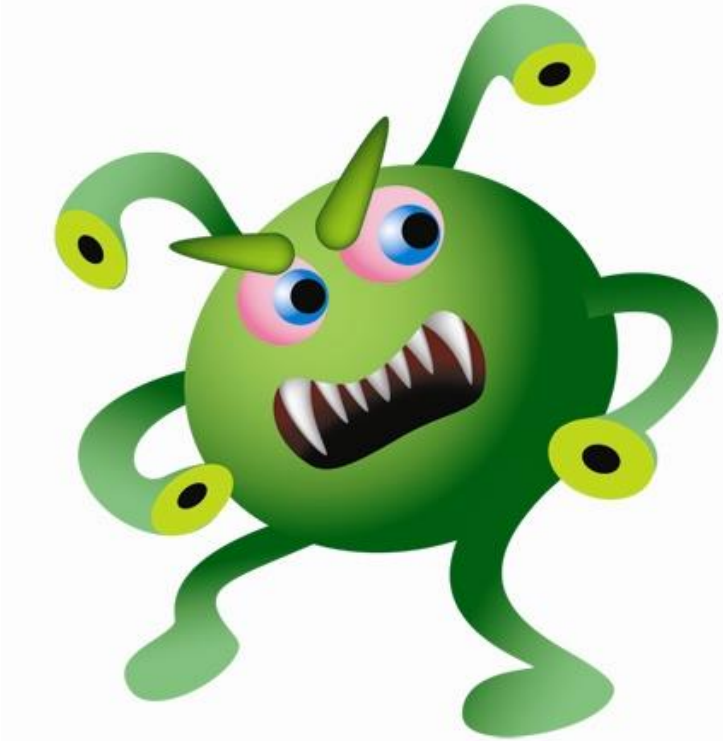
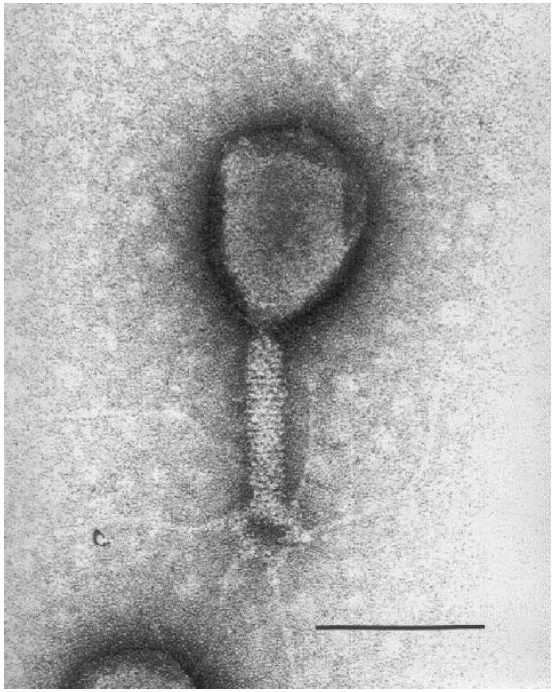
Chapter 7: Viruses, Bacteria, Protists, and Fungi

Section 1: Viruses

- Characteristics of Viruses
  - Tiny, _____particles that invade cells
  - _____have the ability to multiply without host cell
  - Act like parasites
    - Live in or on host cell and harm



