Classification

Essential Question:

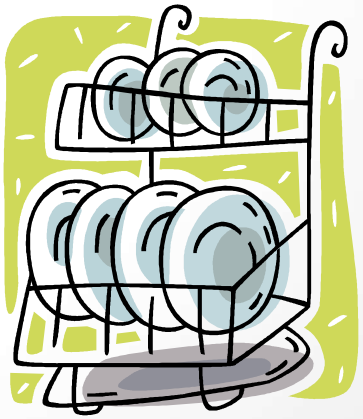
How do scientists classify living organisms?

Standards:

- **S7L1a. Demonstrate the process for the development of a dichotomous key.**
- **S7L1b. Classify organisms based on physical characteristics using a dichotomous key of the six kingdom system (archaebacteria, eubacteria, protists, fungi, plants, and animals)**
- **S7L3b. Compare and contrast that organisms reproduce asexually and sexually (bacteria, protists, fungi, plants and animals)**

What is classification?

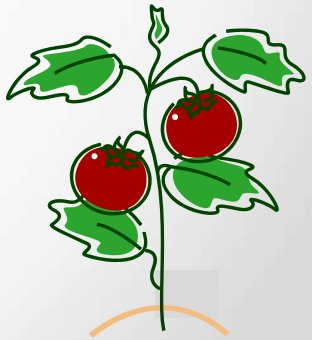
Classification is the process of arranging organisms into groups based on similarities.



Why should things be classified?

Classification makes things easier to find, identify, and study.

Scientists use a system of classification to organize and name living organisms.



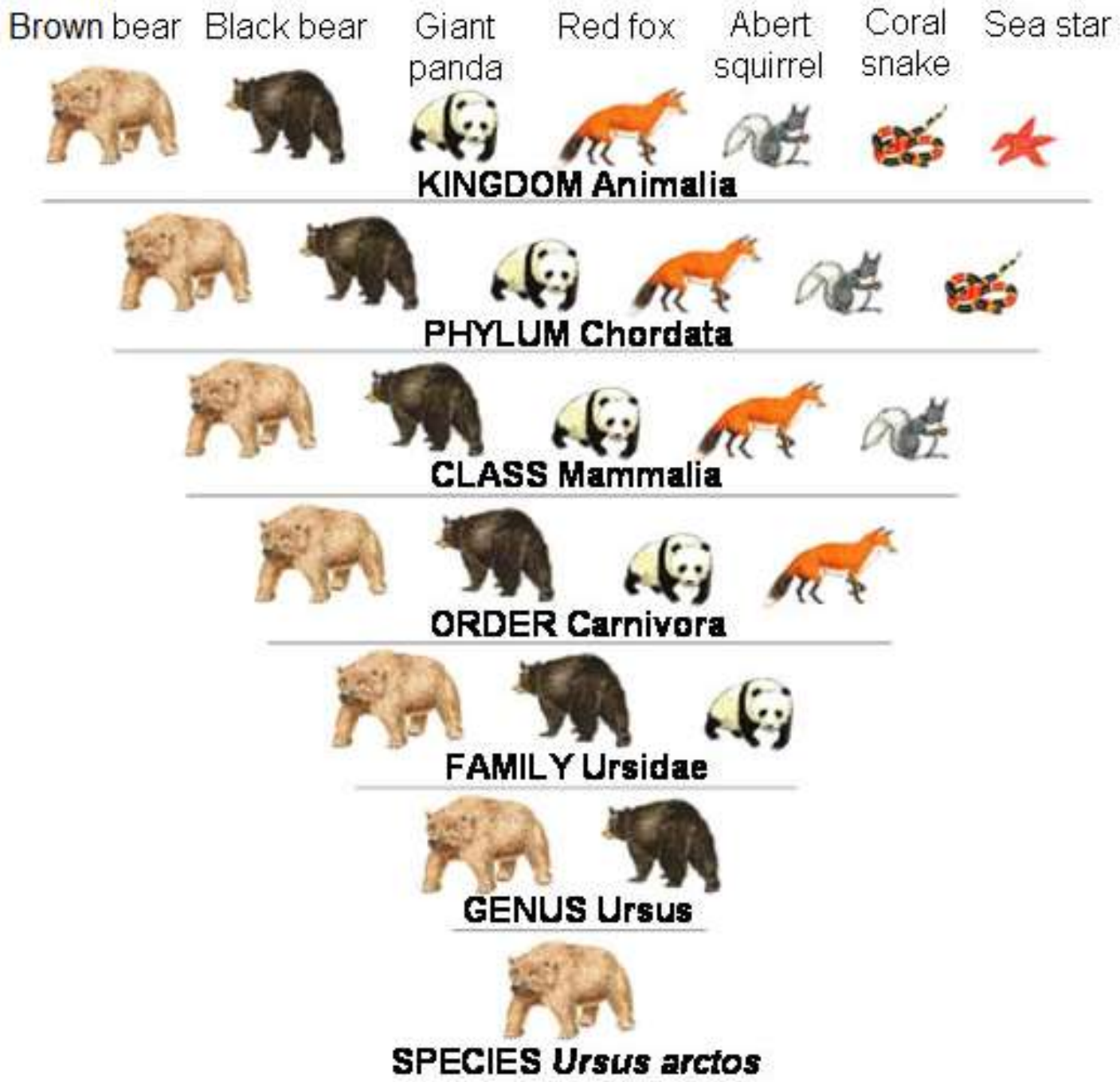
Levels of classification from largest to smallest:

