

Ecosystem Energy Flow Worksheet

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Part 1: Building a Foundation

What is the primary source of energy for most ecosystems?

Hint: Think about the natural sources of energy.

- The Moon
- The Sun
- The Ocean
- The Wind

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- B) The Sun
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Which of the following are considered producers in an ecosystem?

Hint: Think about organisms that create their own food.

- Plants
- Herbivores
- Algae

Carnivores

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Define the term 'energy flow' in the context of an ecosystem.

Hint: Consider how energy moves through different organisms.

Define the term "energy flow" in the context of an ecosystem.

Define the term 'energy flow' in the context of an ecosystem.

List two examples of decomposers and describe their role in an ecosystem.

Hint: Think about organisms that break down organic matter.

1. Example 1: Fungi

2. Example 2: Bacteria

Which of the following best describes a primary consumer?

Hint: Consider what type of organisms eat producers.

- An organism that eats secondary consumers
- An organism that produces its own food
- An organism that eats producers
- An organism that decomposes organic matter

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Part 2: Application and Analysis

Why is only about 10% of energy transferred from one trophic level to the next?

Hint: Think about energy loss during transfer.

- Energy is destroyed during transfer
- Energy is lost as heat
- Energy is converted into biomass
- Energy is used for reproduction

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Explain the difference between a food chain and a food web.

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Hint: Consider the complexity of interactions between organisms.

Explain the difference between a food chain and a food web.

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

Hint: Consider the relationship between consumers and producers.

- Increase in producer population
- Decrease in producer population
- No change in producer population
- Producers will become consumers

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Which scenarios could lead to an increase in secondary consumers?

Hint: Think about the relationships between different consumer levels.

- Increase in primary consumers
 Decrease in tertiary consumers
 Increase in decomposers
 Decrease in producers

Which scenarios could lead to an increase in secondary consumers?

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

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 C) Increase in decomposers
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Apply your understanding of energy flow to predict what might happen if a new predator is introduced into an ecosystem.

Hint: Consider the potential impacts on various trophic levels.

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In a given ecosystem, if the pyramid of numbers is inverted, what might this indicate?

Hint: Think about the relationships between producers and consumers.

- There are more producers than consumers
- There are more consumers than producers
- Energy flow is efficient
- De composers are absent

In a given ecosystem, if the pyramid of numbers is inverted, what might this indicate?

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Analyze the following statements and identify which are true about decomposers:

Hint: Consider the role of decomposers in ecosystems.

- They are crucial for nutrient cycling
- They directly consume producers
- They convert organic matter into inorganic substances
- They increase energy flow efficiency

Analyze the following statements and identify which are true about decomposers:

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Analyze the impact of removing a keystone species from a food web. Provide examples to support your analysis.

Hint: Consider the role of keystone species in maintaining ecosystem balance.

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Part 3: Evaluation and Creation

Which strategy would be most effective in restoring energy flow in a disrupted ecosystem?

Hint: Think about the roles of different organisms in the ecosystem.

- Introducing more predators
- Increasing the number of producers
- Removing decomposers
- Reducin sunlight exposure

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- D) Reducing sunlight exposure

Evaluate the following actions and determine which could enhance ecosystem stability:

Hint: Consider the impact of each action on the ecosystem.

- Protecting keystone species
- Introducing invasive species
- Reducing habitat destruction
- Increasing chemical fertilizers

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Design a conservation plan that aims to improve energy flow in a degraded ecosystem. Include specific actions and their expected outcomes.

Hint: Think about practical steps that can be taken.

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