

Monday, Feb 5, 2018

Pick up: classification handouts

Today you will:

1. Review basic Taxonomy

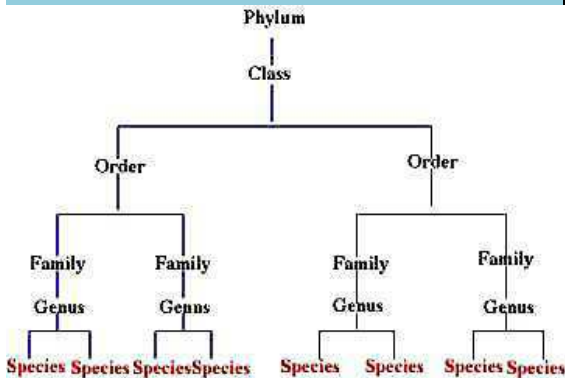
Homework/Planner:

Study for Thursday's DIA

Study Guide & ALL missing work due Thursday

NOTES: Classification

Why do we
need to
classify living
things?



What is
taxonomy?

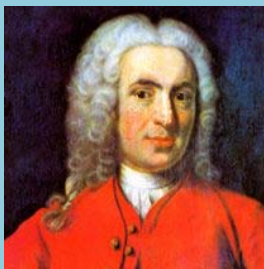
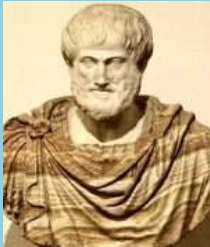
- Allows easy retrieval of info.
- To show that things are alike
- Brings order
- Logical way of naming organisms
- Basis for identification

*The science of naming
and classifying
(grouping) organisms*

History of Classification:

TB page 518

Aristotle:
Linnaeus:



- Plants: sm., med, lg.
- Animals: land, sea, air
- *Too basic...*

- Developed a standardized, more practical system of grouping organisms.
 - 7 groups- a hierarchy
 - Largest at the top
 - Smallest at the bottom

How Things are Classified

TB Page 520

How is
life
organ-
ized?

- Into kingdoms... 6
- Taxa - K,P,C,O,F,G,S – each one is larger than the previous
- *Newly discovered species are placed in their appropriate category based on characteristics & given a descriptive name using Binomial nomenclature*
- **Create a memory aid to remember this**
- **EX: King Phillip Came Over For Good Soup**

What are the
LEVELS of
CLASS-
IFICATION?

• DOMAIN

• Kingdom

• Phylum

• Class

• Order

• Family

• Genus

• species

Specificity

taxon

} ?

Kingdoms in system of classification?



Fungi
(eukaryotic, multicellular)

Animalia
(eukaryotic, multicellular)

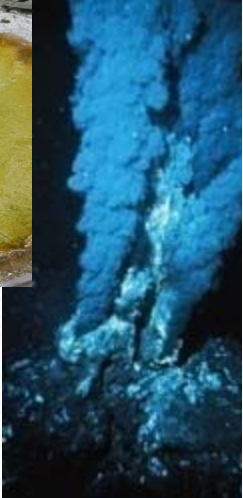
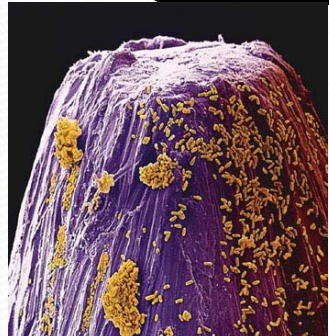
Plantae
(eukaryotic, multicellular)

Protista
(eukaryotic, uni- or multicellular)

Archaeobacteria
(prokaryotic, unicellular)

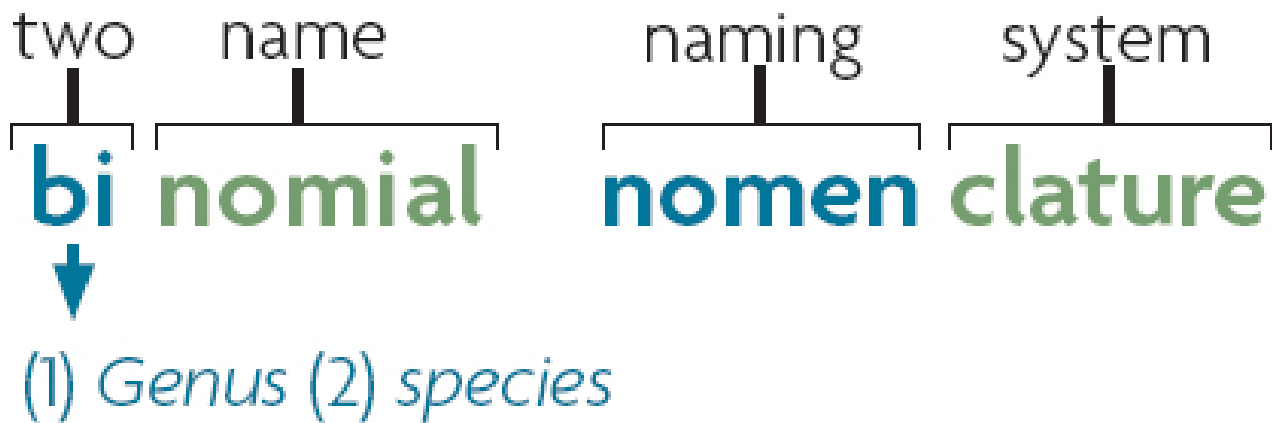
Eubacteria
(prokaryotic, unicellular)