Kingdom
Phylum
Class
Order
Family
Genus
Species

The Best Classification Rap with Lyrics
https://www.youtube.com/watch?v=gj15UF08lUI

Science Rap – Zendaya and Bella
https://www.youtube.com/watch?v=J-FTy6L_yYo

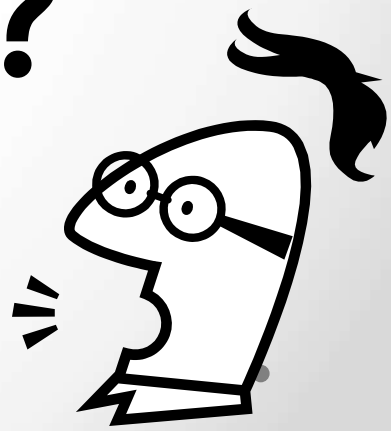
Classification of Organisms
https://www.youtube.com/watch?v=6WPBA4a6NjU


Brown bear
Black bear
Giant panda
Red fox
Abert squirrel
Coral snake
Sea star
KINGDOM Animalia
PHYLUM Chordata
CLASS Mammalia
ORDER Carnivora
FAMILY Ursidae
GENUS Ursus
SPECIES Ursus arctos

Take a minute to create a mnemonic device to help you remember the levels of classification from largest to smallest.

Examples:
King Phillip came over for grape soda.
King Phillip came over from Germany Saturday.
King Phillip can order fresh green salad

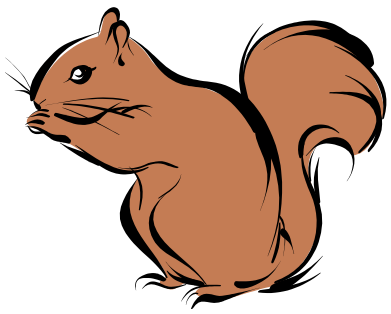
Is it necessary to go through *the entire seven-level classification system* to identify a plant or animal?



The GENUS and SPECIES names are enough…

Latin and Greek words are used to give organisms a name (similar to a first and last name) for identification.

Thus, the scientific name for the brown squirrel is *Tamiasciurus hudsonicus*



Genus + *species* = scientific name

Capital lower case

A scientific name is the same no matter how many common names an organism might have.

(Notice that scientific name are always written in *italics)*

Classification of Living Things Video:

https://www.youtube.com/watch?v=5hMqYiWry8U

Mr. Parr: Classification Song (modified w/pics)
https://www.youtube.com/watch?v=wgivfVM9yOQ

Mr. Parr: Classification Song (same but with words)
https://www.youtube.com/watch?v=dnF_UdPbJZ0

Other examples:

Ursus horribilis

for grizzly bear

F*elis domesticus* for house cat

https://www.youtube.com/watch?v=aJUB4R5j0dI

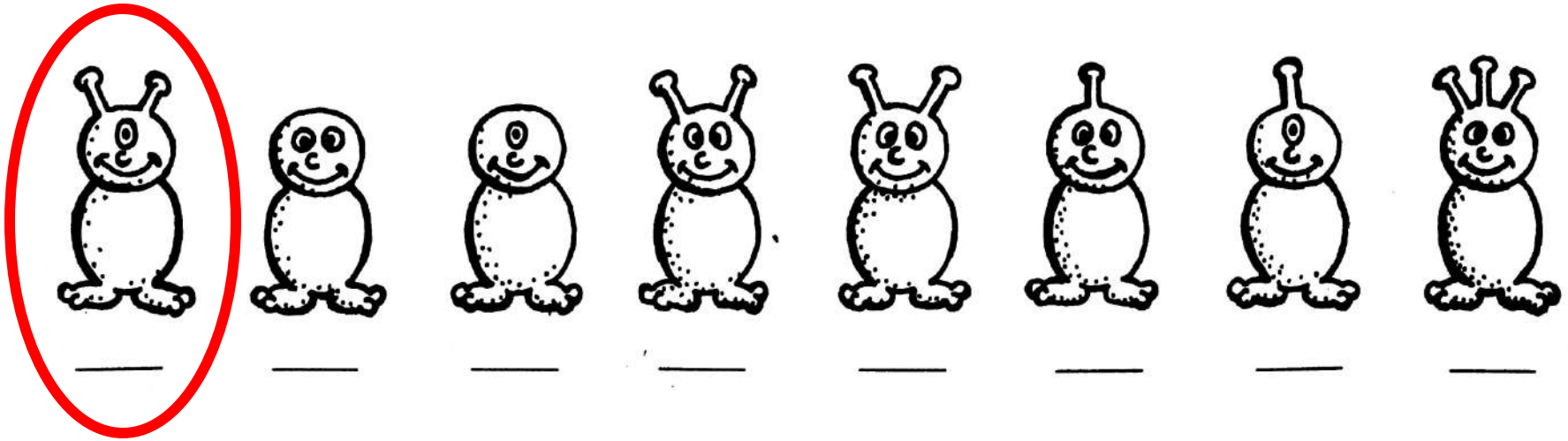
A dichotomous key is a tool used to identify organisms.

