

Taxonomy & Kingdom Monera

Characteristics

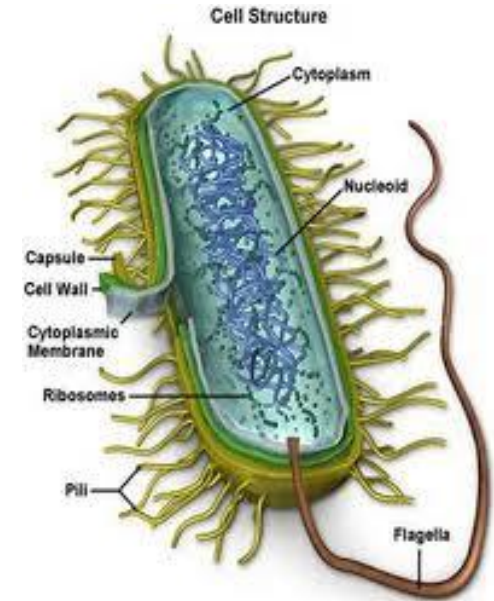
- **Taxonomy** = a way of grouping organisms based on similar characteristics. ex) all vertebrates have a backbone
- **Prokaryote**= organisms which lack a true nucleus and membrane bound organelles
- **Eukaryote**=organisms that have a true membrane bound nucleus & membrane bound organelles
- **Autotroph**= organisms that can make their own food.
- **Heterotroph**= organisms that cannot make their own food. They use autotrophs as a food source



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Kingdom Monera

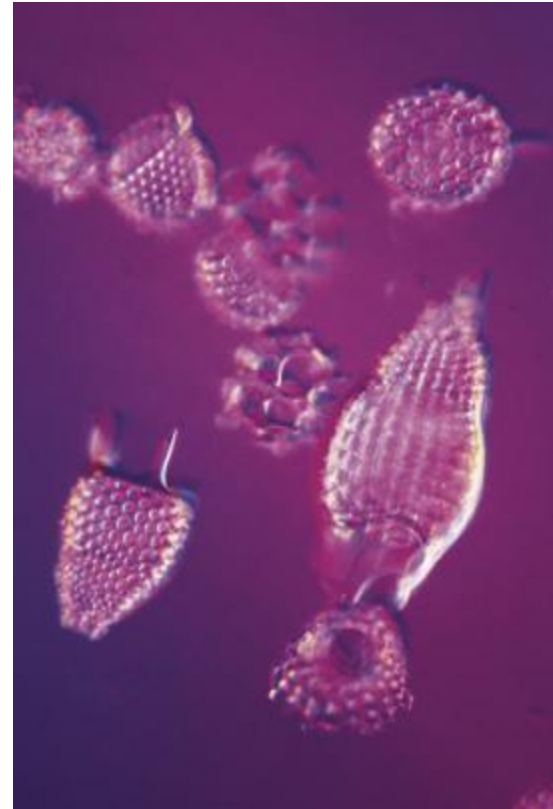
- Prokaryotes (this kingdom only)
- Unicellular, some colonial
- Heterotrophic or autotrophic
- Reproduce asexually
- Live nearly everywhere



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Kingdom Protista

- Eukaryotes
- Usually unicellular, some multicellular or colonial
- Heterotroph or autotrophs or both
- Reproduce asexually or sexually
- Live in aquatic or moist habitats



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Kingdom Fungi

- Eukaryotes
- Unicellular or multicellular
- All heterotrophs
- Reproduce asexually and sexually
- Most are terrestrial, some are aquatic



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Kingdom Plantae

- Eukaryotes
- All multicellular
- All autotrophs
(photosynthesize)
- Reproduce asexually
and sexually
- Most are terrestrial,
some aquatic

