

Classification

The modern system of naming gives each living thing 7 names. Each name is a little more specific than the one before it.

- The categories are (in order from least to most specific):
- Kingdom
- Phylum
- Class
- Order
- Family
- Genus
- Species

Memory trick to learn the order - remember "

Kings **P**lay **C**hess **O**n **F**ine **G**lass **S**urfaces." The first letter of each word is the first

letter of each category!

For the Plant Kingdom, the second largest classification group is the Division instead of the Phylum category.

Cat:

Kingdom: Animalia

Phylum: Chordata

Class: Mammalia

Order: Carnivora

Family: Felidae

Genus: Felis

Species: Felis catus

Scientific name: Felis catus, also known as Felis domesticus

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There are 5 kingdoms:

Animalia-multicellular animals, heterotrophic (eat other things), evolved 700,000,000 years ago (1,000,000 -2,000,000 species)

Plantae- multicellular plants (autotrophic-photosynthesis), evolved 500,000,000 years ago (250,000 species)

Fungi- heterotrophic (eat other things), multicellular and unicellular, evolved 1,000,000,000 years ago. (100,000 species)

Protista- unicellular microscopic organisms and multicellular algae, evolved 3,000,000,000 years ago, heterotrophic, no photosynthesis, (250,000 species)

- Monera- unicellular bacterium, heterotrophic and autotrophic, smallest living things, (10,000 species)

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Because of our broad understanding of species sometimes scientists add an additional step to the classification system called the division

- Division- Bacteria- no nuclei, cell wall has a protein called peptidoglycan; (Monera)
- Archaeobacteria- no nuclei, cell wall does not have peptidoglycan; (Monera)
- Eukarya-cells have nuclei (has all kingdoms but Monera)
- Kingdom
 - Animalia- 47 phyla
 - Plantae- 11 phyla
 - Fungi- 6 phyla
 - Protista- 6-9 phyla
 - Monera- 10 phyla

- Phylum - sometimes called divisions
- Class -
- Order -
- Family -
- Genus -
- Species-

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Kingdoms:

Animalia-

Plantae-

Fungi-

Protista-

Monera- sometimes broken into to separate kingdoms. Eubacteria and Archaeobacteria. (Bacteria and Blue-green algae) (Usually only done under the division system of classification.

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Monera- The Bacteria

First life forms to evolve on Earth.

These are also called prokaryotes or cellular organisms lacking a nucleus.

Autotrophic and heterotrophic.

Unicellular.

Asexual reproduction by binary fission.

Three main phyla;

Archaeobacteria

Eubacteria

Mycoplasmas

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Archaeobacteria:


Most ancient living things.

Autotrophs but not in the way we are used to...Chemophiles. A chemophile uses chemical reactions to produce energy.

Thermoacidophiles live in the extremely hot, acidic water and moist areas within and surrounding sulfur hot springs. So closely adapted are they to their bubbly environment that they die of cold at temperatures of 55 °C (131 °F).

Methanogens are obligate anaerobes (free oxygen kills them) which oxidize CO₂ during cellular respiration to produce methane (CH₄) as a waste product. Although RNA sequencing suggests that all ten known species are evolutionarily related, they exist in environments as diverse as scalding volcanic deep-sea vents and the intestines of mammals. The reason you can light a puff of flatulence (should you choose to go into show business) is because of the symbiotic methanogens inside your guts.

Strict halophiles live in extremely salty solutions such as the Dead Sea, the Great Salt Lake and that can of pickled herring you left open in the cupboard. Their pink carotenoid pigments make them conspicuous when the bacteria are present in large concentrations, as they are on the shores of some salty, land-locked lakes.

 http://www.essortment.com/all/archaeobacteriae_rmkr.htm


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Eubacteria:

"True" bacteria

Unlike the Archaea, the Eubacteria have been known and studied for more than 150 years. This is because all known bacterial pathogens are Eubacteria (I reserve the use of the term bacteria as a descriptive term that is a synonym of prokaryote). Also, some of them like *Lactobacillus* are otherwise economically important. Perhaps more importantly, many of them inhabit environments that are easily studied and sampled.

Bacteria are microscopic organisms whose single cells have neither a membrane-bounded nucleus nor other membrane-bounded organelles like mitochondria and chloroplasts. Another group of microbes, the archaea, meet these criteria but are so different from the bacteria in other ways that they must have had a long, independent evolutionary history since close to the dawn of life. In fact, there is considerable evidence that you are more closely related to the archaea than they are to the bacteria

 <http://www.bookrags.com/research/eubacteria-gen-02/>

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Eubacteria Continued:

prokaryotic (no membrane-enclosed nucleus) no mitochondria or chloroplasts, one single chromosome

- a closed circle of double-stranded DNA
- with no associated histones

If flagella are present, they are made of a single filament of the protein **flagellin**; there are none of the "9+2" tubulin-containing microtubules of the eukaryotes. Ribosomes differ in their structure from those of eukaryotes. They also have a rigid cell wall made of

