

40 Multiple choice questions

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What is the consequence for bats that refuse to share food?

- ☐ They may be denied food by others when they are hungry, illustrating the importance of reciprocal altruism.
- ☐ They establish dominance by refusing to share resources.
- ☐ They are more likely to survive during scarcity due to independence.
- ☐ They may gain additional resources by hoarding food.

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How does group size affect competition for food?

- ☐ Larger groups reduce food consumption per member, ensuring abundance for all.
- ☐ Larger groups enhance individual foraging skills, leading to less sharing.
- ☐ Larger groups may find food less frequently but hoard more for themselves.
- ☐ Larger groups may locate food more effectively but must share it among all members, leading to increased competition.

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How does a subordinate male gain indirect fitness?

- ☐ By competing with a brother for mating rights, allowing the brother to sire 3.2 offspring.
- ☐ By helping a brother or half-brother successfully mate, allowing the brother to sire 6.1 offspring.
- ☐ By mating with a sister, allowing her to sire 4.5 offspring.
- ☐ By preventing a brother from mating, ensuring his own offspring are more successful.

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What is a dominance hierarchy?

- ☐ A system of cooperation among individuals for resource sharing.
- ☐ A social ranking based on age and experience within a group.
- ☐ A hierarchy determined by mating rituals and courtship displays.
- ☐ A social ranking among individuals in a group, typically determined through contests of strength or skill.

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What is the impact of group living on the energy expenditure of animals?

- ☐ In larger groups, individuals may expend more energy on territorial defense.
- ☐ In larger groups, individuals may expend more energy searching for food due to increased competition.
- ☐ In larger groups, individuals conserve energy by reducing activity levels.
- ☐ In larger groups, individuals expend less energy due to shared responsibilities.

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What are the key characteristics of termite colonies?

- ☐ Termite colonies are dominated by a mated king and queen pair, with the queen's abdomen enlarged for egg production, and offspring can act as workers or become sexually mature if the king/queen dies.
- ☐ They provide indirect fitness benefits to the donor, weighted by the coefficient of relatedness.
- ☐ Alders near a manually defoliated shrub experienced less herbivory compared to those further away, suggesting a form of social interaction.
- ☐ Chemical signals could serve as warnings for relatives, fight microbial infections, or stimulate defenses in other leaves on the same plant.

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What is unique about snapping shrimp in terms of eusociality?

- ☐ Ecological conditions influence the magnitude of costs and benefits associated with social behaviors in animals and plants.
- ☐ A lek is a site where animals aggregate to attract mates through displays or calls, with no other purpose than mating.
- ☐ $C/B < r$, meaning the cost to the donor must be low, the benefit to the relative must be high, and they must be closely related.
- ☐ Snapping shrimp are the only known eusocial marine animals, living in groups with queens and nonbreeding helpers, and have a high relatedness coefficient ($r = 0.7$).

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What is the fitness benefit of a female worker raising her fertile sister?

- ☐ The same fitness benefit as raising her own offspring due to higher relatedness ($r = 0.75$).
- ☐ Less fitness benefit than raising her own offspring due to lower relatedness ($r = 0.25$).
- ☐ No fitness benefit as relatedness is too low ($r = 0.10$).
- ☐ Greater fitness benefit due to shared resources ($r = 0.90$).

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How do snapping shrimp defend their colonies?

- ☐ They use a specialized large claw to shoot bubbles that stun or kill intruders.
- ☐ They specialize in tasks such as defending and foraging for the group or caring for offspring.
- ☐ Snapping shrimp are the only known eusocial marine animals, living in groups with queens and nonbreeding helpers, and have a high relatedness coefficient ($r = 0.7$).
- ☐ They do not reproduce but contribute to the colony's success through specialized roles.

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What is the focus of Chapter 11 in the context of social behaviors?

- ☐ Chapter 11 discusses the costs and benefits of living in groups, types of social interactions, eusocial species, and social interactions in plants.
- ☐ Chapter 11 focuses on mating rituals, territorial behaviors, and migration patterns in animals.
- ☐ Chapter 11 discusses foraging strategies, predator-prey interactions, and habitat selection in plants.
- ☐ Chapter 11 explores communication methods, territorial marking, and group hunting in animals.

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What are the four types of social interactions discussed in Chapter 11?

- ☐ The four types of social interactions are cooperation, altruism, selfishness, and spite.
- ☐ The four types of social interactions are cooperation, parasitism, individualism, and neutrality.
- ☐ The four types of social interactions are symbiosis, commensalism, antagonism, and neutrality.
- ☐ The four types of social interactions are competition, mutualism, parasitism, and predation.

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What is haplodiploid sex-determination?

- ☐ Cooperation, selfishness, spitefulness, and altruism.

Subordinate males display at leks even without mating opportunities because they are more closely related to other males in the group.

☐

In haplodiploidy, sons are produced from unfertilized eggs (haploid) and daughters from fertilized eggs (diploid).

☐

0.5.

☐

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What is a lek in the context of animal mating?

- ☐ A lek is a location where animals hunt and store food.
- ☐ A lek is a site where animals gather for hibernation and shelter.
- ☐ A lek is a territory marked for exclusive feeding purposes.
- ☐ A lek is a site where animals aggregate to attract mates through displays or calls, with no other purpose than mating.

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What is the expected outcome when altruism is present in a population?

- ☐ Altruism can result in increased competition and resource depletion within the population.
- ☐ Altruism can cause a decline in genetic diversity due to reduced individual reproduction.
- ☐ Altruism can lead to decreased survival and reproductive success of unrelated individuals.
- ☐ Altruism can lead to increased survival and reproductive success of related individuals, benefiting the population as a whole.

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How do plants exhibit social interactions?

- ☐ Plants can communicate through root systems to share nutrients, indicating social interactions.
- ☐ Plants can have defense responses when neighboring individuals are attacked by herbivores, indicating social interactions.
- ☐ Plants can release pheromones to attract pollinators, demonstrating reproductive interactions.
- ☐ Plants can alter their growth patterns based on sunlight availability, showing individual adaptation.

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Under what conditions do dominance hierarchies form?

- ☐ Dominance hierarchies form when group size is small and isolated.
- ☐ Dominance hierarchies form when individuals prefer solitary behavior.
- ☐ Dominance hierarchies form when resources are ephemeral or when group benefits outweigh the need for territory defense.
- ☐ Dominance hierarchies form when resources are stable and territory is easily defended.

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What is the Dilution Effect?

- ☐ The Dilution Effect describes the enhanced ability of a group to attract predators by increasing their visibility.
- ☐ The Dilution Effect refers to the reduced probability of predation for an individual in a group, as the risk is spread out among many.
- ☐ The Dilution Effect refers to the increased probability of survival for an individual in isolation due to reduced competition.
- ☐ The Dilution Effect relates to the concentration of resources around a single individual in a group.

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What is kin selection?

- ☐ The process where competition between unrelated individuals is maximized.
- ☐ The process where natural selection favors solitary survival.
- ☐ The process where indirect fitness through relatives is favored by natural selection.
- ☐ The process where individuals select mates based on physical traits.

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How is direct fitness favored?

- ☐ By helping a brother or half-brother successfully mate, allowing the brother to sire 6.1 offspring.
- ☐ Through direct selection.
- ☐ Through indirect selection (kin selection).
- ☐ Both the donor and recipient experience reduced fitness, which cannot be favored by natural selection.