



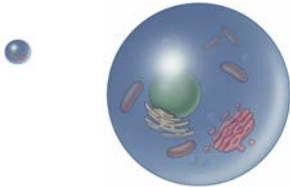
## 6 Kingdoms of Life

- The grouping of organisms into kingdoms is based on 3 factors:

1. Cell Type
2. Cell Number
3. Feeding Type

1. **Cell Type**- The presence or absence of cellular structures such as the nucleus, mitochondria, or a cell wall

### Prokaryotes & Eukaryotes



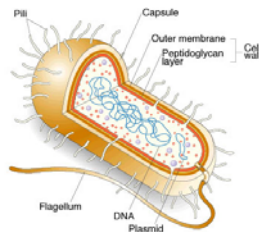
## Prokaryotes

- **DO NOT HAVE:**
  - a membrane bound nucleus
  - any membrane bound organelles

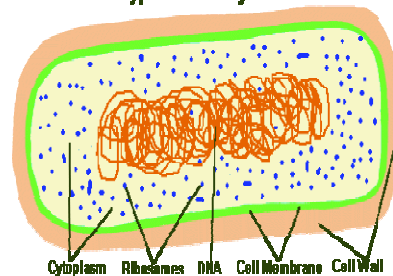


## ...Prokaryotes

- **DO HAVE:**
  - DNA
  - Ribosomes
  - Cytoplasm
  - Cell membrane



### A Typical Prokaryote Cell



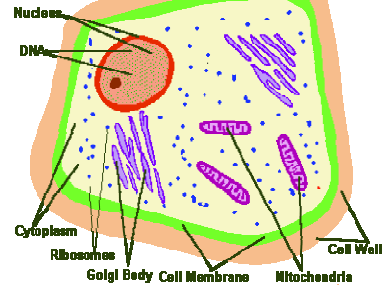
# Eukaryotes

• DO HAVE:

- separate membrane bound nucleus
- other organelles



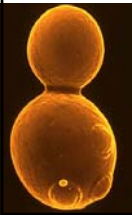
A Typical Eukaryote Cell



2. Cell #

Whether the organisms exist as single cells or as many cells

- **Unicellular**- single celled organism
- **Multicellular**- many celled organism



3. Feeding Type - How the organisms get their food

**Autotroph (producer)**

- Makes it's own food



**Heterotroph (consumer)**

- Must eat other organisms to survive



There used to be only 5 kingdoms

1. **Moneran** — This kingdom has now been divided into 2 – archaeobacteria & eubacteria
2. **Protista**
3. **Fungi**
4. **Plantae**
5. **Animalia**



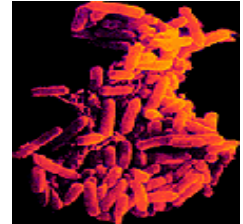
## 6 Kingdoms

- Archaeobacteria
  - Eubacteria
- } **Prokaryotes**
- Protista
  - Fungi
  - Plantae
  - Animalia
- } **Eukaryotes**

Kingdom	Cell Type	Cell #	Feeding Type	Cell Wall
Archaeobacteria	Prokaryote	Unicellular	Autotroph	Yes
Eubacteria	Prokaryote	Unicellular	Both	Yes
Protista	Eukaryote	Most Unicellular	Both	Yes & NO
Fungi	Eukaryote	both	Heterotroph	Yes
Plantae	Eukaryote	Multicellular	Autotroph	Yes
Animalia	Eukaryote	Multicellular	Heterotroph	NO

## Archaeobacteria

- **Ancient bacteria-**
  - Live in very harsh environments
  - extremophiles



## Eubacteria

- It is the eubacteria that most people are talking about when they say bacteria, because they live in more neutral conditions.



