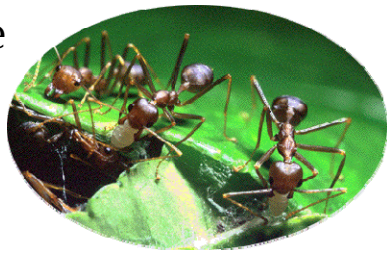
E.6a Further Studies of Behavior

E.6.1 Describe the social organization of honey bee colonies and one other non-human example.

■Honeybees live in groups of 20,000 – 60,000.Three castes:
■Queen: one female
■Drones: fertile males
■Workers: infertile females
■Ant colonies may have several queens who lay eggs, and thousands of workers. The underground chambers contain areas for mating, food storage, and raising young.

E.6.2 Outline how natural selection may act at the level of the colony in the case of social organisms.

The survival of a colony depends on the contributions of all it's member, in the same way that the survival of an organism depends on the contributions of all its cells. In this sense, a colony could be acted upon as an individual "unit" during natural selection.



E.6b Further Studies of Behavior

E.6.3 Discuss the evolution of altruistic behavior using two non-human examples.

Monkeys will signal others with an alarm call if a predator is near.

Wolves will bring food to pack members who were not present during a kill.

Altruistic behavior helps social group survive, which in turn helps them pass more genes on to their offspring, including altruistic genes.

E.6.4 Outline two examples of how foraging behavior optimizes food intake, including bluegill fish foraging for Daphnia.

Optimal foraging behavior is species specific.

Bluegill fish are risk neutral with regard to foraging behavior, even when availability of daphnia is varied.

Raccoons, on the other hand, are more likely to engage in risk taking behavior if potential food is near, even is they pick up the scent of another predator.

E.6c Further Studies of Behavior

E.6.5 Explain how mate selection can lead to exaggerated traits.

Female peahens choose a male to mate with based on their perception of whom is the most fit. Male peacocks must compete with each other visually, which over time, has lead to exaggerated traits as individuals try to outshine each other.

Courtesy of Thurner Hof

E.6d Further Studies of Behavior

E.6.6 State that animals show rhythmical variations in activity.

Courtesy of Mila Zinkova

E.6.7 Outline two examples illustrating the adaptive value of rhythmical behavior patterns.

Isopods are more likely to move when they are in a moist environment, often during nighttime. As the forest floor dries during the day, they slow down, conserving metabolic energy, until the moisture returns.

Human Infants engage in babbling behavior which helps them master verbal communication.