Structure of Viruses

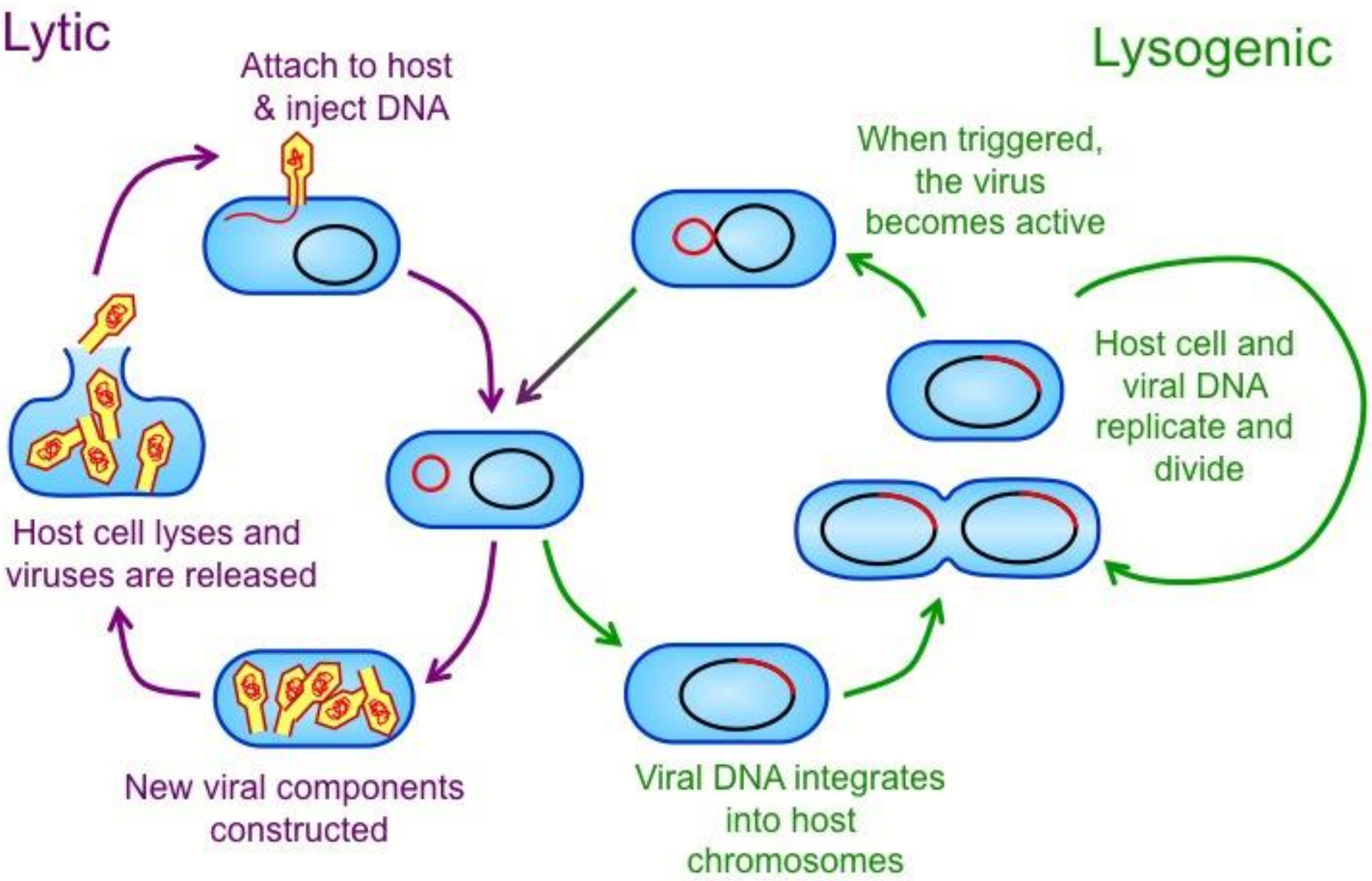


- Vary in size and shape
- EX: Bacteriophage- “bacteria eater”

- Two basic parts:
  1. _____- protects the virus
  2. _____- made of genetic information (DNA or RNA)

- “Lock and Key” action
  - Example: Cold viruses can only attack nose and throat

- Two Types:
  1. _____-enters, *immediately Replicates and ruptures* the cell (Influenza)
  2. _____- remains *hidden* in host cell (Chicken Pox)


Lytic
Lysogenic
Attach to host & inject DNA
When triggered, the virus becomes active
Host cell and viral DNA replicate and divide
Host cell lyses and viruses are released
New viral components constructed
Viral DNA integrates into host chromosomes

Spread of Viruses

1. _____ with contaminated _____
2. _____ from an infected animal
3. _____ with body fluids
4. _____

