**SIX KINGDOMS CHARACTERISTICS CHART**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Eubacteria** | **Archaebacteria** | **Protista** | **Fungus** | **Plant** | **Animal** |
| **Cell Type** | prokaryotic | prokaryotic | eukaryotic | eukaryotic | eukaryotic | eukaryotic |
| **Number of Cells** | unicellular | unicellular | most unicellular | most multicellular | multicellular | multicellular |
| **Level of Organization** | cell | cell | most cell | most tissue | systems | systems |
| **Cell Wall** | peptidoglycan | contains uncommon lipids | pectin or none  (green algae: cellulose) | chitin | cellulose | none |
| **Mode of Nutrition** | auto/heterotroph | auto/heterotroph | auto/heterotroph | heterotroph (absorption) | autotroph | heterotroph |
| **Reproduction** | asexual | asexual | sexual/asexual | sexual/asexual | sexual/asexual | sexual/asexual |
| **Motility** | some motile | nonmotile | motile/nonmotile | most nonmotile | nonmotile | motile |
| **Symbiotic Relationship** | fix nitrogen  many pathogenic  aid in human digestion | aid in digestion | many pathogenic (malaria, African sleeping sickness, amoebic dysentery)  cellulose digestion | many pathogenic (athlete’s foot, yeast infection, ringworm)  lichen | epiphyte  mycorrhizae mistletoe | parasitic worms, barnacles, clownfish |
| **Ecological Importance** | fix nitrogen  decomposers | decomposers | algae major aquatic oxygen & food producers  algal bloom | decomposers | major oxygen & food source (photosynthesis - trophic level 1) | human impact on environment |
| **Other** | gave rise to eukaryote organelles | can live in extreme conditions  ancestors of eukaryotes | toothpaste teeth whiteners | fermented food products  food source  antibiotics | can’t live without ‘em  medicine source | invertebrates  vertebrates |
| **Examples** | *Escherichia coli*  *Streptococcus* | methanobacteria | algae, diatoms, amoebas, | lichen, yeast, mushrooms | trees  flowers  grass | sponges  mammals |

This chart sets the content to be covered in the Six Kingdoms Unit. Limit your content for teaching/testing purposes to these concepts.

The six kingdoms are grouped according to five major categories in addition to other major characteristics. The categories are:

**I. CELL TYPE:** (kind of cell) all cells are made of the same organic material)

A. PROKARYOTIC: no organized nucleus, no internal membranes, peptidoglycan cell wall, have ribosomes (small), bacteria and blue-green algae

B. EUKARYOTIC: organized nucleus, internal membranes, nonpeptidoglycan cell wall

**II. CELLULAR ORGANIZATION:**

**A. NUMBER OF CELLS**

1. UNICELLULAR: (single-celled) all life functions, solitary or colonial (chains or clumps)

2. MULTICELLULAR: (many-celled)

a. hyphae body form

b. tissue differentiation (limited to advanced organisms)

**B. LEVELS OF ORGANIZATION** (Tissue Differentiation)

1. cells, 2. tissues, 3. organs, 4. organ system, 5. organism

**C. CELL WALL**

1. PEPTIDOGLYCAN: contain peptidoglycan, a complex web-like molecule; found only in the Eubacteria

2. UNCOMMON LIPIDS: nonpeptidoglycan, contains uncommon lipids, found only in Archaebacteria

3. PECTIN: contain pectin a complex polysaccharide, found in most Protista

3. CELLULOSE: contain cellulose a complex polysaccharide; found in Plantae

3. CHITIN: contain chitin, a tough material like that making up crab shells; found only in the Fungi

**III. MODE OF NUTRITION** (how obtain energy/gets food)

A. AUTOTROPHIC: make own food, contain chlorophyll (photosynthetic), (some without chlorophyll are chemotrophic)

B. HETEROTROPHIC: get food from other organism, no chlorophyll, ingestion or absorption (free living, parasitic, saprophytic)

**IV. Method of REPRODUCTION**

A. ASEXUAL: only one parent, offspring genetically identical to parent, no union of gametes

B. SEXUAL: two parents, offspring genetically different from parents (a combination of the two), union of gametes

**V. MOTILITY**

A. MOTILE: ability to move from place to place, may only be motile in larval stage

B. NONMOTILE: cannot move from place to place, maybe sessile (attached to a surface)