## Bacteria

- Bacteria are unicellular prokaryotes



## Bacterial Locomotion

- Some bacteria have flagella or cilia for movement
- Some secrete a slime layer and ooze over surfaces like slugs



## Bacterial Nutrition

- Some bacteria are autotrophs and can photosynthesize
- Some bacteria are heterotrophs



## Protists

- Protists include many widely ranging microbes, including slime molds, protozoa and primitive algae.
- Odds & Ends Kingdom



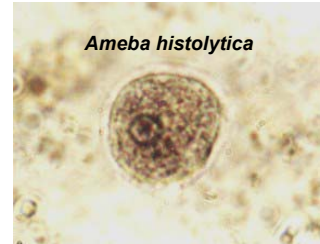
## Protists

- There are animal-like, fungus-like, and plant-like protists
- Some are beneficial
- Some protists can cause diseases in humans, such as:

Disease	Protist	Vector (carrier)	Symptoms	Details
Amebic dysentery	<i>Ameba histolytica</i>	water	diarrhea	can get from tap water in some places
Giardiasis (beaver fever)	<i>Giardia</i>	water	diarrhea, vomiting	don't drink water from streams
African Sleeping Sickness	<i>Trypanosoma</i>	Tse tse fly	uncontrolled sleepiness, confusion	Only found in isolated areas lives in blood
Malaria	<i>Plasmodium</i>	<i>Anopheles</i> mosquito	fever, chills, death	can be treated with quinine lives in blood results in millions deaths per year
Toxoplasmosis	<i>Toxoplasma</i>	cats	fetal death or brain damage	pregnant women should avoid cat litter

## Protists Disease

- Amebic dysentery



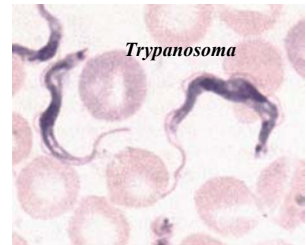
## Protists Disease

- Giardiasis (beaver fever)



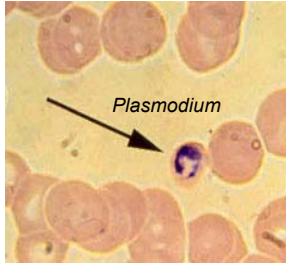
## Protists Disease

- African Sleeping Sickness



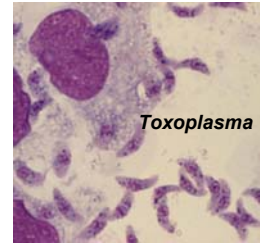
## Protists Disease

- Malaria



## Protists Disease

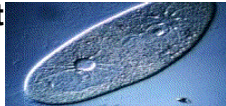
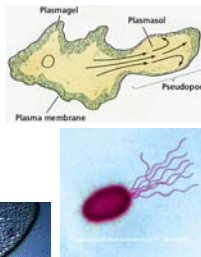
- Toxoplasmosis



## Protists Locomotion

- 3 types of movement:

- Pseudopod (false foot)
- Flagella/cilia
- Contract



## Protists Nutrition

- Protists can be autotrophs or heterotrophs



## Fungi

- The Kingdom Fungi includes some of the most important organisms.
- By breaking down dead organic material, they continue the cycle of nutrients through ecosystems.



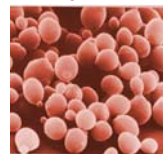
- All fungi are eukaryotic

## Fungi

- They may be unicellular or multicellular

- All fungi have a cell wall

Unicellular (yeast)



Multicellular



## Fungi

- Fungi can be very helpful and delicious
- Many antibacterial drugs are derived from fungi



## Fungi

- Fungi also causes a number of plant and animal diseases:
- Athlete's Foot



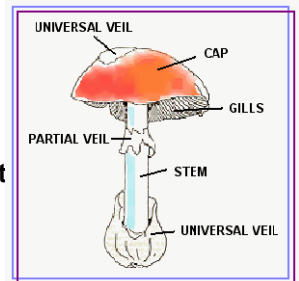
## Fungi

- Ringworm



## Fungi Locomotion

- Fungi are stationary
- They have root-like structures that they use for attachment