A dichotomous key asks a series of questions that can be answered by yes or no.

Dichotomous keys work like a funnel. It narrows down the characteristics to a specific organism.

How to use a Dichotomous Key?

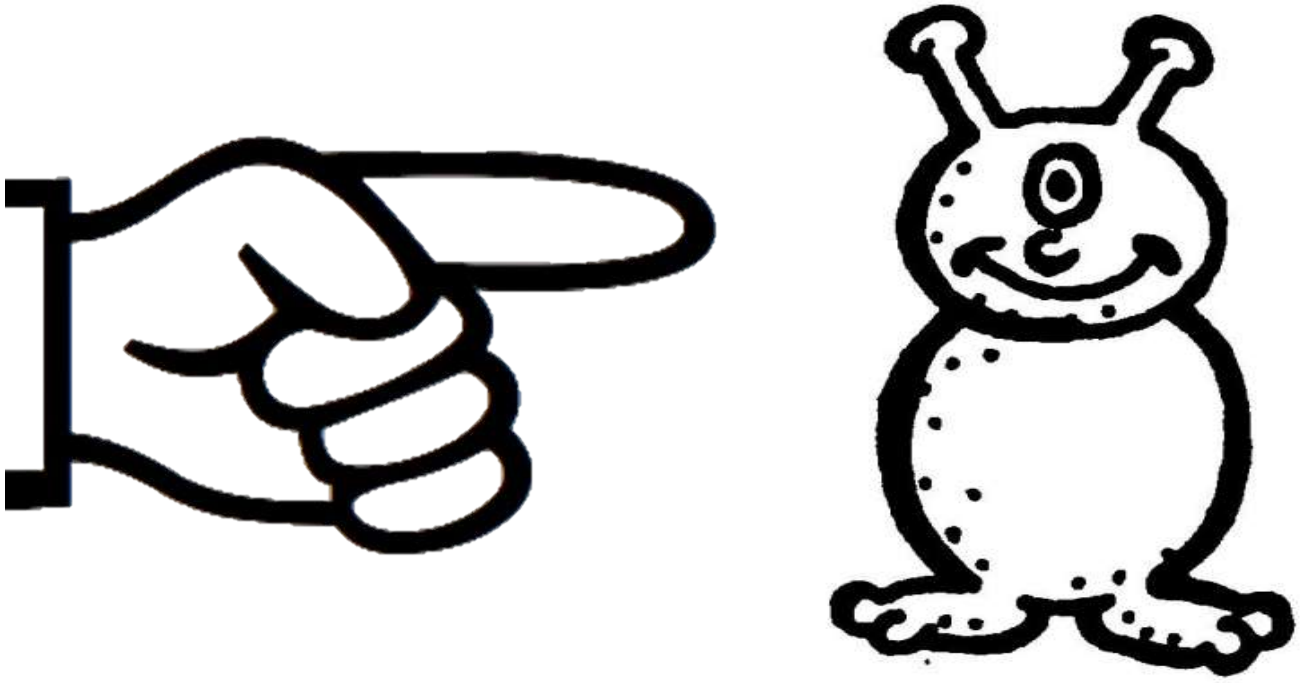
Here are creatures we don't know!



Lets choose one

How to use a Dichotomous Key?

Choose only one creature at a time.



How to use a Dichotomous Key?

Read steps 1a and 1b

1 a. The creature has two eyes.
b. The creature has one eye.

Decide which statement is true

1b is true

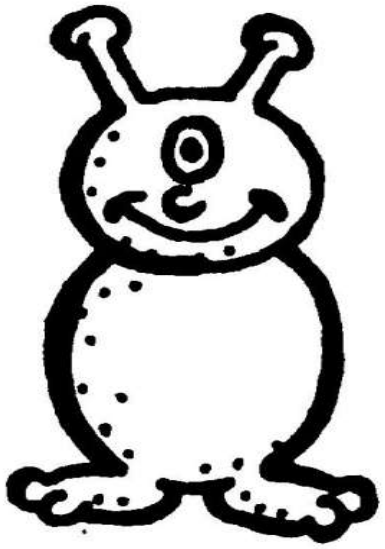
How to use a Dichotomous Key?

Then follow the directions after that step.

1 a. The creature has two eyes. Go to step 2.
b. The creature has one eye. Go to step 5.

Go to Step 5

How to use a Dichotomous Key?