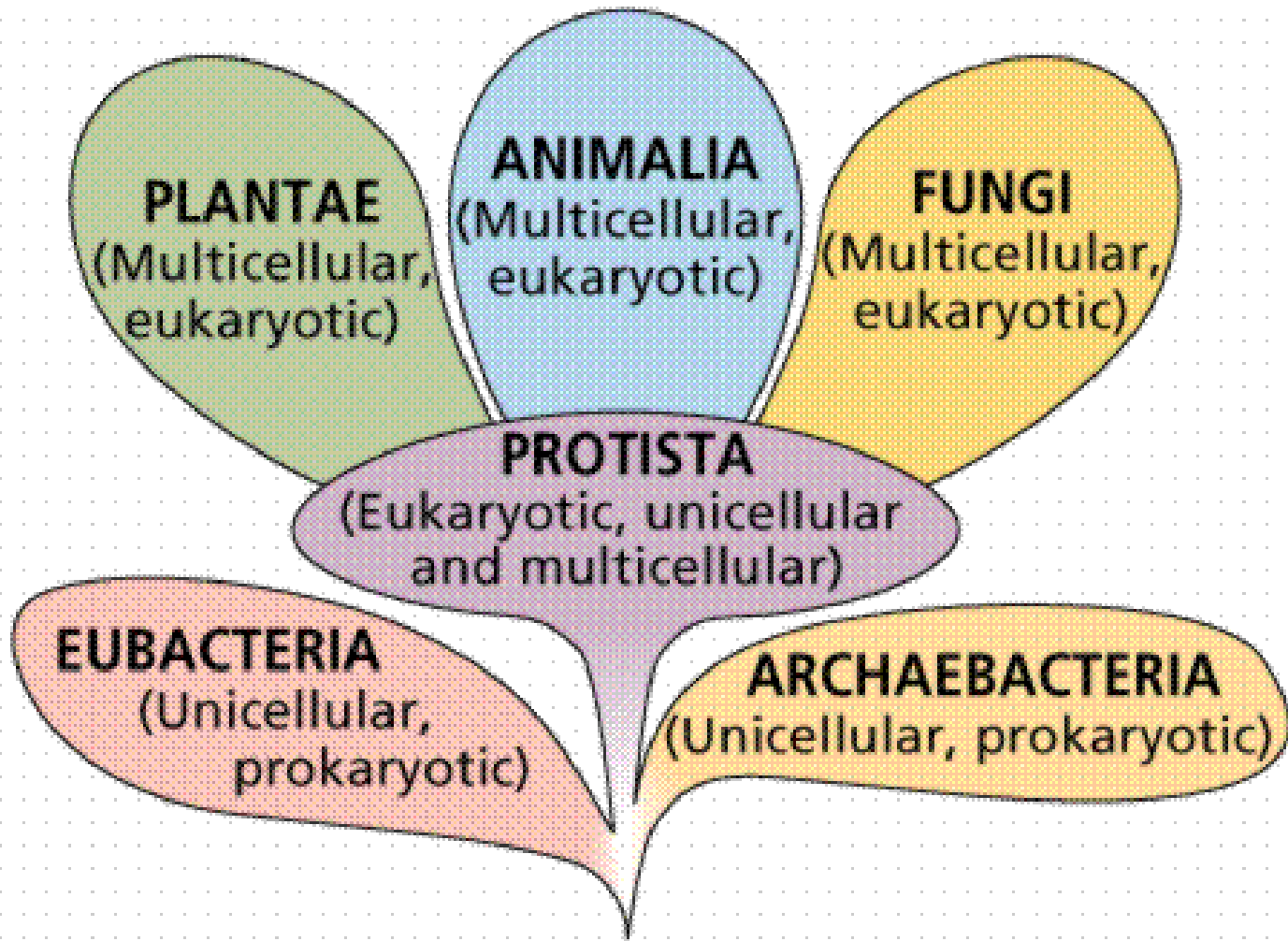


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Kingdom Animalia

- Eukaryotes
- **All** multicellular
- **All** heterotrophs
- Most reproduce sexually, some asexually
- Live in terrestrial and aquatic habitats





