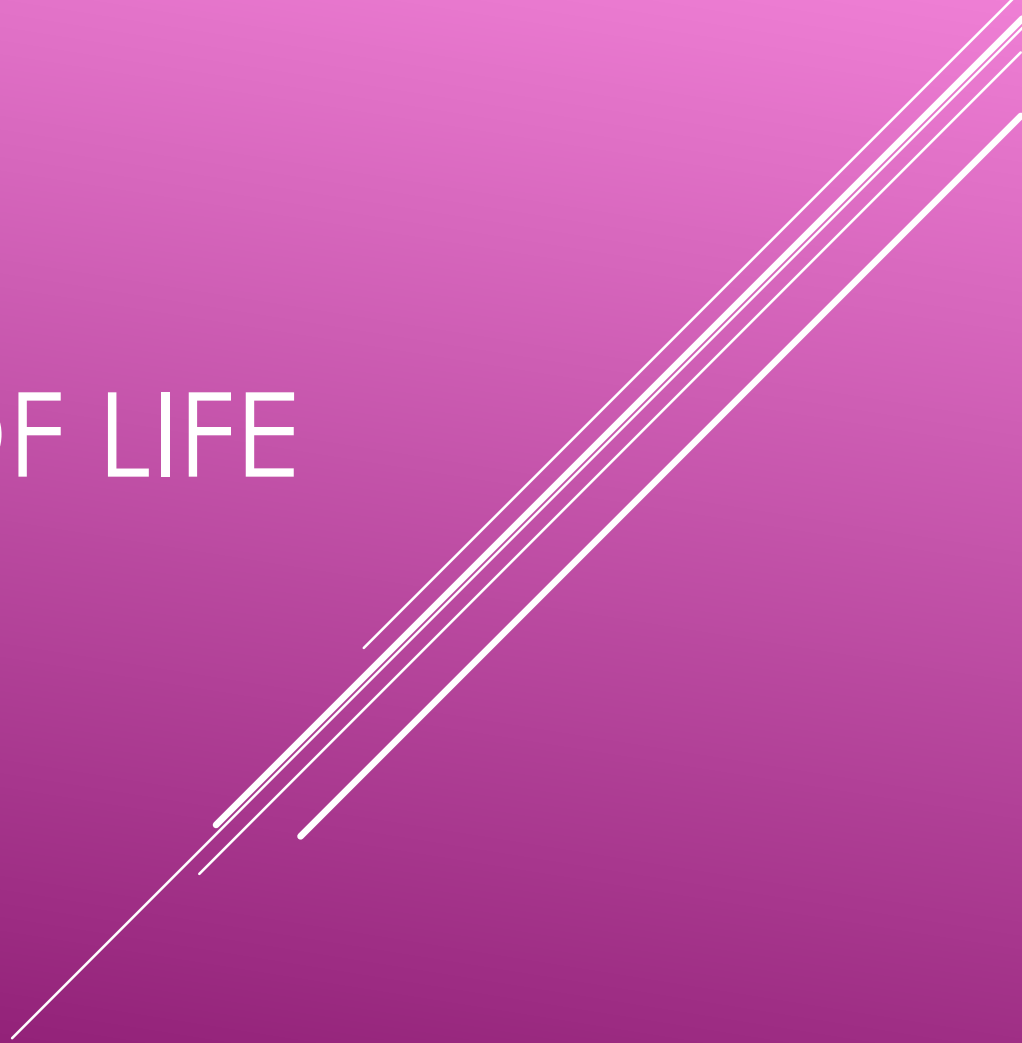


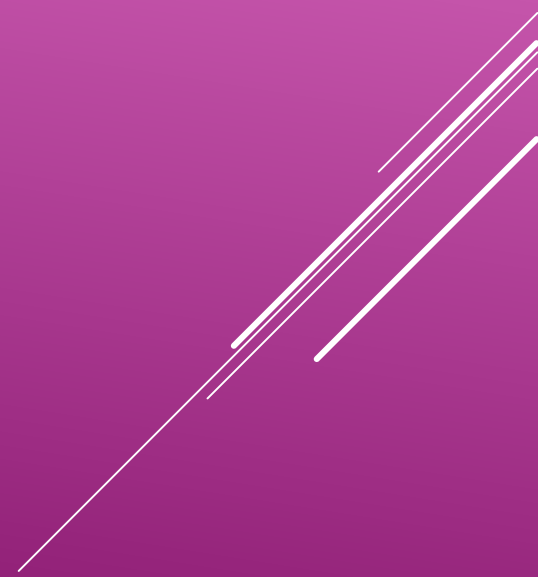
KINGDOMS OF LIFE

Animals



CHARACTERISTICS OF ANIMALS

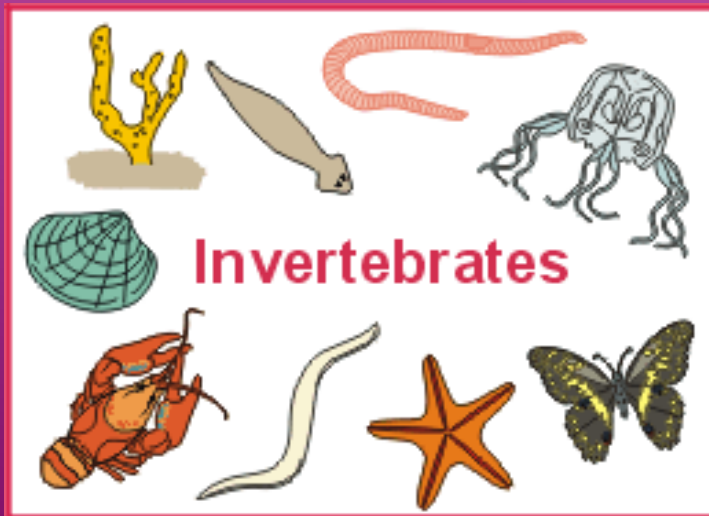
- ▶ Multi-cellular (eukaryotic)
- ▶ Heterotrophs
- ▶ Reproduce sexually



TWO TYPES OF ANIMALS:

Invertebrates

- ▶ lack a backbone
- ▶ 95% of all animals
- ▶ Includes: sponges, jellyfish, worms, insects, crustaceans, spiders, and starfish



Vertebrates

- ▶ have backbone
- ▶ Includes: fish, amphibians, reptiles, birds, mammals



ANIMAL BEHAVIOR

Behavior - anything an organism does in response to a stimulus in its environment

Stimulus - any kind of signal (chemical or physical) that can be detected by an organism

Response - is the organism's reaction to the stimulus.

- ▶ E.g. – You feel cold (stimulus), so you put on a jacket (response)

ANIMAL BEHAVIORS: TWO TYPES

Innate

- ▶ Innate behaviors are genetically programmed, so the organism is born already “knowing” the behavior

Learned

- ▶ Learned behaviors are acquired during an organism's life and may change with practice and experience

ANIMAL BEHAVIORS: EXAMPLES

Innate

- ▶ Courtship behavior
 - ▶ Territoriality
 - ▶ Aggression
- ▶ Dominance Hierarchy
- ▶ Orientation behavior
 - ▶ Cycles

Learned

- ▶ Habituation
- ▶ Classical conditioning
 - ▶ Trial and error
 - ▶ Imprinting

INNATE BEHAVIORS

1. **Courtship behavior** – pre-mating behavior designed to help an organism recognize and pick the “best” mate
Ex. Fireflies flash lights
2. **Territoriality** – defending physical space against other animals; reduces competition for scarce resources
Ex. A cat scent-marks its territory to warn others

INNATE BEHAVIORS

3. **Aggression** – a threatening behavior that one animal uses to gain control over another

Ex. Lions show their fangs and snap at other lions

4. **Dominance Hierarchy** – a social ranking within a group that establishes dominant and submissive members

Ex. A puppy rolls over and exposes its belly to adult dogs

INNATE BEHAVIORS



