

Evolution II (8%)

I. Classification

a. 5 Kingdoms

i. Prokaryotae

1. Singlecellular
2. Prokaryotes
3. Autotrophs/ Heterotrophs
4. No nuclei

ii. Protists

1. Singlecellular/ Collonial
2. Eukaryotes
3. Autotrophs/ Heterotrophs

iii. Fungi

1. Singlecellular/ Multicellular
2. Eukaryotes
3. Heterotrophs
4. Cell walls: Chitin

iv. Plants

1. Multicellular
2. Eukaryotes
3. Autotrophs
 - a. Chloroplasts
4. Cell walls: Cellulose

v. Animalia

1. Multicellular
2. Eukaryotes
3. Heterotrophs
4. No cell walls

vi. Further Classification

1. Kingdom
2. Phylum
3. Class
4. Order
5. Family
6. Genus
7. Species

(Kids Playing Chess On Freeway Get Squashed)

vii. Binomial Nomenclature

- 1. Genus + Species
 - a. i.e. Homo Sapien
- b. 3 Domains
 - i. Bacteria
 - 1. Prokaryotes
 - a. Prokaryotae
 - ii. Archaea
 - 1. Prokaryotes
 - a. Prokaryotae
 - 2. Live in harsh environments
 - 3. Lipids are different
 - iii. Eukarya
 - 1. Eukaryotes
 - a. Protists
 - b. Fungi
 - c. Plants
 - d. Animals

II. Phylogeny

- a. Relationship between organisms
 - i. X Axis: Evolutionary Change
 - ii. Y Axis: Time
- b. Types
 - i. Monophyletic: Organisms that have a single common ancestor
 - ii. Polyphyletic: Organisms that may have a common ancestor, yet group does not include the common ancestor
- c. Examples
 - i. Punctuated Equilibrium: Lot of change over short amount of time
 - ii. Gradualism: Gradual change over time

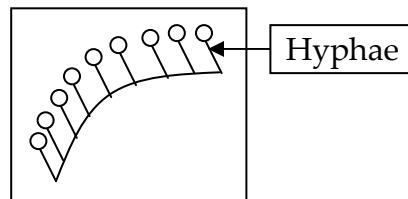
III. Relationships Between Organisms

- a. Parasitism: Good for one, bad for another
- b. Commensalism: Good for one, nothing for another
- c. Mutualism: Good for both
 - i. i.e.
 - 1. Myccorhiza (+ Plant)
 - a. Fungi that grow on the root of a plant

- b. Fungi (heterotroph) absorb minerals from soil to give to plant
- c. Plant (autotroph) gives organic nutrients to fungi
- 2. Lichen (+Cynaobacteria) or (+ Green Algae)
 - a. Fungi that grows on the bacteria or algae
 - b. Fungi (heterotroph) absorb minerals from soil to give to plant
 - c. Plant (autotroph) gives organic nutrients to fungi

IV. Fungal Genetics

- a. Asexual reproduction
 - i. Asexual spores
 - 1. On top of aerial hyphae



V. Bacterial Genetics

- a. Asexual reproduction
 - i. Bacteria exchange DNA
 - ii. Types
 - 1. Transduction (1 bacterium)
 - a. Bacteriophage injects virus into bacterium
 - b. DNA inserted into chromosome of bacterium
 - c. New genes in bacterium
 - d. Result: Genetically different bacterium
 - 2. Transformation (1 bacterium)
 - a. External DNA from broken cells enters bacterium
 - i. i.e. Plasmid DNA
 - b. Result: Genetically different bacterium
 - 3. Conjugation (2 bacteria)
 - a. Bacteria come together
 - b. Protein strand forms between bacteria: Protein Pillus
 - c. Bacteria send genetic information between one another
 - d. Result: Genetically different bacteria

VI. Random Information

a. Saprobes

i. Feed on dead or decaying matter