What is a Food Chain?

Worksheet

A food chain is a sequence: producer primary consumer secondary consumer tertiary consumer. A food web connects multiple chains to show how organisms depend on each other.

Questions

1. In the food chain plant mouse owl, which organism is the secondary consumer?

A) plant
B) mouse
C) owl
D) bacteria

2. Why do ecosystems need decomposers?

A) to increase energy
B) to recycle nutrients
C) to eat all herbivores
D) to create new plants

3. In a food web with many interconnected chains, what happens if bees disappear?

A) only flowers die
B) multiple food chains collapse
C) predators thrive
D) plants increase

4. Which trophic level has the most total biomass?

A) tertiary consumers
B) secondary consumers
C) primary consumers
D) producers

5. Describe the food chain: grass rabbit hawk.

6. In an ocean food chain, phytoplankton zooplankton small fish shark, what percent of phytoplankton energy reaches the shark?

7. Why is the population of predators always smaller than prey?

8. Define: What is a producer?

9. Define: Difference between herbivores and carnivores?

10. Define: What is the 10% rule?

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Answer Key

1. C) owl - The owl eats the mouse (primary consumer), making the owl a secondary consumer.

2. B) to recycle nutrients - Decomposers break down dead matter and return essential nutrients to the soil, completing the cycle.

3. B) multiple food chains collapse - Bees pollinate many plants. Losing them affects multiple producers, destabilizing many overlapping chains.

4. D) producers - Producers (plants) have the most biomass; energy decreases at each level.

5. Grass (producer) captures solar energy. Rabbit (primary consumer) eats grass and gains ~10% of its energy. Hawk (secondary/tertiary consumer) eats rabbit and gains ~10% of rabbit's energy.

6. Phytoplankton zooplankton: 10% Zooplankton small fish: 10% of 10% = 1% Small fish shark: 10% of 1% = 0.1%

7. Each trophic level transfers only ~10% of energy to the next. Higher trophic levels must support their population on less energy. Fewest organisms at the top; most at the producer level.

8. An organism that makes its own food via photosynthesis (e.g., plants, algae).

9. Herbivores eat plants (primary consumers); carnivores eat meat (secondary/tertiary consumers).

10. Only ~10% of energy is transferred from one trophic level to the next; 90% is lost as heat and movement.

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