Treating Viral Diseases

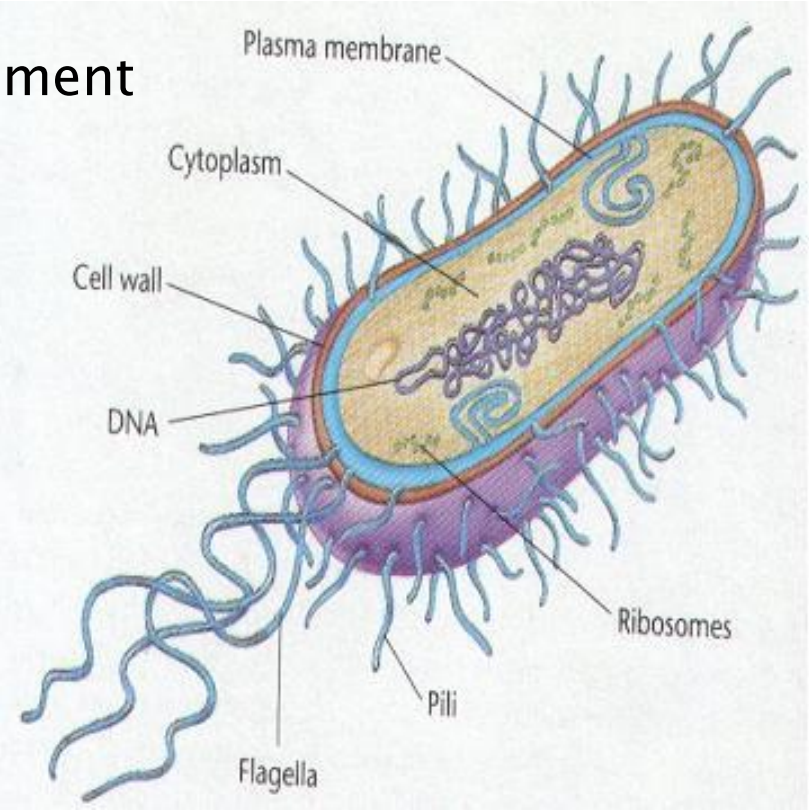
- _____!
- OTC meds can treat symptoms
- _____ treatment
- Drink plenty of fluids
- Eat a well-balanced meal

Preventing Viruses

- _____
  - Made from weakened or altered virus
  - Trigger body's natural defenses
  - Polio, measles, chickenpox
- Washing hands
- Not sharing food or utensils
- Good diet with lots of fluids
- Exercise

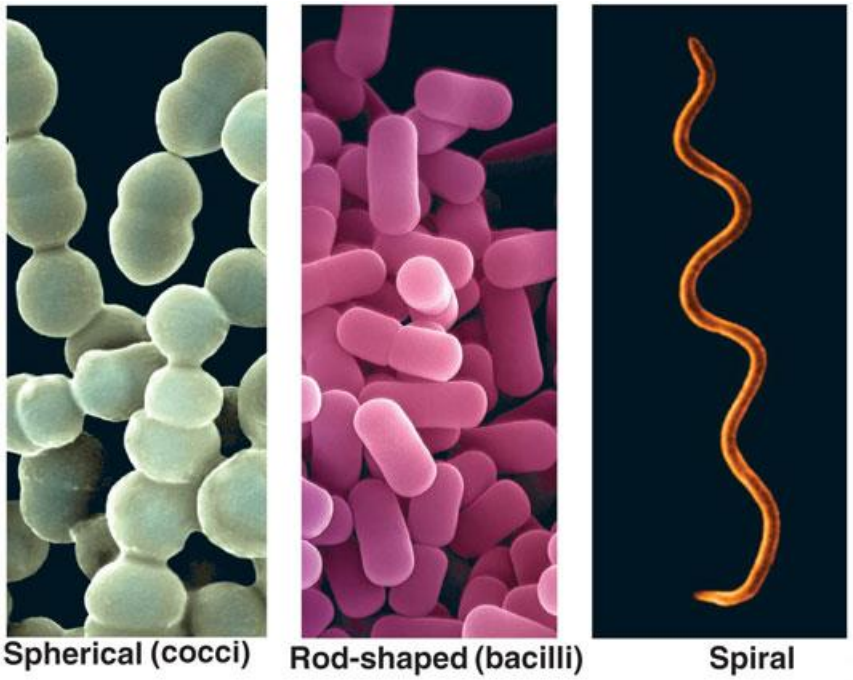
Section 2: Bacteria

- _____
- No nucleus, mitochondria, or Golgi bodies
- Contain rigid cell wall
- Ribosomes and genetic material in cytoplasm
- _____
  - long structure that aids in movement
  - May have many, one or none