At choice 5, you make another dichotomous choice

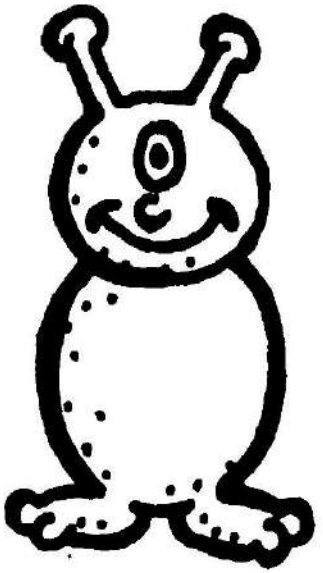
5 a.	The creature has one or more antennae.	Go to step 6.
b.	The creature has no antennae.	Its name is "A."

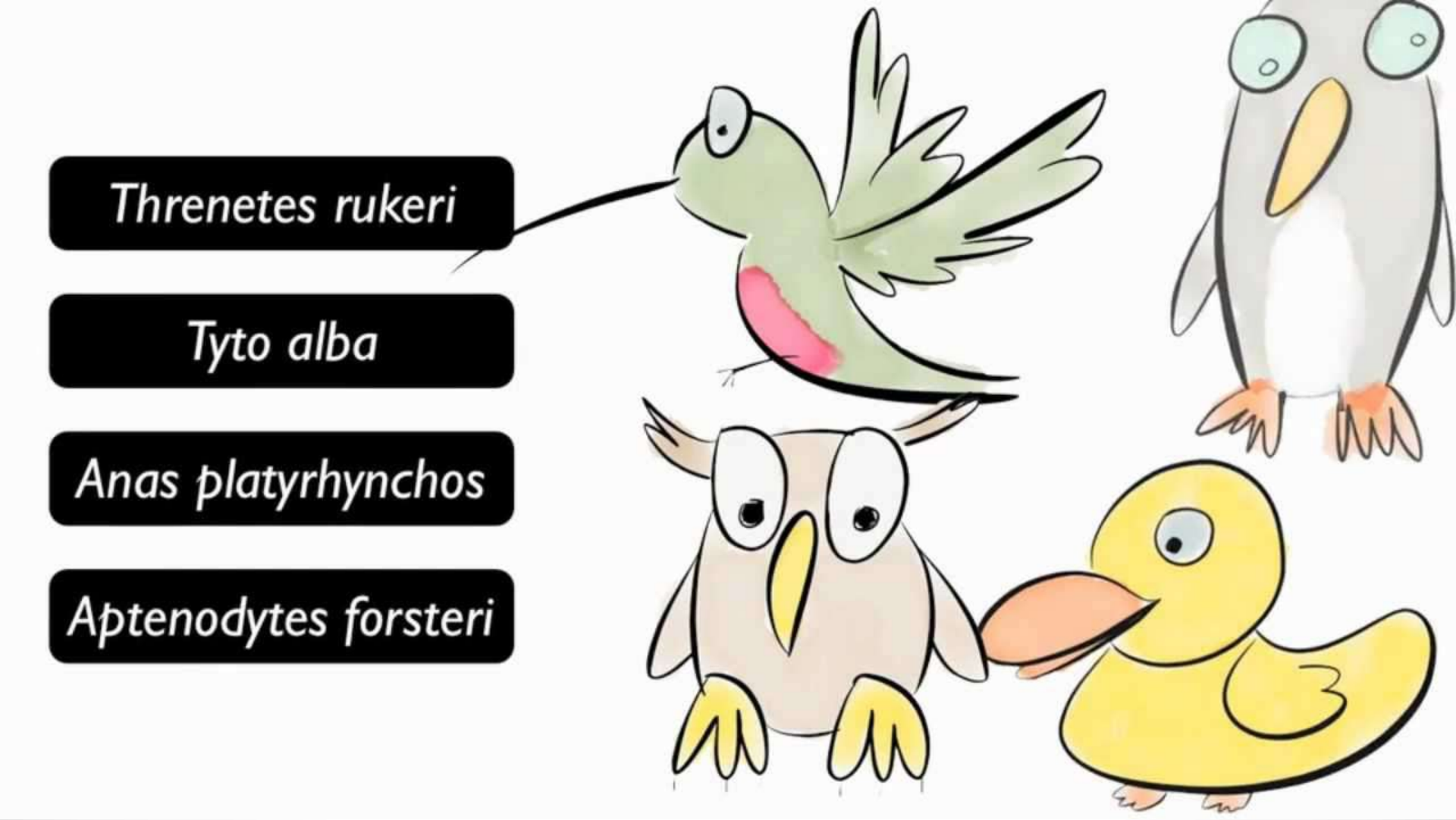
5a is true so Go to Step 6

How to use a Dichotomous Key?

Keep going until you come to a step that gives you the creature's name.

6	a. The creature has one antennae	Go to Step 7.
	b. The creature has two antennae.	Its name is "C."





