What is Parasitism and Symbiosis?

Worksheet

Parasitism is a symbiotic relationship where a parasite benefits by feeding on or inside a host organism, harming it without killing it immediately. Symbiosis is the broader category including mutualism, commensalism, and parasitism - any close, long-term relationship between two species.

Questions

1. In a clownfish-anemone relationship, both species benefit. What is this called?

A) Parasitism
B) Commensalism
C) Mutualism
D) Predation

2. A tapeworm absorbs nutrients in a human intestine. The human is

A) Unaffected (commensalism)
B) Harmed by nutrient loss (parasitism)
C) A predator
D) Gaining from the relationship (mutualism)

3. A remora fish attaches to a shark for transport. The shark is neither helped nor harmed. What type of relationship?

A) Parasitism
B) Commensalism
C) Mutualism
D) Predation

4. Why don't parasites immediately kill their hosts?

A) They are friendly
B) If the host dies, the parasite loses its food source and dies too
C) Hosts are too strong
D) Parasites have no teeth or fangs

5. Describe the mutualistic relationship between a clownfish and a sea anemone.

6. A tapeworm lives in a human intestine, absorbing nutrients. What type of relationship is this, and who is harmed?

7. A remora fish attaches to a shark using a sucking disc on its head. Is this parasitism?

8. Define: What is a symbiotic relationship?

9. Define: What are the three types of symbiosis?

10. Define: What is parasitism?

Answer Key

1. C) Mutualism - Mutualism is when both species benefit from the relationship.

2. B) Harmed by nutrient loss (parasitism) - Parasitism: the tapeworm (parasite) benefits; the human (host) is harmed.

3. B) Commensalism - Commensalism: remora benefits; shark is unaffected.

4. B) If the host dies, the parasite loses its food source and dies too - Parasites depend on living hosts; killing the host means the parasite's death.

5. Clownfish gain: protection from the anemone's stinging tentacles (immunity acquired through mucus coating) + food scraps when anemone feeds. Anemone gains: protection from predators (clownfish chases away fish that eat anemones) + nutrients from clownfish waste + removal of parasites (clownfish picks at anemone). Outcome: Both species suffer higher mortality without the relationship; they are mutually dependent for survival.

6. Relationship type: Parasitism - parasite (tapeworm) benefits by absorbing nutrients; host (human) is harmed by nutrient loss, anemia, and malnutrition. Tapeworm gains: steady food supply from host; no need to hunt. Human loses: ~1-2g of protein/day to tapeworm, leading to deficiency, weak immune system, and digestive issues. Human is NOT killed immediately (otherwise parasite dies), but health severely compromised.

7. Relationship type: Commensalism (not parasitism) - remora benefits, shark unaffected. Remora gains: free transportation across oceans, avoiding predators, and feeding on scraps when shark hunts. Shark loses/gains: negligible impact - shark barely notices a 30 cm fish attached; no energy cost or benefit. Unlike parasitism, the shark is not harmed, only unconcerned.

8. A close, long-term ecological relationship between two different species living together.

9. Mutualism (+/+): both benefit. Commensalism (+/0): one benefits, one unaffected. Parasitism (+/): one benefits, one harmed.

10. A relationship where a parasite benefits by living on or inside a host, harming it without killing it immediately.