## Fungi Nutrition

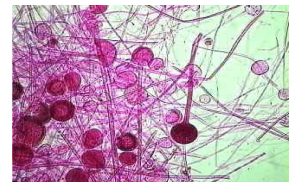
- All fungi are heterotrophs
- They absorb nutrients from dead organic matter
- They are saprophytes



There are 4 main types of Fungi (classified by how they reproduce)

### 1. Zygospor (Zygosporangia)

- Bread molds



There are 4 main types of Fungi

2. Club (Basidiomycetes)

- Mushrooms & puffballs



There are 4 main types of Fungi

3. Sac (Ascomycetes)

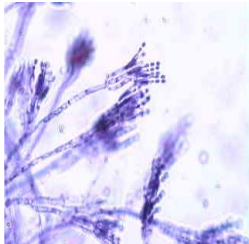
- Yeasts



There are 4 main types of Fungi

4. Imperfect (Deuteromycetes)

- penicillin



## Plants

- All plants are multicellular autotrophs that have a cell wall.



- 4 important plant groups are the:

Mosses Non-vascular  
(Bryophytes)



Ferns  
(Pteridophytes)



Vascular

Conifers  
(Gymnosperms)



Flowering Plants  
(Angiosperms)



- Nonvascular Plants

• Nonvascular plants are the simplest of all land dwelling plants.

• They lack an internal means for water transportation.

• They do not produce seeds or flowers.

• They generally only reach a height of 1 to 2 centimeters, because they lack the woody tissue necessary for support.

- Mosses



- Liverworts & Hornworts



- Vascular Plants

- Vascular plants have water-carrying tissues (xylem) and sugar-carrying tissues (phloem) enabling the plants to evolve to a larger size.

- Vascular plants produce seeds.

- Ferns



- Conifers (cone bearing)
  - Gymnosperms
    - Oldest vascular plants



- Flowering plants
  - Angiosperms





## Animalia

All animals are multicellular heterotrophs that LACK a cell wall and are capable of movement at some point in their lives.



Animals are divided into taxa by many variables.

One variable is body symmetry

### Asymmetrical –

Asymmetrical animals (sponges) have no general body plan or axis of symmetry that divides the body into mirror-image halves.



### Radial –

Radially symmetrical animals (such as coral and jelly fish) have body parts organized about a central axis and tend to be cylindrical in shape.

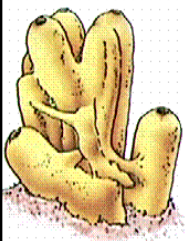


### Bilateral –

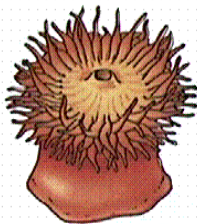
Bilaterally symmetrical animals (such as humans and fish) have only a single plane of symmetry that produces mirror-image halves.



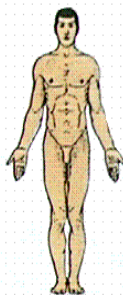
Asymmetrical



Radial



Bilateral



• Animals are also classified by their skeletal system

– Invertebrates have a hard external skeleton made of chitin known as an exoskeleton

– Vertebrates have a hard internal skeleton made of bone

- Some important animal groups (phyla) are the:

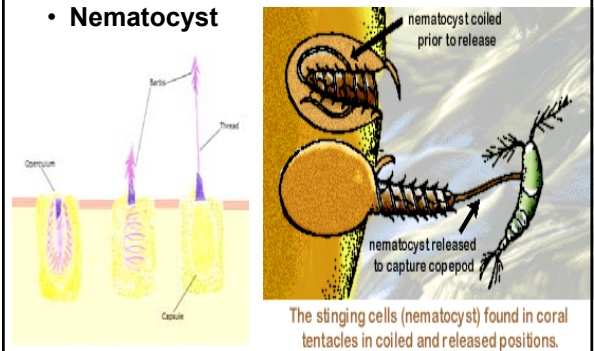
- **Porifera: sponges**



- **Cnidarians: Jellyfish, corals, and other stingers. . . Their stinger is called a nematocyst**