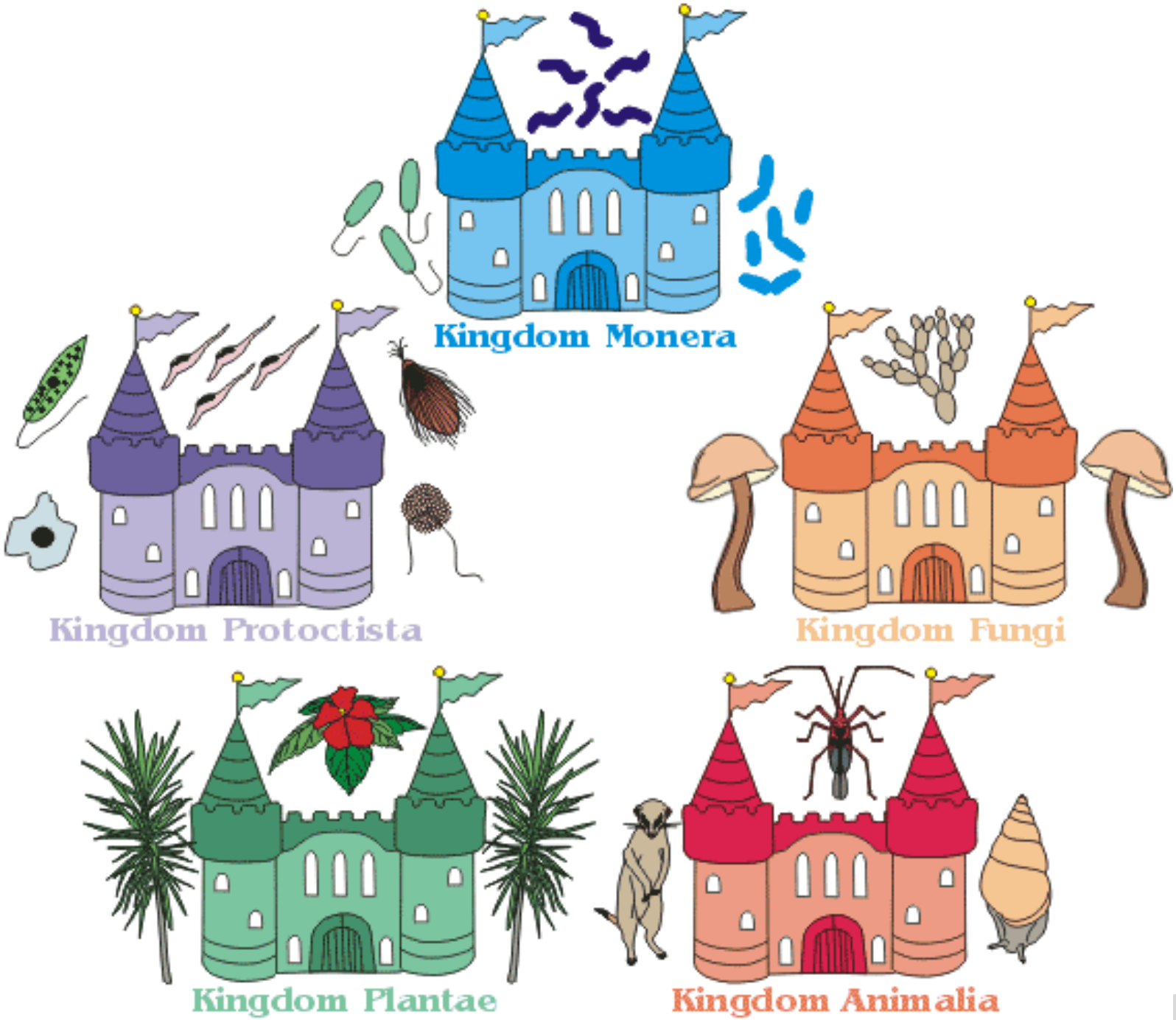
Dichotomous Key Activities

Most scientists today use a system that includes six kingdoms.

Kingdoms

Moneran:

1. Archaebacteria
2. Bacteria
3. Protists
4. Fungi
5. Plants
6. Animals


Kingdom Monera
Kingdom Protoctista
Kingdom Fungi
Kingdom Plantae
Kingdom Animalia


Kingdoms
BACTERIA
REPRODUCTION
ASEXUAL
Plantae
ARCHAEA
PROKARYOTE
ASEXUAL
KINGDOMS
ANIMALIA
FUNGI
Kingdoms
ARCHAEA
PROTISTA
ORGANISM
CLASSIFY
HETEROTROPH
PLANTAE
AUTOTROPH
MULTICELLULAR
GROUPS
SIMILAR
EUKARYOTE
BACTERIA
SEXUAL
Animalia
AEROBE
Kingdoms
FUNGI
unicellular
CLASSIFY
multicellular
ANIMALIA
organism
REPRODUCTION
HETEROTROPH
aerobe
FUNGI

Essential Vocabulary

- Prokaryote (no nucleus) vs. Eukaryote (has a nucleus)
- Producer – Makes its own food (Also called an Autotroph)
- Heterotroph – Feeds on or consumes other organisms (Also called a Consumer)
  - Decomposer – Breaks down dead or decaying materials to get energy (type of Heterotroph)
- Asexual vs. Sexual Reproduction

