9. Bio-mimicry is the practice of looking to nature's models and strategies to solve human design challenges, such as using the shape of a bird's beak to design a high-speed train.

- A. True
- B. False

10. A community decides to implement 'Greywater' systems. This most directly supports sustainability by:

- A. Filtering industrial chemicals out of the ocean
- B. Reusing lightly used water from sinks and showers for irrigation
- C. Desalinating sea water for drinking consumption
- D. Converting sewage into solid fertilizer