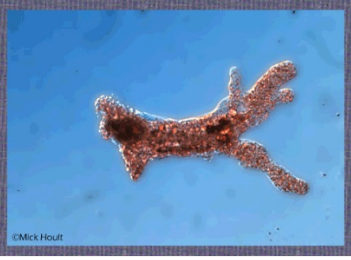
The Six Kingdoms of Living Things

VA SOL 5.5



Taxonomists sort and classify all of the millions of different living organisms on Earth. They looks at the characteristics of the organism, specifically its structure and form.

First, they have to decide if an organism is actually a living organism!

All living organisms share the following characteristics:

- *made of cells*
- *grow and change*
- *reproduce*
- *need fooa*
- *move in some way*

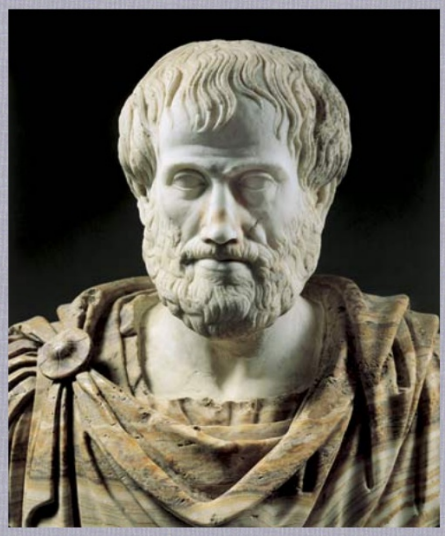
Let's complete this chart.

	Grows	moves	needs food	reproduces	cells
tree					
salt					
water					
mushroom					
car					
rock					
snake					

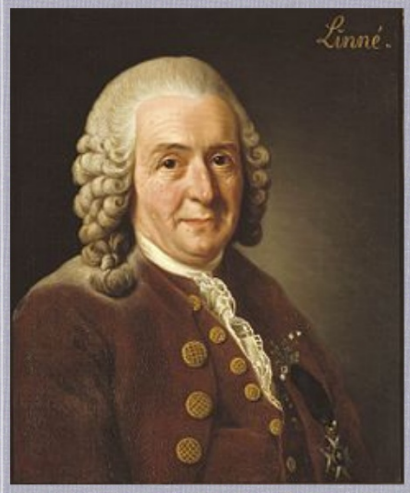
Based on the completed chart, which items are living?

Once something qualifies as living, it can be classified. Scientists have been classifying living things for thousands of years.

Aristotle, a Greek scientist, classified animals by the way they moved and plants by their size. Aristotle's system was used for almost 2,000 years. What do you think happened when he tried to classify ducks?



In the 1700's, Carolus Linnaeus, a Swedish scientist, developed a new classification system. Linnaeus based his system on the structure and form of each organism.



Linnaeus observed that all animals eat food and can move. So, he classified all animals in one kingdom, Kingdom Animalia. Linnaeus observed that plants don't move, usually are green, and have stem, leaf, and root structures. He classified plants into Kingdom Plantae.

Where would you classify a mushroom? A mushroom isn't green and it doesn't make its own food. Therefore, it isn't a plant. But, it can't move from place to place like an animal, either.

Scientists had to improve Linnaeus' classification system by adding more kingdoms. Organisms that can't be classified as plants or animals must be classified into one of the other kingdoms. As new organisms are discovered that don't fit into one of the current kingdoms, new kingdoms are added.

There are currently 6 kingdoms. The newest kingdom was added in 2003.

Archaebacteria Kingdom
Eubacteria Kingdom
Protist Kingdom
Fungi Kingdom
Plant Kingdom
Animal Kingdom

Prior to 2003, the Archaebacteria and Eubacteria Kingdoms were in one kingdom called the Monera Kingdom.

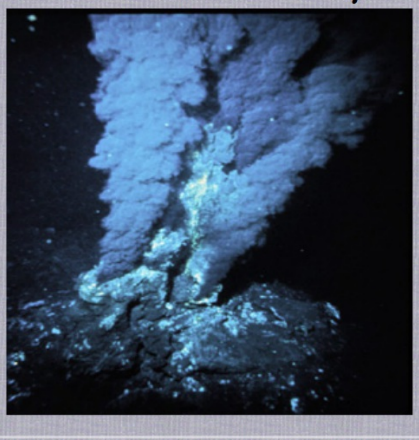
Archaebacteria Kingdom

The Archaebacteria Kingdom was added to the classification system in 2003. Organisms that belong to this kingdom are microscopic, single cell organisms that have no nucleus and no cell wall. They live in extreme environments without oxygen like volcanoes and thermal vents. This type of bacteria does not cause diseases or other illnesses. Organisms in this kingdom are thought to be the oldest type of living thing and are believed to have been on Earth for more than 3.5 billion years!