Universal ancestor



What is Binomial Nomenclature?

- a two-part scientific naming system.
 - uses Latin words
 - scientific names always written in italics
 - two parts made up of the genus name and species descriptor



- A genus includes one or more physically similar species.
 - Species in the same genus are thought to be closely related.
 - Genus name is always Capitalized.
- A species descriptor is the second part of a scientific name.
 - May refer to a trait, location found or scientist that discovered it.
 - always lowercase
 - always follows genus name; never written alone

❖ If handwritten the whole name is underlined

❖ If typed, the whole name is italicized



Tyto alba

Why do biologists use scientific names?



You failed your Latin exam!
But Sweety, it's important to learn Latin:
All your friends' names have Latin roots...

- One species may have many common names.
- Some species may have very similar common names.
- Scientists can communicate about a species w/o confusion.



What's in a Scientific Name?

Page 519

Why are common names a problem?

- Common names pose problems:
 - Mt. Lion - cougar – puma - panther
 - Jellyfish - starfish – silverfish
 - Sand knat- sand flea – ‘no see ums’
 - All lead to confusion...
- Scientific names avoid these problems

COMMON NAMES	SCIENTIFIC NAME	
	Genus	species
Roly-poly, pill bug, sow bug, potato bug	<i>Armadillidium</i>	<i>vulgare</i>
Dandelion, Irish daisy, lion's tooth	<i>Taraxacum</i>	<i>officinale</i>
House sparrow, English sparrow	<i>Passer</i>	<i>domesticus</i>
Mountain lion, cougar, puma	<i>Puma</i>	<i>concolor</i>
Red maple, scarlet maple, swamp maple	<i>Acer</i>	<i>rubrum</i>

Linnaeus' classification system has seven levels.

- Each level is included in the level above it.
- Levels get increasingly specific from kingdom to species.

KINGDOM: Animalia



PHYLUM: Chordata



CLASS: Mammalia



ORDER: Carnivora



FAMILY: Canidae



GENUS: *Canis*



SPECIES: *Canis lupis*



Analyze this table.... What do you notice????

KINGDOM Animalia	American Lobster	Market Squid	Blue Mussel	Virginia Oyster	European Oyster
Phylum	Arthropoda	Mollusca	Mollusca	Mollusca	Mollusca
Class	Malacostraca	Cephalopoda	Bivalvia	Bivalvia	Bivalvia
Order	Decapoda	Decapoda	Mytiloida	Pterioda	Pterioda
Family	Nephropidae	Loliginidae	Mytilidae	Ostreidae	Ostreidae
Genus	<i>Homarus</i>	<i>Loligo</i>	<i>Mytilus</i>	<i>Crassostrea</i>	<i>Ostrea</i>
Species	<i>americanus</i>	<i>opalescens</i>	<i>edulis</i>	<i>virginica</i>	<i>edulis</i>

1. From Top to Bottom, the char. of each org. gets increasingly MORE similar
2. What phylum do most of these animals have in common? Mollusca
3. What class do most of these animals have in common? Bivalvia
4. What kingdom are they in? Animalia
5. Can you tell what organisms are more closely related than others? Why? They are in the same group lower down the chart

- What are the limitations to the classification system?

- Doesn't account for some species having similarities but NOT being related.

- Ex. Giant panda & Red panda
- Ex. Red panda & raccoon



What are the 3 DOMAINS?

- 3 biggest categories living things are classified into:
- Based on cell structure



ARCHAEA

(EU)BACTERIA

EUKARYA

• **KINGDOM**

• **KINGDOM**

• **KINGDOMS:**

Archaeobacteria

Eubacteria

Protista, Fungi

Plantae, Animalia

PROkaryotic

PROKaryotic

Eukaryotic

Unicellular

Unicellular

Unicellular/Multi

EXTREME environments!

