

ANIMAL BEHAVIOR

1. TEMPERATURE REGULATION

ectotherms - 'cold-blooded'

- body temperature fluctuates with environment
- most animals (exc. birds & mammals)
- behavior to avoid temperature extremes
- low cost but inactive when cold
- 'hot-blooded' shark & tuna retain higher core temp

endotherms - 'warm-blooded'

- constant internal body temperature
- birds (41°C) & mammals (37°C)
- active even when cold or dark
- enhances predation or escape
- but requires lots of food & energy

2. INSTINCTS vs LEARNED BEHAVIOR

behavior - an evolved adaptation

- movement, food, shelter, reproduction

instincts - innate (inherited)

- reflexive (automatic)
- stereotypical (little variation)
- esp. behavior vital to survival
- behavior patterns stored in genes

learned behavior - more complex, modified by experience

- vary with circumstances & individuals
- ability to learn stored in genes

nature versus nurture - extremes of a wide range

- role for both esp. among intelligent species

3. SWIMMING & DIVING

taxis - directed movement toward goal

- photo, geo, chemo, hydro, thigmo

swimming - most economical mode of travel

- entire body pushes against water
- buoyancy counteracts gravity
- mucus helps to reduce friction
- fusiform (torpedo-shaped) & fins

navigation - follow geographical pathway

- find food, return home, migrate
- landmarks, sun, stars, polarized light, or magnetism

biological clock - for different seasons

diving bradycardia - reflexive

- reduces heart rate, conserves O₂
- diverts blood to essential organs

4. SOCIAL BEHAVIOR

social behavior - opposite solitary

- intraspecific (within own species)

sociality - reproduction (mating, care of offsprings)

- defense (warn others, attack or distract predators, schooling confuses predators)
- feeding (search or share location)
- division of labor (specialize roles)
- promote learning (teach skills)
- but also more predators & competition

communication - transfer of information

- chemical, visual, sounds, or tactile
- displays (symbolic behavior)
- pheromones (chemical effect others)

5. SEXUAL REPRODUCTION

gonads - dioecious (male vs female)

- monocious (hermaphrodites)

spermatozoa - small & numerous

- flagellum swim in water/semen

ova - large & fewer, non-motile

- yolk supply to support embryo

cloaca - single opening for sex, urine, feces

fertilization - external (low rate of success)

- internal (deliver sperm to female)

environmental sex determination

- opposite of genetic sex determination
- sex controlled by chemical, sun, or temperature
- helps to adjust sex ratio & population size
- alligators (cold for females, warm for males)