

Ecosystem Pyramid Worksheet

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Part 1: Building a Foundation

Which of the following is the primary source of energy for most ecosystems?

Hint: Think about the main source of energy that supports life on Earth.

- A) The Moon
- B) The Sun
- C) Wind
- D) Water

Which of the following are considered biotic components of an ecosystem? (Select all that apply)

Hint: Consider living organisms and their roles in the ecosystem.

- A) Plants
- B) Animals
- C) Rocks
- D) Microorganisms

Define an ecosystem and list its two main components.

Hint: Think about the definition and the key elements that make up an ecosystem.

List the three types of ecological pyramids and briefly describe each.

Hint: Consider the different ways to represent energy, biomass, and numbers in an ecosystem.

1. Pyramid of Energy

2. Pyramid of Biomass

3. Pyramid of Numbers

Which trophic level is primarily responsible for photosynthesis?

Hint: Consider which organisms convert sunlight into energy.

- A) Primary Consumers
- B) Secondary Consumers
- C) Producers
- D) Decomposers

Part 2: Comprehension and Application

What happens to energy as it moves up the trophic levels in an ecosystem?

Hint: Think about the efficiency of energy transfer between levels.

- A) It increases
- B) It remains constant
- C) It decreases
- D) It disappears

Which of the following statements about decomposers are true? (Select all that apply)

Hint: Consider the role of decomposers in nutrient cycling.

- A) They break down dead organic material.
- B) They are at the top of the food chain.
- C) They recycle nutrients back into the ecosystem.
- D) They produce their own food through photosynthesis.

Explain the role of primary consumers in an ecosystem and provide an example.

Hint: Think about how primary consumers interact with producers.

If a disease significantly reduces the population of primary consumers in an ecosystem, what is the most likely immediate effect on producers?

Hint: Consider the relationship between primary consumers and producers.

- A) Increase in producer population
- B) Decrease in producer population
- C) No change in producer population
- D) Producers will become primary consumers

In a forest ecosystem, which of the following scenarios could lead to an increase in the number of tertiary consumers? (Select all that apply)

Hint: Think about the relationships between different trophic levels.

- A) Increase in primary consumers
- B) Decrease in secondary consumers
- C) Increase in producers
- D) Decrease in decomposers

Part 3: Analysis, Evaluation, and Creation

Which ecological pyramid would be most affected by a sudden decrease in biomass at the producer level?

Hint: Consider how changes at the base of the food web impact higher levels.

- A) Pyramid of Energy
- B) Pyramid of Biomass
- C) Pyramid of Numbers

- D) All pyramids equally

Analyze the following scenario: In a grasslands ecosystem, a new predator is introduced. Which of the following effects might occur? (Select all that apply)

Hint: Think about the potential impacts of introducing a new species.

- A) Decrease in primary consumer population
- B) Increase in producer population
- C) Decrease in decomposer activity
- D) Increase in secondary consumer population

Discuss the potential impact on an ecosystem if decomposers were removed. Consider both short-term and long-term effects.

Hint: Think about the role of decomposers in nutrient cycling and ecosystem health.

Which of the following actions would most likely improve the energy efficiency of an ecosystem?

Hint: Consider how energy flows through the food web.

- A) Increasing the number of secondary consumers
- B) Reducing energy loss at each trophic level
- C) Increasing the number of tertiary consumers
- D) Decreasing the number of producers

Evaluate the following strategies for maintaining biodiversity in an ecosystem. Which are likely to be effective? (Select all that apply)

Hint: Consider actions that support diverse species and habitats.

- A) Protectin natural habitats
- B) Introducing non-native species
- C) Reducing pollution
- D) Increasing monoculture farming

Design a simple food web for a freshwater ecosystem, including at least three trophic levels. Explain the role of each organism in your food web.

Hint: Think about the interactions between producers, consumers, and decomposers.