Biology

Protista 1: Protozoan

Protista

1. Eucaryotic, single cells (some colonial), autotrophs & motile heterotrophs
2. Autotrophs are algae
3. Motile herterotrophs are protozoan
4. Monera are procaryotic
5. Fungi are sessile heterotrophs
6. Plants and animals have tissues (multicellular)
7. Many varieties of shapes, sizes and colors

Protozoans

1. Subkingdom
2. "First animals"
3. Motile herterotrophs
4. Four Phyla based on type of motility
5. Sarcodina: pseudopods
6. Ciliophora: Cilia movement
7. Mastigophora: Flagella movement
8. Sporozoa: Motile only in immature stage

Sarcodina

1. Motility: pseudopods
2. Example: amoeba
3. Shape: nondescript sphere
4. Habitat: fresh and salt water, human mouth and intestines
5. Anatomy: nucleus, ectoplasm (watery fluid near membrane), endoplasm (cense fluid near center), contractile vacuoles (water regulation)
6. Behavior: Taxes (response to environment stimuli). Migrates toward food, retreats from glass
7. Nutrition: Phagocytosis, food vacuole, enzymes
8. Reproduction: asexual, mitosis, 3 day cycle
9. Special conditions: cyst formation to survive harsh conditions
10. Pathogenicity: some are some are not
11. Nonpathogenic: Entamoeba gingivalis, E. coli
12. Pathogenic: E. histolytica (amebic dysentery)

Ciliophora (Ciliates)

1. Motility: Cilia, beat rhythmically, various patterns
2. Example: paramecium
3. Shape: cone, bell, slipper, up to 3 millimeters
4. Habitat: fresh and salt water
5. Anatomy: Cortex (pellicle, skin), ectoplasm and endoplasm, macro- and micro-nuclei, contractile vacuoles with canals (water regulation)
6. Behavior: Taxes (response to environment stimuli). Migrates toward food, attracted to low pH, migrate away from some chemicals, extreme T°
7. Nutrition: cilia-mediated, oral groove (mouth pore, gullet), food vacuole, enzymes
8. Reproduction: asexual and sexual, conjugation and meiosis

9. Special conditions: trichocysts release filaments when stimulated
10. Pathogenicity: Most nonpathogenic
11. Nonpathogenic: Stentor- 2.5 millimeters, "giant"
12. Pathogenic: Balantidium coli: dysentery

Mastigophora (Flagellates)

1. Motility: flagella (single or more, etc), euglenoid movement (modified amoeba), some free swimming, some sessile
2. Example: Euglena
3. Shape: Variety of shapes
4. Habitat: fresh and salt water, soil
5. Anatomy: Pellicle, ectoplasm and endoplasm, contractile vacuoles (water regulation), gullet, tiny-red-light-sensitive eyespot, nucleus with nucleolus
6. Behavior: Taxes (response to environment stimuli). Migrates toward food, retreats from glass
7. Nutrition: All heterotrophic though some can be autotrophic, absorption, parasitic and saprophytic
8. Reproduction: asexual and sexual, binary fission, once a day
9. Special conditions: unicellular and colonial
10. Pathogenicity: Many parasitic, some pathogenic
11. Nonpathogenic: Volvox (form hollow, spherical colonies), Trichonympha (symbiotic with termites)
12. Pathogenic: African Sleeping sickness (Trypanosoma)

Sporozoa (Sporozoans)

1. Motility: Motile only during immature stage, not as adults
2. Example: Plasmodium, (malaria)
3. Size and Shape: Variety of shapes
4. Habitat: parasitic
5. Anatomy: Forms spores at some time during life cycle
6. Behavior: Taxes (response to environment stimuli). Migrates toward food, retreats from glass
7. Nutrition: all parasitic, absorption
8. Reproduction: spore forming (nucleus divides several times and gathers cytoplasm), cell breaks apart, complex life cycle, sexual and asexual
9. Special conditions:
10. Pathogenicity: All parasitic
11. Example: Plasmodium, (malaria="bad air"), more deaths than any other, Dr. Charles Laveran discovered the pathogen, Life cycle: Human blood -> Anopheles (cells mature and migrate to salivary)-> Human (blood-liver-rbc, chills and fever)