Archaebacteria Kingdom

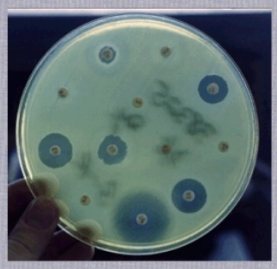
Archaebacteria are further classified based on the environment they live in:

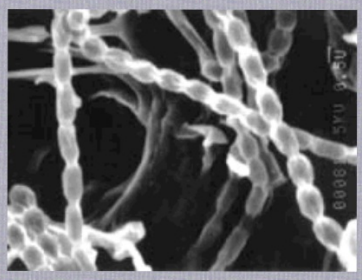
- Methanogens - swamps, marshes with no oxygen
- Halophiles - very salty places like Dead Sea
- Thermoacidophiles - hot, acidic places



Eubacteria Kingdom

Organisms in this kingdom are microscopic organisms with no nucleus, but they do have a cell wall. Many of these bacteria are decomposers, meaning they break down dead things and return them to the environment. Some eubacteria do cause illnesses and food poisoning. They are further classified based on their shape: rod, sphere, and spiral.

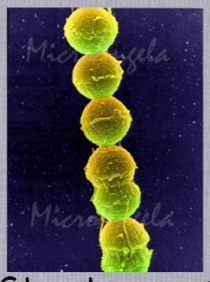




Eubacteria Kingdom

Examples of organisms in this kingdom include the bacteria that cause strep throat, Lyme disease, salmonella, e. coli, and blue-green algae.

Salmonella



Streptococcus

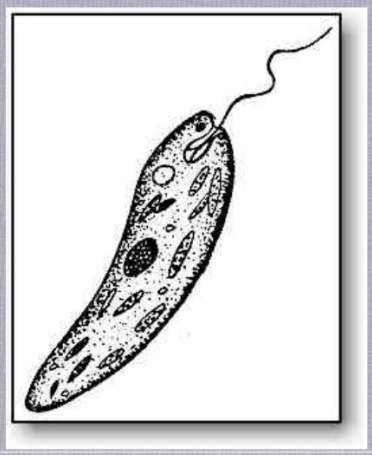
Lyme disease bacteria

E. coli

Blue-green algae

Protist Kingdom

Organisms that belong to Kingdom Protista are microscopic. They live in fresh water, salt water, and moist places almost anywhere on Earth. They are single-celled organisms that do not have a cell wall. They do have a nucleus and a cell membrane. A euglena is an example of a protist.



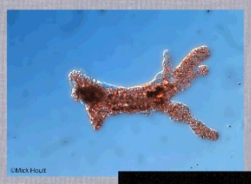
Protists include all microscopic organisms that do not belong to any other kingdom!

Protist Kingdom

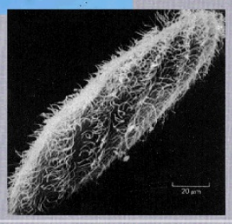
Protists are further divided into groups that eat food (animal-like) and those that make their own food (plant-like). Animal like protists are often called protozoans.

Animal-like protozoans

Amoeba



Paramecium



Plant-like protists

Diatoms

Green algae

Fungi Kingdom

Mushrooms are members of the Kingdom Fungi. Most fungi are multi-celled organisms. Organisms in this kingdom are not green because they do not contain chlorophyll. Organisms in this kingdom cannot make their own food. Instead, they release a chemical into what they are growing on to break it down into simple food particles. They then absorb the food they need. Fungi reproduce by spores which are released into the air. They travel through the air to land on new food sources where they begin to grow.

Fungi Kingdom

Examples of fungi include mushrooms, bread mold, yeasts, lichens, bracket fungi, and the fungus from which penicillin is made.

Which kingdom has simple organisms with a nucleus but no cell wall?

A. Archaebacteria Kingdom
B. Eubacteria Kingdom
C. Protist Kingdom
D. Fungi Kingdom

Which kingdom has organisms that absorb their food?

A. Archaebacteria Kingdom
B. Eubacteria Kingdom
C. Protist Kingdom
D. Fungi Kingdom

To which kingdom do mushrooms belong?

A. Archaebacteria Kingdom
B. Eubacteria Kingdom
C. Protist Kingdom
D. Fungi Kingdom

Which kingdom has simple organisms with no nucleus but which do have a cell wall?

A. Archaebacteria Kingdom
B. Eubacteria Kingdom
C. Protist Kingdom
D. Fungi Kingdom

To which kingdom does an amoeba belong?

A. Archaebacteria Kingdom
B. Eubacteria Kingdom
C. Protist Kingdom
D. Fungi Kingdom

Which kingdom has simple organisms without a nucleus and without a cell wall?

A. Archaebacteria Kingdom
B. Eubacteria Kingdom
C. Protist Kingdom
D. Fungi Kingdom

Which kingdom has simple organisms that live in damp places?

A. Archaebacteria Kingdom
B. Eubacteria Kingdom
C. Protist Kingdom
D. Fungi Kingdom