EVERYWHERE!

EVERYWHERE!

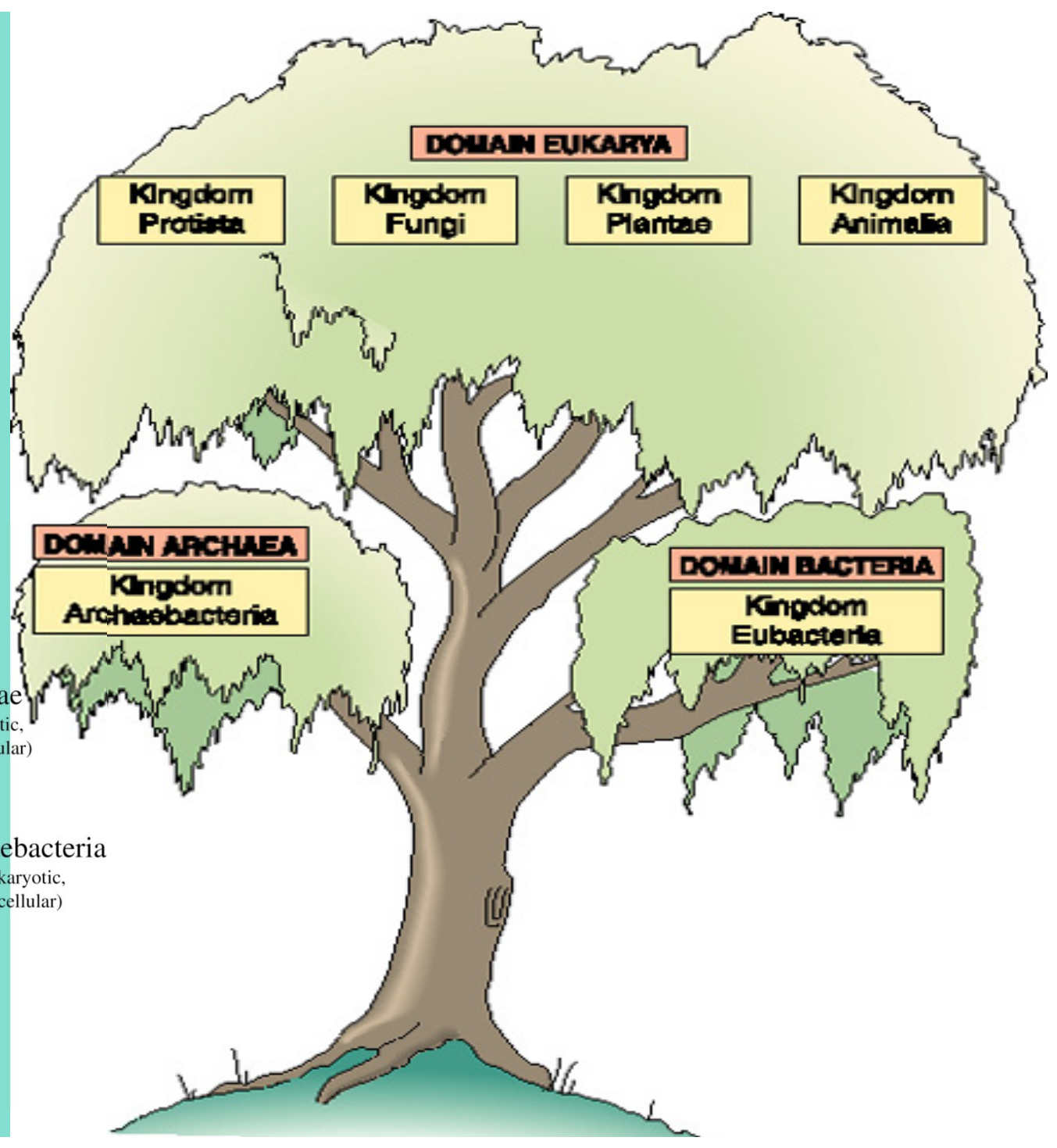
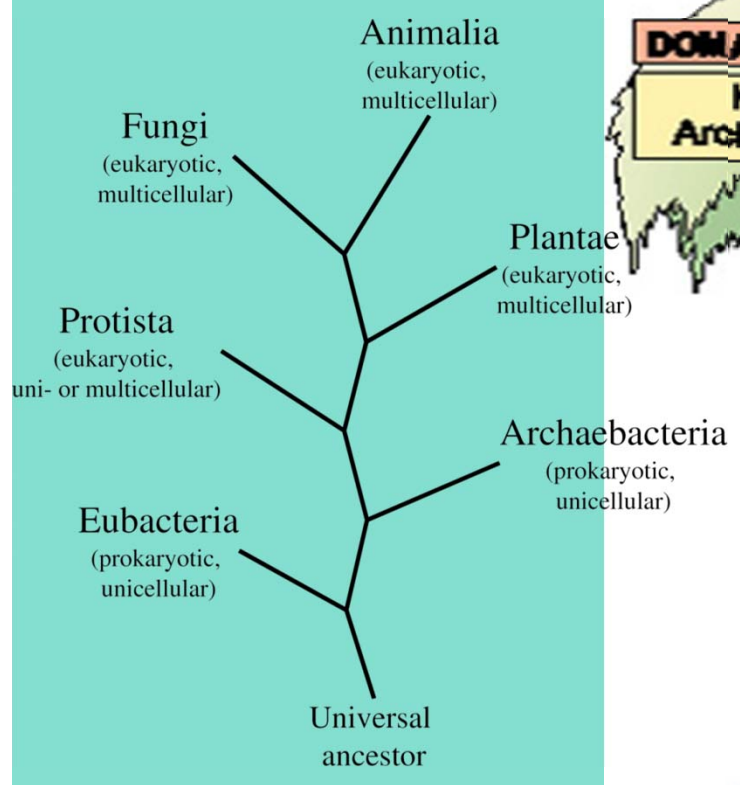
Heat-Loving,
Salt-loving,
Autotrophs/
Heterotrophs

