

Animal Behavior

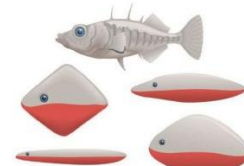
• Fixed Action Pattern (Niko Tinbergen)

A fixed action pattern (FAP) is an innate, highly stereotypical behavior that, once begun, is continued to completion no matter how useless or silly looking. FAPs are initiated by external stimuli called **sign stimuli**.

An example of a FAP studied by Tinbergen involves **the stickleback fish**, which attacks other males that invade its territory. The releaser for the attack is the red belly of the intruder.

Another example is **the cuckoo bird**.

- When presented with unrealistic models
 - As long as some red is present, the attack behavior occurs



(b) The realistic model at the top, without a red underside, produces no aggressive response in a male three-spined stickleback fish. The other models, with red undersides, produce strong responses.

Figure 51.3b

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• Learning

Learning is **a sophisticated process** in which the responses of the organism are modified as **a result of experience**.

For example, a bird avoids eating a bug after getting sick from it once, or A child touches a hot stove, feels pain, and learns not to touch it again.

- **Habituation**

Habituation is when an animal learns to **ignore a persistent stimulus**.

For example, a hydra at first shrinks when you tap its dish, but after repeated tapping, it stops reacting and continues moving.

- **Associative Learning**

1) CLASSICAL CONDITIONING (Ivan Pavlov)

Dogs salivate when a bell rings.



2) OPERANT CONDITIONING (B.F. Skinner)

trial and error learning.

*When an animal learns to **associate its behavior with a reward or punishment.***

*Example: A dog learns to sit when told because it gets **a treat** each time it does.*



- **Imprinting (Konrad Lorenz)**

*Imprinting is learning that occurs **during a sensitive or critical period** in the early life of an individual and is irreversible for the length of that period.*

Geese hatchlings follow the first thing they see.

- **Social Behavior**

- 1) Cooperation**

*Cooperation is when animals work together to do something better, like **hunting** in a group to catch prey more easily than alone.*

- 2) Agonistic Behavior**

*Agonistic behavior is **aggressive behavior** animals use to solve fights over food, mates, or space. It can be real fighting or just showing off.*

- 3) Dominance Hierarchies**

*Dominance hierarchies are **pecking order behaviors** where animals show who is the boss. In hens, the top hen (alpha) is at the top of the pecking order and controls the others.*

- 4) Territoriality**

*A territory is an area an animal defends to keep others out. It's used for food, mating, or raising young, and **is protected with agonistic (aggressive) behavior**.*

- 5) Altruism or Kin Selection**

*Altruism is a behavior that reduces an individual's reproductive fitness, while increasing the fitness of the group or family. **When an individual sacrifices itself for the family**, it is sacrificing itself for relatives, which share similar genes. The kin are selected as the recipients of the altruistic behavior.*

Questions

Choose from the list of scientists below.

- (A) Niko Tinbergen
- (B) Karl von Frisch
- (C) B. F. Skinner
- (D) Konrad Lorenz
- (E) Ivan Pavlov

1. Described the waggle dance in honeybees
2. Imprinting
3. Trained dogs to salivate at the sound of a bell
4. Classical conditioning
5. Taught rats in cages to depress a lever to release food
6. Baby geese followed him everywhere
7. Explained fixed action pattern

8) A sophisticated process in which the responses of the organism are modified as a result of experience is called

- (A) fixed action pattern
- (B) habituation
- (C) imprinting
- (D) classical conditioning
- (E) learning

9) This behavior reduces an individual's reproductive fitness while increasing the fitness of the family.

- (A) Altruism
- (B) Agonistic behavior
- (C) Territoriality
- (D) Cooperation
- (E) Imprinting

Choose from the terms below.

- (A) Fixed action pattern
- (B) Habituation
- (C) Classical conditioning
- (D) Imprinting
- (E) Operant conditioning

10. Innate, highly stereotypical behavior that must continue until it is completed

11. Trial and error learning

12. Sequence of behaviors that is unchangeable and carried to completion once initiated

13. Initially, the amoeba moved away from the strong light; but after a while, it resumed its normal movement pattern

14. This is the way dogs are trained

15) You want to train your puppy to wait at the curb until you tell him to cross the road. Your friend advises you to give your dog a treat every time he does as you ask. Your friend is advising that you train the dog using

- (A) operant conditioning
- (B) classical conditioning
- (C) imprinting
- (D) fixed action pattern
- (E) habituation

16) _____ is learning that occurs during a sensitive or critical period in early life and is irreversible for the length of the period.

- (A) Habituation
- (B) Operant conditioning
- (C) Trial and error learning
- (D) Imprinting
- (E) Classical conditioning

17) “Mary had a little lamb; its fleece was white as snow. And everywhere that Mary went, the lamb was sure to go.” The behavior of the lamb is best described as

- (A) habituation
- (B) imprinting
- (C) operant conditioning
- (D) classical conditioning
- (E) fixed action pattern

18) Fixed action patterns are initiated by external stimuli called

- (A) fixed action pattern
- (B) sign stimuli
- (C) agonistic behavior
- (D) dominance hierarchies
- (E) sensitive periods

19) Animals that help other animals are expected to be

- (A) stronger than other animals
- (B) related to the animals they help
- (C) male
- (D) female
- (E) disabled in some way

20) An animal that sacrifices itself for its relatives is exhibiting

- (A) operant conditioning
- (B) kin selection
- (C) classical conditioning
- (D) imprinting
- (E) habituation