Size and shape of Bacteria

- Vary in size
- Three shapes
  1. _____
  2. _____
  3. _____
- Chemical makeup of wall determines shape
- Shape used for classification



Obtaining Food and Energy

- Some are autotrophs
  - Use sun like plants
  - Other use chemicals from substances they are in
- Some are heterotrophs
  - Consume other organisms
  - Eat food made by other organisms

Reproduction

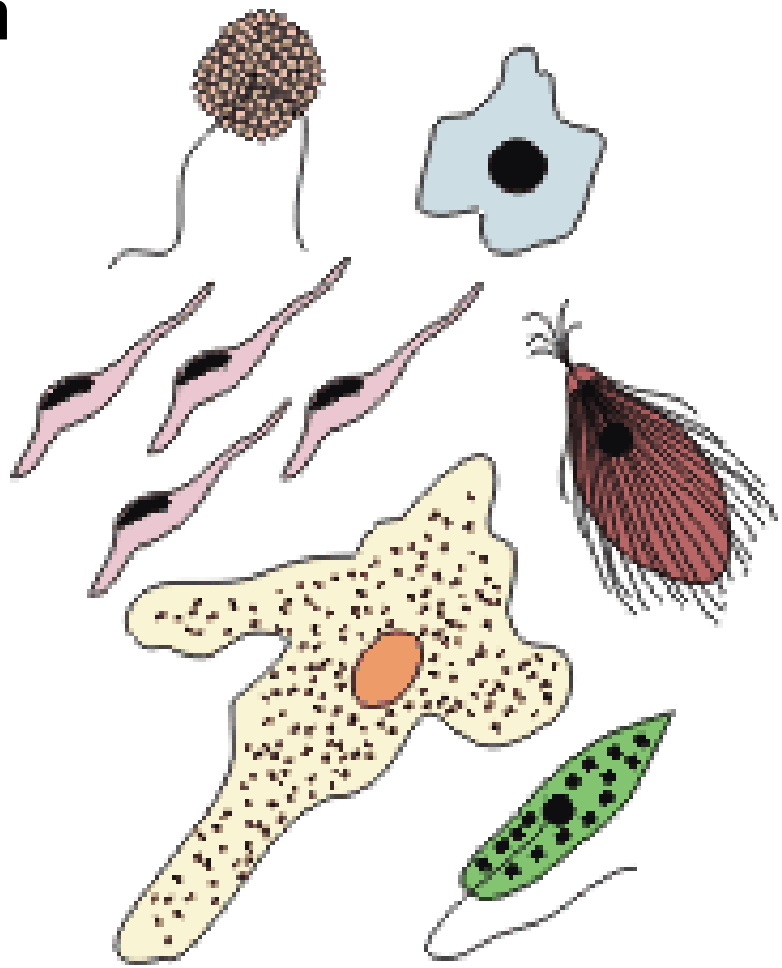
Asexual (one parent cell)	Sexual (Two parent cells)
_____= one cell divides into two identical cells	_____= one bacterium transfers some of its genetic info to another via threadlike bridge
Step 1- cell divides its genetic info	After conjugation, bacteria separate then reproduce by binary fission
Step 2- cell divides into two offspring	Conjugation results in new combos of genetic info
Each offspring gets some of it parent's ribosomes and cytoplasm	Conjugation does not increase # of bacteria formed
_____ "resting" cells = form inside bacterium + can resist extreme conditions	