Use the Six Kingdoms Classification Chart to take Notes

Six Kingdoms of Classification

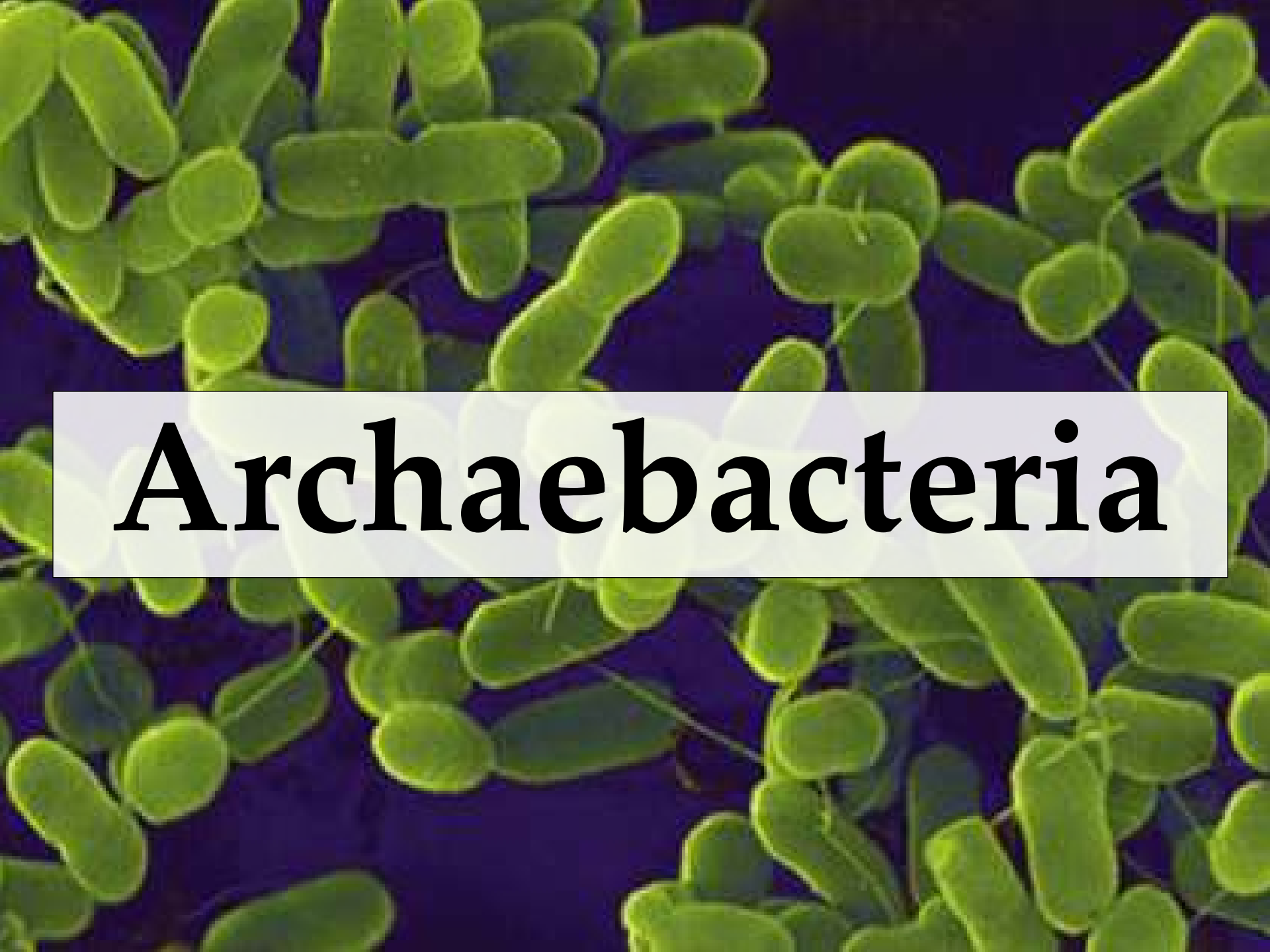
Name _____ Date _____ Period ___

Kingdom	Type of Cell	Number of Cells	Obtain Energy	Type of Reproduction	Other Characteristics
Bacteria					
Archaebacteria					
Protists					
Fungi					
Plants					
Animals					


Bacteria

Bacteria (Eubacteria)

- Prokaryote (no nucleus)
- One-celled (single-celled; unicellular)
- Gets energy from sunlight (producer/autotroph)
- Breaks down materials in dead or decaying organisms (decomposer/heterotroph)
- Asexual Reproduction by Binary Fission
- Reproduces in a short amount of time
- Can be helpful or harmful



