

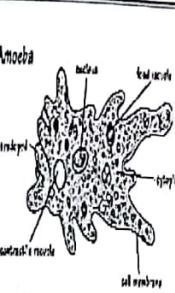





# Classification Study Guide

Name: *Study guide*

Fill in the table below by selecting terms from the following list: multicellular, unicellular, autotrophic, heterotrophic, prokaryotic, eukaryotic

Kingdom	Archaeabacteria	Eubacteria	Protista	Fungi	Plantae	Animalia
Example						
Number of cells	<i>unicellular</i>	<i>unicellular</i>	<i>most unicellular some multi</i>	<i>most multicellular some unicellular</i>	<i>multicellular</i>	<i>multicellular</i>
Presence of membrane-bound nucleus	<i>prokaryotes</i>	<i>prokaryotes</i>	<i>eukaryotes</i>	<i>eukaryotes</i>	<i>eukaryotes</i>	<i>eukaryotes</i>
Form of nutrition	<i>both-autotrophs &amp; heterotrophs</i>	<i>both - autotrophs or heterotrophs</i>	<i>both - autotrophs or heterotrophs</i>	<i>heterotrophs</i>	<i>autotrophs</i>	<i>heterotrophs</i>

- If you were asked to classify an organism that is multicellular and autotrophic, in which two kingdoms might you place it?  
*plantae, protista*
- If your "mystery organism" is unicellular and prokaryotic, into which two groups might you place it?  
*Archaeobacteria, Eubacteria*
- If the "mystery organism" is multicellular, eukaryotic, and heterotrophic; it would most likely belong to which two kingdoms?  
*Fungi, Animalia*

## Archaeobacteria and Eubacteria

- What kind of cells do these groups, above, have? *Prokaryotic*
- List three ways different types of bacteria can get their food energy.
  - Autotroph- from sun's energy*
  - Autotroph- from chemical energy*
  - Heterotroph*
- What environment would be least likely to rapidly grow bacteria and why? Here are your choices:
  - The armpit of a human
  - A warm freshwater pond
  - A desert highway

Why?

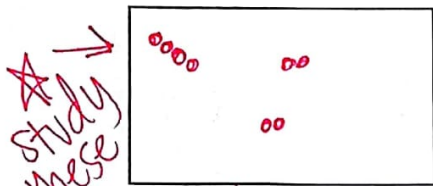
*Bacteria thrive in warm, moist environments.*

- List two reasons why bacteria are considered to be the simplest of all life forms.

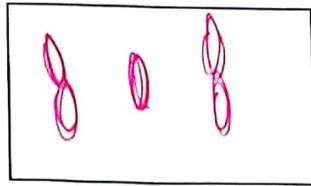
- prokaryotic*
- single-celled* - They were the 1<sup>st</sup> organisms

5. What single characteristic separates the two kingdoms of eubacteria and archaebacteria from the 4 other kingdoms? **Prokaryotic**

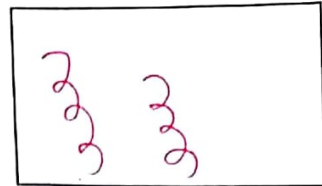
6. Draw and label the 3 shapes eubacteria come in:



**Cocci** - sphere-shaped bacteria



**Bacilli** - rod-shaped



**Spirilla** - spiral

Kingdom Protista

1. What characteristic do **most** protists share with the two prokaryotic kingdoms of bacteria?

**Unicellular**

2. What are the three main divisions of the Kingdom Protista?

a. **animal-like**

b. **plant-like**

c. **fungus like**

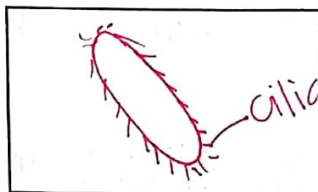
3. Why is the Kingdom Protista kind of like a "junk drawer" compared to all the other kingdoms?

4. Draw and label each of the ways **protozoa** move:

*★ will be on test. Know definitions*



**pseudopod** - temporary bulge of the cytoplasm used for feeding & movement



**cilia** - hair-like structures that help a protist move



**flagella** - whip-like structure that propels a protist

Think about the main characteristics of the eukaryotic kingdoms. (autotrophs or heterotrophs, uni- or multicellular, cell wall or not) Answer these questions:

Animal and Fungi Kingdoms share these two characteristics	Plant and Fungi Kingdoms share these two characteristics	Plant, Fungi, and Animal Kingdoms all share this characteristic
1. <b>Eukaryotic</b> 2. <b>Heterotrophic</b>	1. <b>Eukaryotic</b> 2. <b>multicellular</b>	1. <b>Eukaryotic</b>

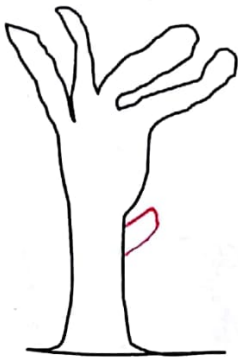
Define these words and list the kingdom(s) they apply to:

Word	Definition	Associated Kingdom(s)
autotroph	<b>An organism that makes its own food</b>	(3) <b>Archaea, Eubacteria, Plantae, Protista</b>
heterotroph	<b>Cannot make its own food</b>	(5) <b>Fungi, Animalia, Protista, Archaea, Eubacteria</b>
Protozoa	<b>Animal-like protist</b>	(1) <b>Protista</b>
Algae	<b>Plant-like protist</b>	(1) <b>Protista</b>

Eukaryotic	an organism whose cells contain nuclei	(4) plants, fungi, animalia, protista
Prokaryotic	an organism whose cells lack a nucleus & some other cell structures	(2) Archaeobacteria Eubacteria

## Reproduction:

- pg 220
1. What one main characteristic separates sexual and asexual reproduction? Explain your answer using at least 3 sentences.  
The main difference between sexual and asexual reproduction is that sexual reproduction results in new combinations of genetic material. While asexual reproduction only needs one parent, sexual requires two. Sexual reproduction can result in new traits that are beneficial to the offspring.
  2. Complete this picture to show that the hydra (a type of animal like an anemone) is budding. Which type of reproduction is this? ~~sexual~~ asexual



- pg 220
3. Bacteria reproduce asexually by binary fission. Before splitting it is important that all instructions are passed on to both offspring. What must bacteria copy before splitting? DNA.
  4. Bacteria and protists can do a type of sexual reproduction where they connect with each other and exchange DNA. What do we call this? conjugation.
  5. How many parents does binary fission require? 1 Conjugation? 2
  6. Which type of bacterial reproduction above would give offspring with identical DNA? binary fission Which gives offspring with different DNA? conjugation
  7. Fungi can reproduce sexually and asexually using spores.
  8. Plants reproduce: only asexually only sexually both sexually and asexually

## Getting food for energy:

Underline the words that describe how fungi get their food:

ingestion decomposition external absorption photosynthesis

Underline the words that describe how animals get their food:

ingestion decomposition external absorption photosynthesis

Underline the words that describe how plants get their food:

ingestion decomposition external absorption photosynthesis

**Taxonomy:** Write these scientific names correctly:

1. acer rubrum Acer rubrum      2. canis lupis Canis lupis

3. "Acer" is the genus and "rubrum" is the species.

4. The classification of 3 different bears are listed below. Circle the names of the two that are the most closely related? How do you know this? They are in the same genus

### Grizzly Bear

Domain: Eukarya  
Kingdom: Animalia  
Phylum: Chordata  
Class: Mammalia  
Order: Carnivora  
Family: Ursidae  
Genus: Ursus  
Species: Arctos

### Panda Bear

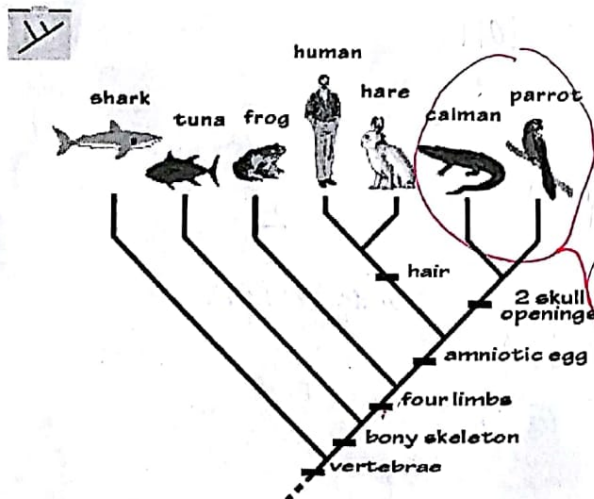
Domain: Eukarya  
Kingdom: Animalia  
Phylum: Chordata  
Class: Mammalia  
Order: Carnivora  
Family: Ursidae  
Genus: Ailuropoda  
Species: Melanoleuca

### American Black Bear

Domain: Eukarya  
Kingdom: Animalia  
Phylum: Chordata  
Class: Mammalia  
Order: Carnivora  
Family: Ursidae  
Genus: Ursus  
Species: Americanus

5. What is the scientific name for a Panda? Ailuropoda melanoleuca

6. Below is a Cladogram.



7. What 3 characteristics separate the tuna from the hare?  
four limbs, amniotic egg, hair

8. What characteristics does the frog have?  
4 limbs, bony skeleton, vertebrae

9. Which characteristics do frogs and caiman share?

10. Which are most closely related the tuna and the frog or the hare and the caiman? How did you decide?  
parrot

- \* know how conjugation and binary fission are different
- \* know how budding and spore production are similar
- \* know that Eubacteria have a cell wall with peptidoglycan