Bacteria in Nature

- Oxygen Production
- Food Production
  - yogurt + cheese
  - pasteurization
- Environmental Recycling
- Environmental Cleanup
  - oil spill helpers
- Health and Medicine
  - Insulin for diabetics

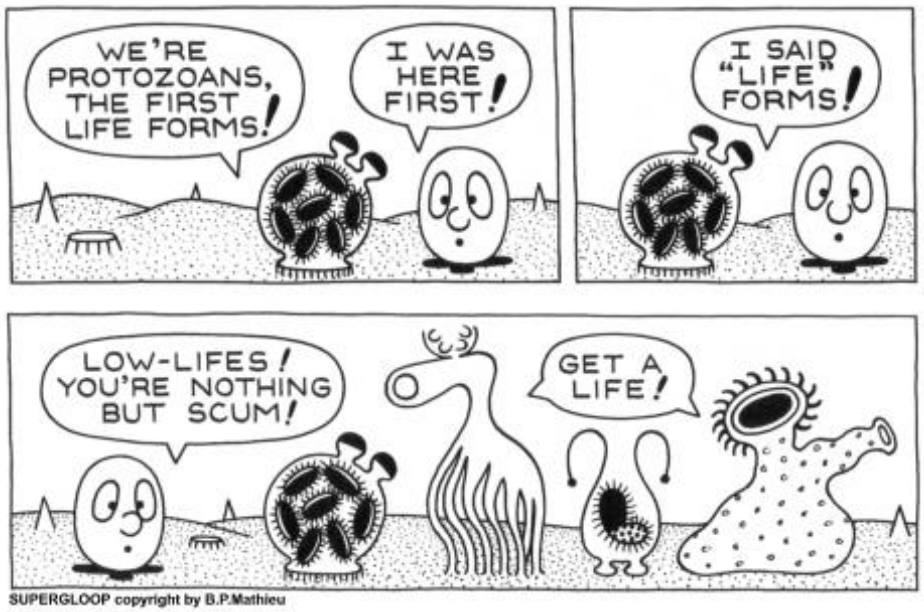
Section 3: Protists

- “odds and ends” kingdom
- Eukaryotes that live in moist areas
- Protists are diverse
- Divided into 3 groups:
  - Animal-like
  - Plant-like
  - Fungus-like



Animal-Like Protists

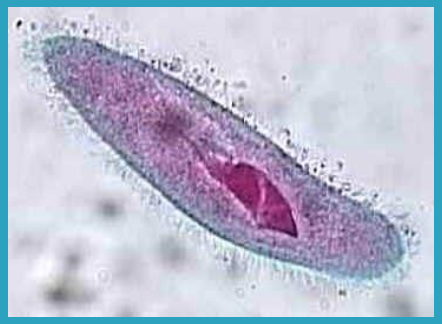
- Mobile heterotrophs but unicellular
- 4 Protozoan groups based on how they move and live:
  1. Pseudopods
  2. Cilia
  3. Flagella
  4. Act as Parasites
     - Live off of hosts
     - Cause malaria



Pseudopods

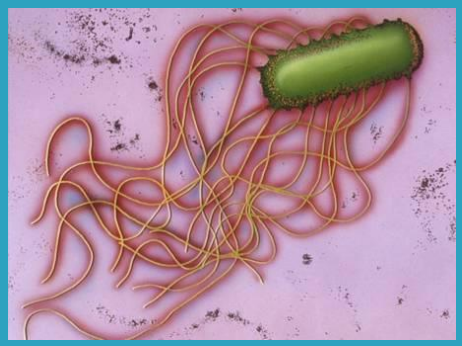
- “false foot” formed by cytoplasm movement
- Example: Amoeba
- Contractile vacuole expels excess water

Cilia



- Hair-like projections
- Example: paramecium
- 2 nuclei- one for everyday jobs and the other for reproduction

Flagella



- whip-like tails
- Example: Giardia
- Symbiosis = two organisms interact, with at least one benefitting
- Mutualism = both organisms benefit

Plant-like Protists

- Called Algae
- 6 types:
  - _____
    - Unicellular with **glasslike cell walls**
    - Float in water or attach to rocks in shallow water
  - _____
    - Unicellular with two flagella
    - Glow in the dark
  - _____
    - Green, unicellular and found in fresh water
    - Can be auto- or hetetrophic

Plant-like Protists (cont.)