- **Nematocyst**



- **Mollusks**  
– Octopi, squid



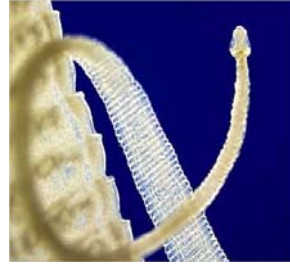
- **Mollusks**  
– Clams, oysters



- **Mollusks**  
– Snails, slugs



- **Platyhelminthes (flat worms)**  
– Tapeworms & flukes



Human liver fluke

- **Annelids (segmented worms)**  
– Worms & leeches



Ribbon Tiger Medicine Horse

- **Echinoderms**  
– Starfish, sea urchins, sea cucumbers

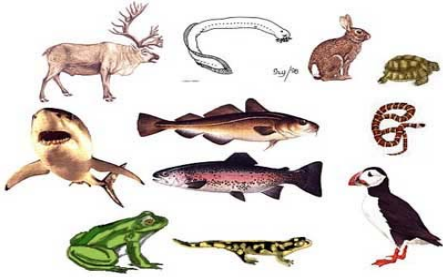


- **Arthropods**  
– Shell fish, arachnids & BUGS!



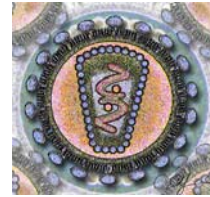
- **Chordates**  
– The Chordata is the animal phylum with which everyone is most familiar, since it includes humans and other vertebrates.

• **Chordates**



**Viruses**

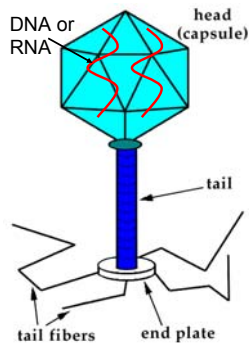
- **Viruses do not share many of the characteristics of living organisms.**



HIV Virus

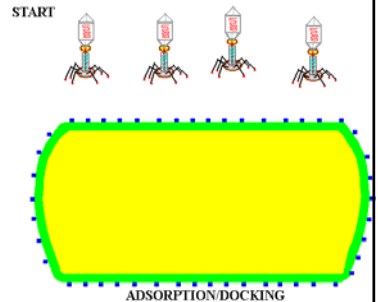
**Viruses**

- Viruses are not cells.
- Basic viral structure consists of a nucleic acid (DNA or RNA) core surrounded by a protein coat.



**Viruses**

- **Viruses can reproduce only inside a living cell, the host cell.**



**Viruses**

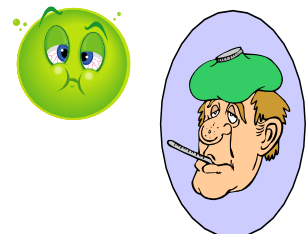
- **The viral reproductive process includes the following steps:**

  1. **A virus must insert its genetic material into the host cell.**
  2. **The viral genetic material takes control of the host cell and uses it to produce viruses.**
  3. **The newly formed viruses are released from the host cell.**

**Virus Vectors**

Viruses are transmitted through vectors, such as:

- Airborne
  - Influenza
  - Common cold



## Virus Vectors

- Contaminated food or water
  - Hepatitis



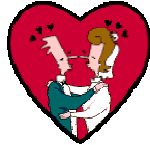
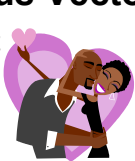
## Virus Vectors

- Infected animal bite
  - West Nile
  - Rabies
  - Avian influenza (bird flu)
  - Ebola



## Virus Vectors

- Sexual contact
  - HIV
  - Herpes



## Virus Vectors

- Contaminated blood products or needles
  - HIV
  - Hepatitis



## Virus Treatment

- Viruses cannot be treated with antibiotics.
- There are some anti-viral drugs available.
- You generally have to wait for the virus to run its course and let your immune system fight it off.



## reference

- <http://www.spsk12.net/schools/kfhs/staff/cadorete/taxomy/6kingol.ppt>