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)