

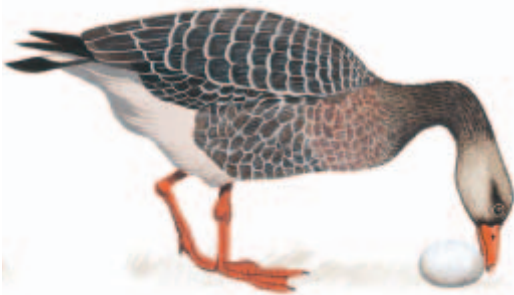
Biology Concepts 110 Fixed Action Pattern



- A** The goose responds to the stimulus of an egg out of the nest.



- B** The goose begins to roll the egg.



- C** The goose rolls the egg back to the nest with the underside of its bill.



- D** The goose continues to roll the egg until it is in the nest.

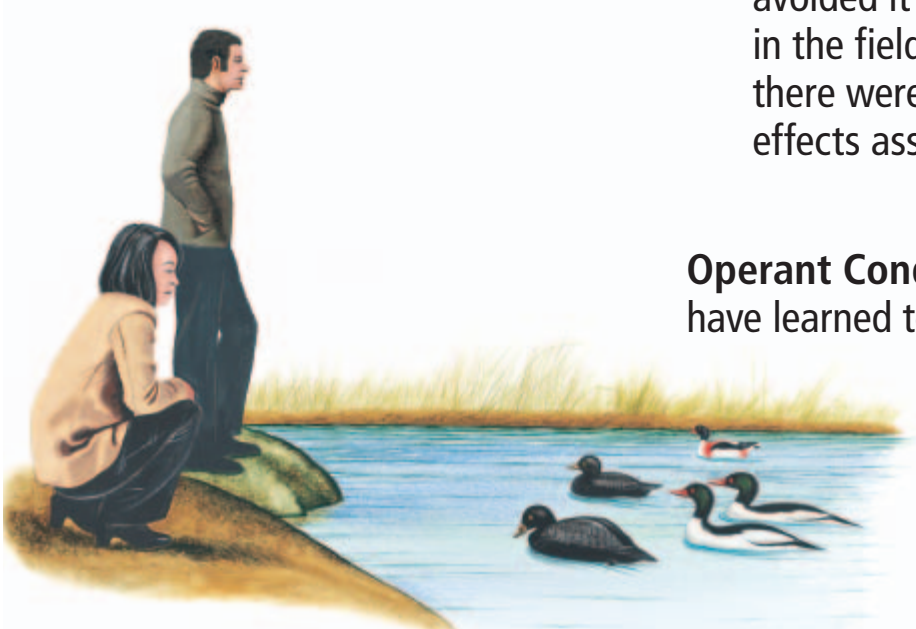
Biology Concepts 111 Types of Behavior



Fixed Action Pattern This newly hatched cuckoo is carrying out a fixed action pattern. An adult female cuckoo lays her eggs in the nests of other bird species. When the baby cuckoo hatches, it ejects the other eggs from the nest before its eyes are even open. The process of ejection is a fixed action pattern.



Habituation These birds have become habituated to the scarecrow. Although they might have avoided it when it was first placed in the field, they learned that there were no positive or negative effects associated with it.



Operant Conditioning These ducks have learned to associate the presence of humans near the edge of the pond with the reward of food.

Biology Concepts 112 Classical Conditioning



- A** When a dog is presented with food, it salivates.
- B** A bell is rung each time a dog is presented with food. The dog forms an association with the ringing bell and food.
- C** Eventually, the dog will salivate to the sound of the bell alone. It has been conditioned to respond to the ringing bell.

Biology Concepts 113 Effects of Behaviors

| Behavior | Example | Advantage | Disadvantage |
|-------------------------|---|-----------|--------------|
| Migration |  | | |
| Pheromone communication |  | | |
| Nurturing |  | | |

Animals that migrate increase their chance of survival by moving to a location that has better climate conditions and more food.

Pheromones provide a species-specific form of communication, which works without alerting predators.

Nurturing increases an offspring's chance of survival. Genes of the parents continue to be present in future generations.

A large amount of energy is needed to move long distances and there is the possibility of increased predation while moving.

Pheromones have a more limited range of communication than auditory or visual cues.

Parents spend increased amounts of energy on caring for offspring, possibly at the cost of the parents' health or safety.