5. **Orientation behaviors**: Animals display **TAXIS** behaviors – movement toward or away from a stimulus

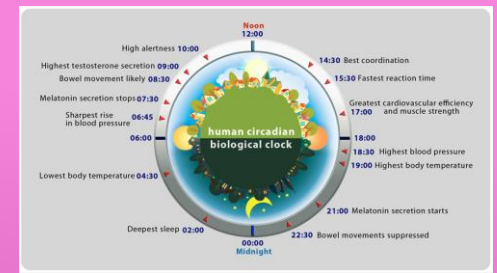
a. Phototaxis - movement in response to light

Ex. Moths are attracted to light

b. Chemotaxis – movement in response to chemicals

Ex. Insects are attracted to chemical signals from other insects

INNATE BEHAVIORS



6. **Behavioral Cycles (Biological “Clock”)**- Many animals respond to periodic changes in the environment with daily or seasonal cycles of behavior; these cycles allow for survival during periods when food or other resources may not be available.

- ▶ Circadian rhythms are daily cycles of behavior
 - Ex. sleeping and waking
- ▶ Seasonal rhythms occur at certain times of the year
 - a. Migration – movement from one place to another and then back again in response to environmental stimuli
 - b. Hibernation - a decrease in metabolism in response to colder temperatures
 - c. Estivation - a decrease in metabolism in response to warmer temperatures

LEARNED BEHAVIORS

1. **Habituation** – occurs when an animal is repeatedly given a stimulus with no punishment or reward; eventually the animal stops responding

Ex. You are able to sleep through the night even though you live close to the train tracks

LEARNED BEHAVIORS

2. **Classical Conditioning** – occurs when an animal makes a connection between a stimulus and some kind of reward or punishment

Ex. Pavlov's dog

Pavlov showed the dogs food. The dogs salivated. Pavlov started to ring a bell every time he fed the dogs. Eventually, the dogs would salivate whenever they heard the bell – even when food was not present.

LEARNED BEHAVIOR

3. **Trial and Error**– occurs when an animal learns to behave a certain way through repeated practice, in order to receive a reward or avoid punishment

Ex. A mouse learns how to get through a maze in order to get the food at the end

LEARNED BEHAVIOR

4. **Imprinting** - involves very young animals recognizing and following the first moving object they see – the urge to follow is innate

Ex. Ducklings imprint on their mother