Archaebacteria

Archaebacteria

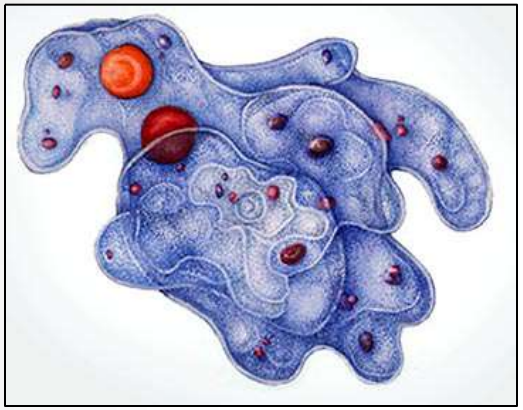
- Prokaryote
- One-celled (single-celled or unicellular)
- Gets energy from sunlight (producer/autotroph)
- Breaks down materials in dead or decaying organisms (decomposer/heterotroph)
- Asexual reproduction by binary fission
- Reproduces in a short amount of time
- Found in extreme environments [very hot, very cold, very salty, etc.]
- Different chemical makeup than bacteria

Protists

Protists

- Eukaryote
- Mostly one-celled but some simple multicellular
- Make their own food (producer/autotroph)
- Eat other organisms (consumer/heterotroph)
- Break down or absorb materials from dead or decaying organisms (decomposer/heterotroph)
- Mostly Asexual reproduction, but some sexual reproduction
- Classified based on how they obtain their energy (plant-like, fungus-like, animal-like)
- Most diverse kingdom (the "leftovers")

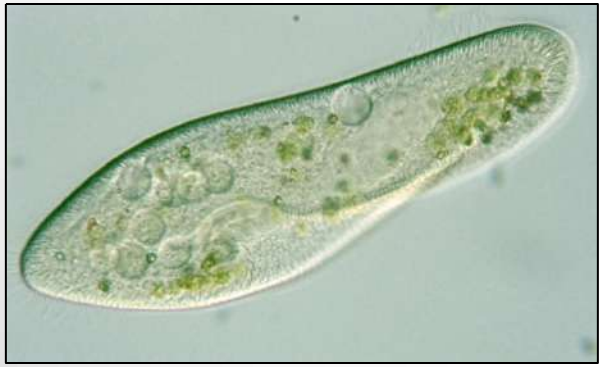
Protists



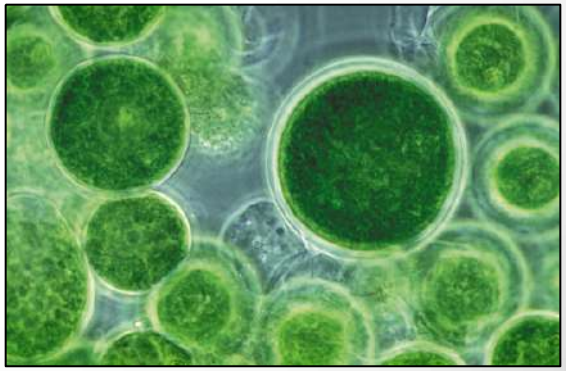
Ameoba

Diatom

Euglena



Paramecium



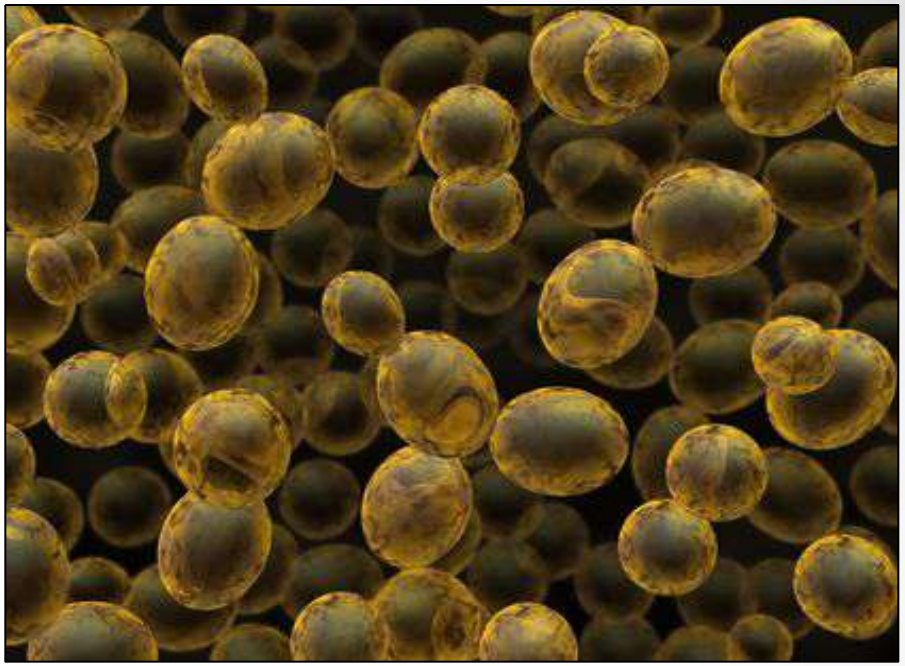
Algae

Fungi

Fungi

- Eukaryote
- Mostly multicellular
- Breaks down or absorbs materials from dead or decaying organisms (decomposer/heterotroph)
- Asexual or Sexual reproduction
- Can be helpful or harmful
- Examples: Mushrooms, Mold, Yeasts

