

## Biology Chapter 25 – Animal Interactions

This chapter is mostly common sense. There are a few things to memorize, but it is mostly knowledge that you should have picked up over the years.

### 1. General Information

**Behavior** – the conduct of an organism, the way it acts

Simple organisms generally have simpler behavior patterns than advanced organisms (duh)

Classic Exception: Dogs and Squirrels

A dog can't reach food that isn't on the ground or where there is no direct path

Squirrels know how to go around and find alternate paths to the food

Dogs are more advanced, but squirrels learn to find alternate paths living in trees

Behavior usually is adapted to an organism's environment, and allows it to survive

Frogs do not move around in the day to camouflage themselves from predators

Species are adapted to their environment, which affects their behavior

**Innate Behavior** – not dependent on experience, organisms know these actions at birth

Dogs know innately to bury a bone, even if they're indoors, they try to dig up the carpet

**Learned Behaviors** – dependent on experience, organisms learn these actions over time and experience

Birds learn to flap their wings when they're ready to fly

Sometimes, learned behaviors may overrule or change innate behaviors

**Instinct** – a complex innate behavior, very useful for survival

You wouldn't jump off a cliff voluntarily, even though you've never fell 3000 ft before, right? =)

Chimps are really smart, they know how to work together to solve problems, much like humans

Food is usually a good way to lure an audience or group, even with humans

Reproduction is the goal of every animal on Earth except humans

Many males will defend their mating territory and/or their mate

### 2. More on Learned Behavior

**Imprinting** – at birth, some animals will follow their mother (or the 1<sup>st</sup> moving thing they see)

They'll prefer this animal more than any other, even if it isn't the real mother

**Habituation** – being exposed to a stimulus over and over, it'll lose the response to the stimulus

Bang your head against the wall enough times, you might not feel it after a while (don't try this)

**Conditioning** – occurs when patterns of an innate behavior are changed

It's how you train your dog to respond to certain stimuli, such as the ringing of a bell

Some actions are partly learned and partly innate

A squirrel opening a nut is both, as well as the human ability to solve problems

Behavior patterns are based on heredity, learning, and environment

### 3. Internal and External Stimuli

Creatures are told to do certain things on certain cues

The moth's act of spinning a cocoon is controlled by a gland in its head

Plants respond to weather conditions to either open or close their stomates

Hormones and other factors also trigger certain effects

### 4. Human Behavior

Many human behaviors, such as blinking, heartbeat, and breathing, are involuntary (duh)

However, learning plays a greater role in humans than most other animals

Many behavior patterns are for survival

You surrender when someone points a gun at you cuz you'll live longer that way

However, not all human behavior patterns follow this rule (think firefighters)

We have the ability to judge if certain acts are positive or negative to our survival

### 5. Population, Societies, Class Systems, and Communication

**Population** – all the organisms of a single species that live at the same time in the same area

**Animal Societies** – populations that exhibit patterns of leaders, followers, job specialists, etc

Ants and bees are good examples of animal societies

**Pecking Order** – order of superiority and seniority by whoever takes over first

**Dominance Hierarchies** – levels in a society where individuals fit, common even in humans

**Caste Systems** – systems where each member of a caste has a specific job

In animals, castes are divided by physical differences between different castes

**Queen Bees (female)** – the top of the caste system in a beehive, sits around and lays eggs

They're fed **Royal Jelly** their entire lives, can sting w/o dying to eliminate competition

**Royal Jelly** – the food fed to the queen and all young bees

When queens mature, they go flying into the sun, chased by drones

First drone to catches it mates with the queen in midair, returns

Drones that don't catch it are killed off back at the hive

Queens don't have good sense organs or powerful wings, but strong reproduction organs

**Drone Bees (male)** – supplies the eggs to the queen, chases after it on its maiden voyage

Drones have well developed wings and reproductive organs

**Worker Bees (female)** – carries out hive functions, gathers food, takes care of queen, everything

Workers die when they sting, because stinging tears their abdomen

Workers are sterile, but are powerful fliers, good senses, and are very versatile

**Communication** – interaction among members of a population

The better and more advanced the communication, the more advanced the society

Living in societies provides protection, a better chance of getting food, better chance for survival

Reproduction is also easier in a society because of more animals living together

Societies usually are for their young better than individuals, as well as division of labor

However, living alone offers better camouflage against predators

Animals normally communicate to each other that danger is approaching

Animals also communicate to show their emotions

**Sound** – dogs will growl to tell you that he isn't too happy of your presence

**Visual** – Dogs will show their teeth to show that he really isn't happy with you

**Physical** – dogs will bite you to show that he REALLY doesn't like you

**Smell** – skunks give off powerful odors to discourage predators

**Pheromone** – a sex attractant produced by silkworms that attracts males

Honeybees will dance to show the location of food

**Round Dance** – food is within 50 yards, they fly in circles

**Waggle Dance** – the direction of the waggle shows their direction of the food

Chimps will shout, whack, step on, and jump on each other to communicate

Humans have the most advanced communications

Speech allows us to tell about the present, past, and future in detailed fashion

Other animals can only tell about events occurring now, and w/o detail

Writing allows us to document events and pass them on to future generations