Classification System

Kingdom

Phylum

Class

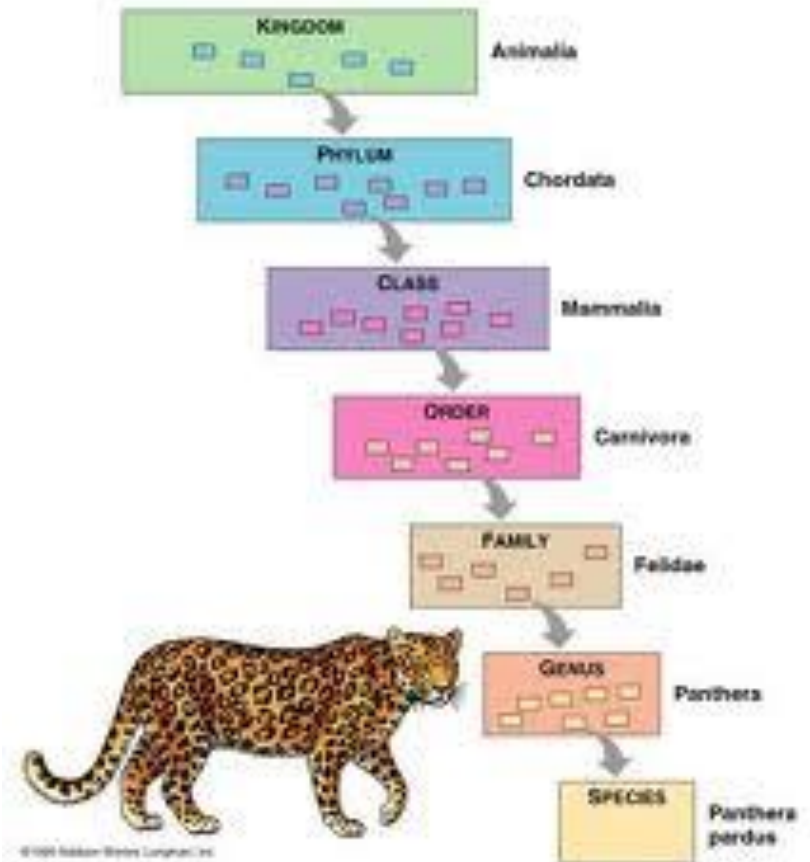
Order

Family

Genus

Species

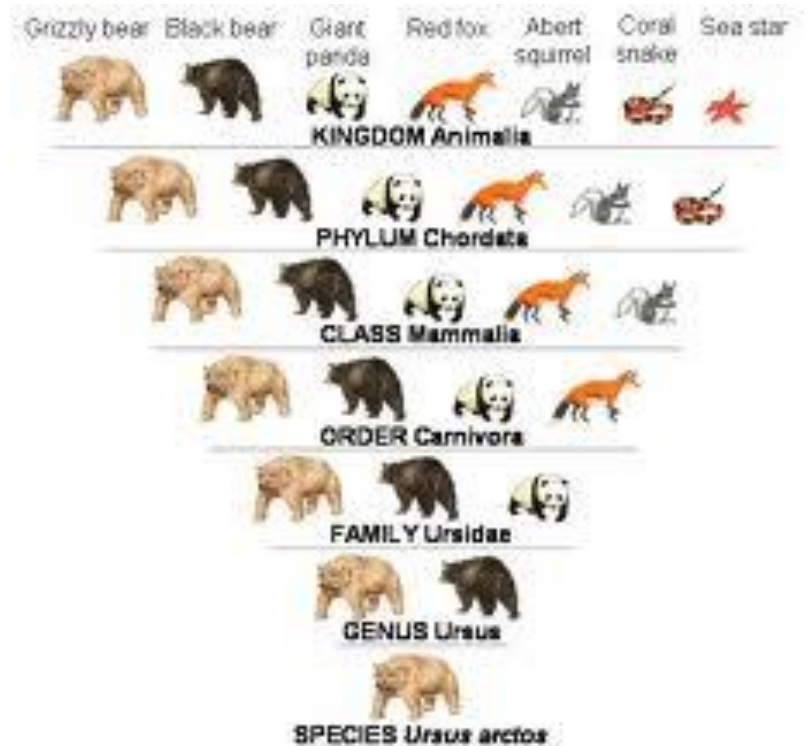
- Memory trick:
“Kitchen people can only
feed good soup” OR
“King Philip Came Over
From Great Spain”
- Kingdom is the most general category
- Species is the most specific category



Binomial Nomenclature

- We write the Genus name with a capital letter and the species name with a lower case letter. Both Genus and species names are either underlined or italicized.

