Learned Behavior

Learning - a process by which long-lasting changes in behavior are acquired as a result of experience.

Successive Approximations (aka Shaping)

Learning as an Adaptive Mechanism

As a coping mechanism for an ever changing world.

Young predators must learn how to hunt, where to hunt, and what to hunt.

Water and food resources may change for an animal

7 Types of Learning

1. Habituation
2. Imprinting
3. Associative Learning
4. Social Learning (aka observational learning)
5. Spatial Learning
6. Cognitive Map Learning
7. Insightful Learning (aka problem solving)

Habituation - A Type of Learning

A decrease or disappearance of a built-in, natural response to a stimulus that occurs when the animal repeatedly encounters the stimulus.

Don’t waste your time with stimuli that don’t matter.

Imprinting - A Type of Learning

Learning that is irreversible and limited to a sensitive time period in an animal’s life: often results in a strong bond between offspring and parents.

(We will discuss this one more in the near future.)
**Associative Learning - A Type of Learning**

Classical Conditioning - another example
Territorial defense in male blue gourami fish

- **Unconditioned**
  - Intruder = ‘real’ stimulus
  - Fins erect and battle ready = response

- **Conditioned**
  - Red light = ‘arbitrary’ stimulus
  - Fins erect and battle ready = response

How would you do this experiment?

Classical Conditioning - Another example
Territorial defense in male blue gourami fish

- **Unconditioned**
  - Intruder = ‘real’ stimulus
  - Fins erect and battle ready = response

- **Conditioned**
  - Red light = ‘arbitrary’ stimulus
  - Fins erect and battle ready = response

- Fish conditioned became better fighters (and lovers) after seeing the red light

**Social or Observational Learning - A Type of Learning**
Learn by observing the behavior of another individual (the model).

**Spatial Learning - A Type of Learning**
Learning the layout of the environment (landmarks) and remembering where activities took place or where objects were left.

Watson’s Work on Sea Birds (A ? Of Learning)
**Cognitive Map Learning - A Type of Learning**

Using internal representations, or codes, of the spatial relationships among objects in the animal’s surroundings.

Clark’s nutcracker - buries over 9,000 seeds in the fall in a square mile radius and retrieves all of them in the winter!! It even gets the best quality food first.

**Insightful Learning**

Combines previously learned information from unrelated situations to solve a problem in a new situation.

Wolfgang Kohler (German, 1925)

**Is Learning the Same for All Organisms?**

Yes & No, but mostly NO!!

Yes - Cellularly (Proximately)

No - Organismly

**Instinctive Drift**

Each species brings with it a host of tendencies and potential reactions that may emerge when the appropriate environmental conditions encourage their manifestation.

**Learning Preparedness**

Each species has a different preparedness for learning. Genetic!!

Some species may find a task easy to learn while others find it extremely difficult or impossible.

**Learning Preparedness**

Avoidance Behavior - learn to avoid situations that are painful or unpleasant.

Easy to teach a primate to avoid snakes

Easy to teach young birds to avoid hawk-like silhouettes

Easy to teach a deer to avoid the roar of a mountain lion

How an avoidance response is learned in an experiment depends directly on how similar the desired response resembles those avoidance tendencies in the animal that are already built in.
Learning Preparedness

Learned Taste Aversions - Learning to avoid something eaten or drunk.
    Rats are quick to learn (omnivores usually learn more quickly)

Parent-Offspring Recognition - parents and offspring learn to recognize each other.

Differences in species of swallows
    Bank swallow (large colonies) - quickly developed
    Rough-winged swallow (solitary) - slowly developed