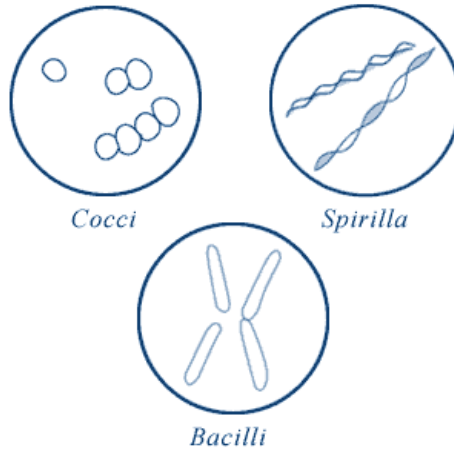
peptidoglycan

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Eubacteria Continued:

Until recently classification has done on the basis of such traits as:

- shape
- bacilli : rod-shaped
- cocci : spherical
- spirilla : curved walls
- ability to form spores



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MYCOPLASMAS

These are the smallest living cells.

Are believed to have the minimum amount of DNA needed to code for a functioning cell.

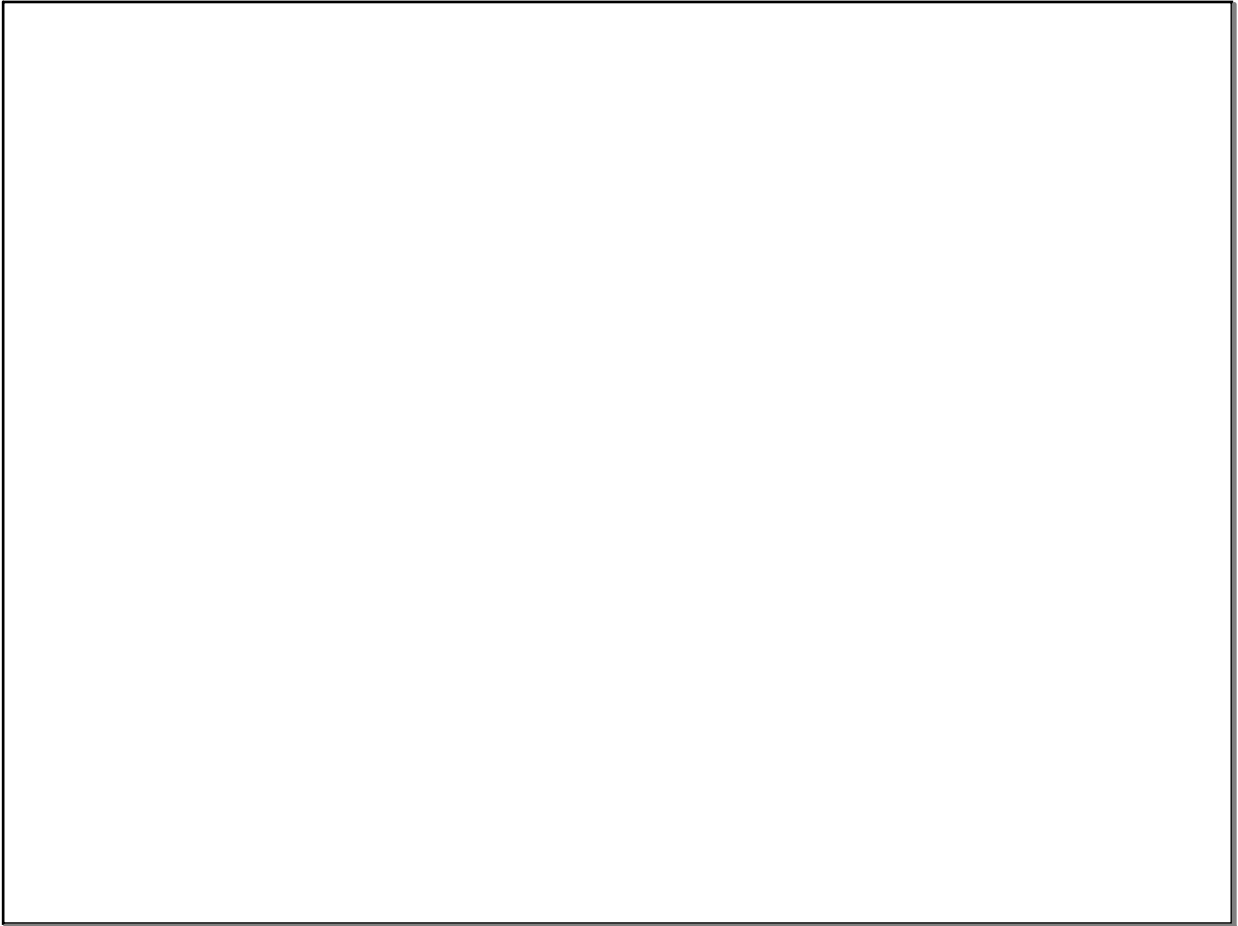
They lack the cell wall characteristic of the other types of bacteria.

Most mycoplasmas exist as intracellular plant or animal parasites.

Penicillin, an antibiotic lethal to most other bacteria because it interferes with cell wall formation, is not effective against the naked little mycoplasmas.

<http://microbewiki.kenyon.edu/index.php/Mycoplasma>

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