- Red Algae
  - Multicellular seaweeds
  - Used for ice cream and hair conditioner
- Green Algae
  - Found in fresh or salt water
  - Contain same type of chlorophyll as plants
- Brown Algae
  - Anchored seaweed that contain bladders so they can stand upright
  - Common seaweed and kelp

Fungus-like Protists

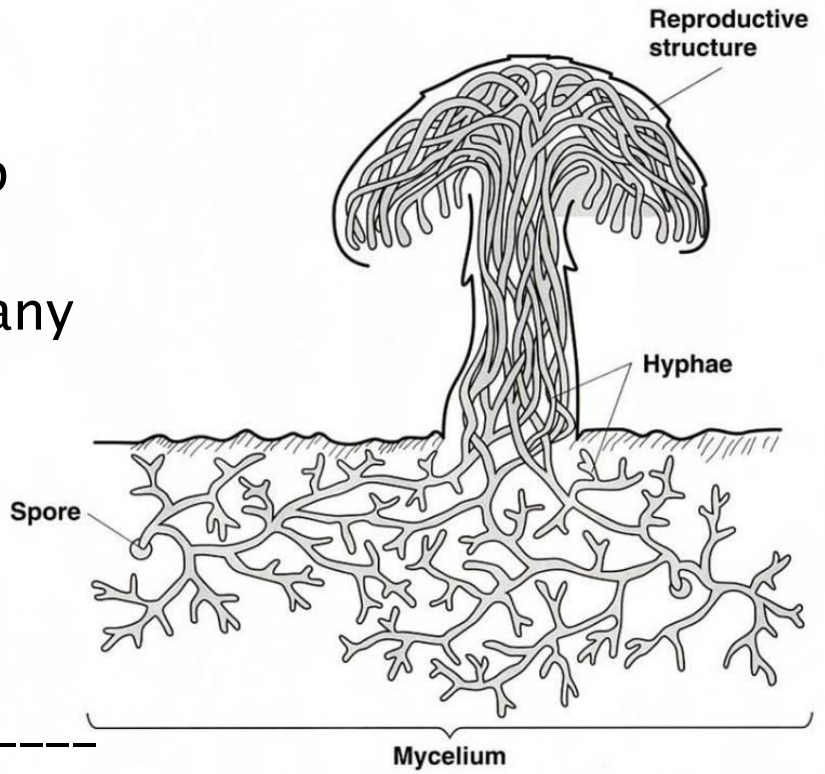
- _____ with cells walls
- Use spores to reproduce
- Three types
  - Slime Molds – brilliantly colored
  - Water Molds – look like fuzz
    - Responsible for Potato Famine of 1845-1846
  - Downy Mildews- black parasites of food crops

Section 4: Fungi

- Eukaryotes with cell walls
- Heterotrophs that absorb their food
- Use _____to reproduce
- Live in warm and moist areas

Characteristics of Fungi

- Cell Structure
  - Hyphae
    - Branching tubes that make up fungi bodies
    - Threads of cytoplasm with many nuclei
    - Allows substances to move quickly and freely
- Obtaining food
  - Absorb food by_____
  - _____into food to break it down for hyphae



Fungi Reproduction

- Produce spores in fruiting bodies
- Reproduce asexually and sexually depending on amount of moisture and food
- Asexual by means of budding
  - A bud forms on parent cell then breaks away and lives on its own
- Sexual occurs in unfavorable conditions
  - Hyphae of two fungi join together and form spores
  - Genetic info is swapped and offspring grows

Role of Fungi in Nature

- Fungi as Food: yeasts, molds, mushrooms
- Environmental recycling: act as decomposers
- Disease-fighting: penicillin
- Disease-causing: athlete's foot and ringworm
- Fungus-plant root associations:
  - Helping plants grow larger and healthier
- Lichens
  - Break down rock into soil
  - "pioneer" organisms after fires and rock slides
  - Indicators of air pollution