Fungi



Mr. Parr: Fungi Song

http://www.youtube.com/watch?v=H15Po5vHiDs

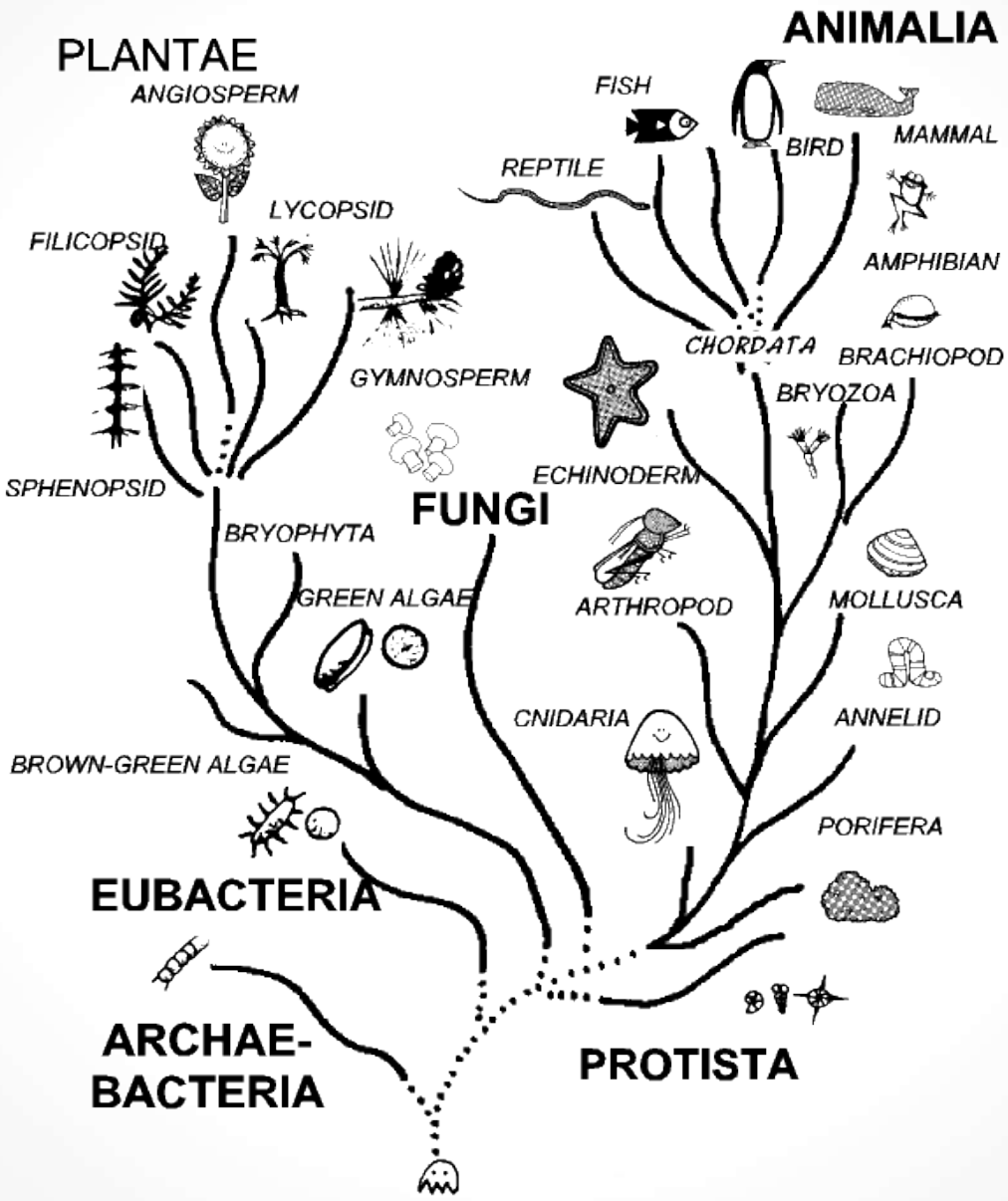
Plants

- Eukaryote
- Multicellular
- Producer/Autotroph (Photosynthesis)
- Asexual or Sexual reproduction

Animals

- Eukaryote
- Multicellular
- Consumer/Heterotroph
- Sexual reproduction

TREE OF LIFE


ANIMALIA
PLANTAE
ANGIOSPERM
FISH
MAMMAL
BIRD
REPTILE
LYCOPSID
FILICOPSID
AMPHIBIAN
CHORDATA
BRACHIOPOD
GYMNOSPERM
BRYOZOA
ECHINODERM
SPHENOPSID
FUNGI
BRYOPHYTA
ARTHROPOD
MOLLUSCA
GREEN ALGAE
CNIDARIA
ANNELID
BROWN-GREEN ALGAE
PORIFERA
EUBACTERIA
ARCHAE-
BACTERIA
PROTISTA