Ex) Homo sapien or
Homo sapien



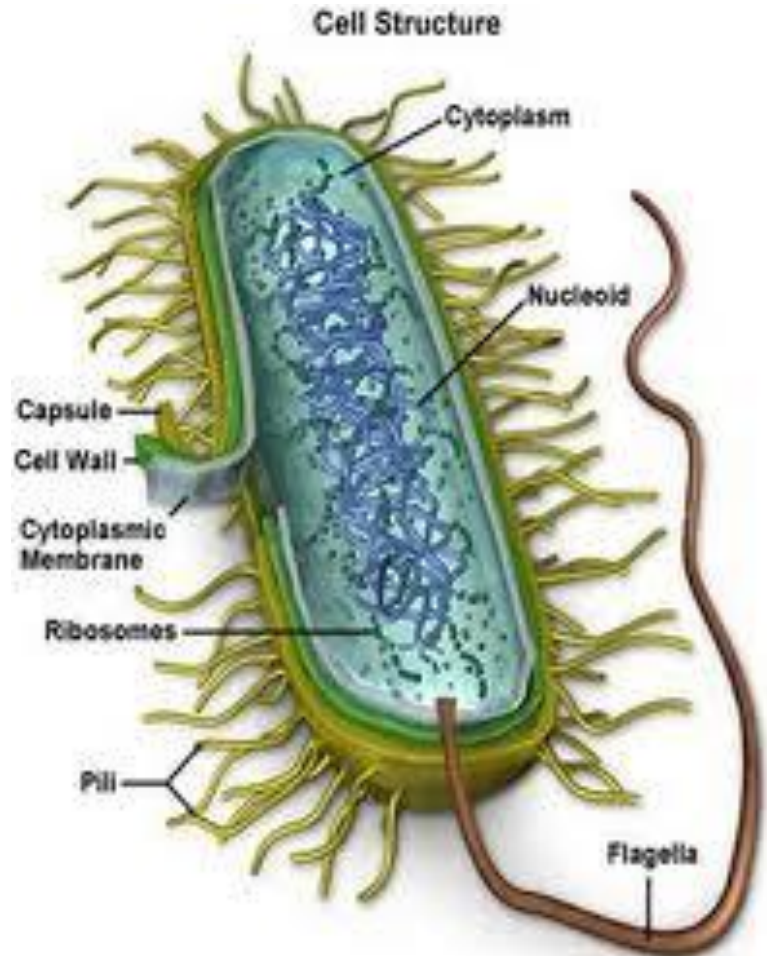
Kingdom Monera Characteristics:

5 main characteristics of bacteria:

1. Prokaryotes **This is the only prokaryotic kingdom**
2. Unicellular
3. No membrane bound organelles in cytoplasm
4. Single circular chromosome
5. Reproduces by binary fission “splitting in two”
– all bacteria undergo this form of asexual reproduction.

Diagram of a typical bacterial cell

- **Pili** = for movement
- **Cell wall** = structure, support, & protection of bacteria
- **Cytoplasm** = fluid part around organelles
- **Ribosome** = make proteins
- **Flagellum** = some have these for movement
- **Chromosomes** = circular DNA – genetic information



Two Subkingdoms

- **Subkingdom Archaeobacteria:**

- Resemble 1st life forms on earth – primitive
- Able to live in extreme conditions = extremophiles
 - Thermophiles – extreme temperature
 - Halophiles – very salty
 - Acidophiles – very acidic
 - Alkaliphiles – very basic
 - Methanogens – methane gas



Subkingdom Eubacteria

- Largest group of Monerans
- Majority of bacteria
- Most are decomposers / heterotrophs / saprophytes
- Some photosynthesize like *cyanobacteria* or chemosynthesize



Cyanobacteria

40 μm