Heterotrophic
Autotrophic

Heterotrophic
Autotrophic

Six kingdom system of classification

Ch. 17, 18, 19, 20



Open to pg 219

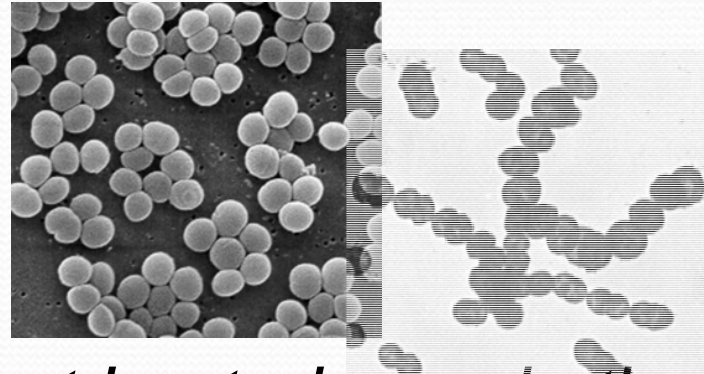
Archaeobacteria & Eubacteria



Ancient bacteria.... Live in extreme environments, as well as oceans, soil

Different shapes

Single celled



Most bacteria are in the EUBACTERIA kingdom & are most familiar .

Found everywhere

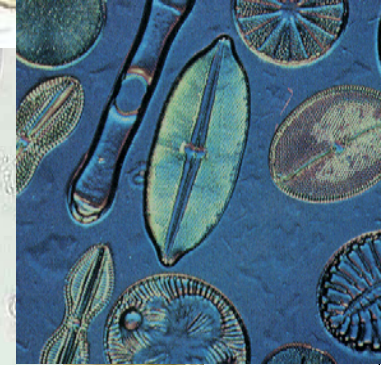
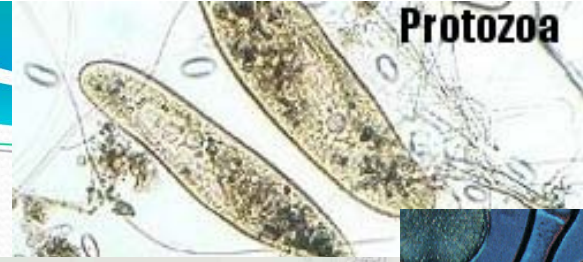
PROkaryotic!!!

use/make vitamins

Decompose dead matter

3 shapes

Protista



Protists include all microscopic organisms that are not bacteria, not animals, not plants and not fungi.

Sometimes called the odds & ends kingdom because its members are so different from one another

Most unicellular & microscopic

Some have cell walls – some have cell membranes

Some are autotrophic, some are heterotrophic



Fungi



Fungi are organisms that biologists once confused with plants, however, unlike plants, fungi cannot make their own food.

**Most fungi are multicellular (yeast is single celled)
Consumers... obtain their food from parts of plants that are decaying in the soil, so they are decomposers, too!**

Lack complex organ systems

Live in moist environments

Stationary and have cell walls



Plantae



All multicellular
Complex cells

Cell walls & tissues org. into 'organs & organ systems

Autotrophs...*organisms that make their own food*

Phantom Orchid



• HETEROTROPHIC PLANTS!

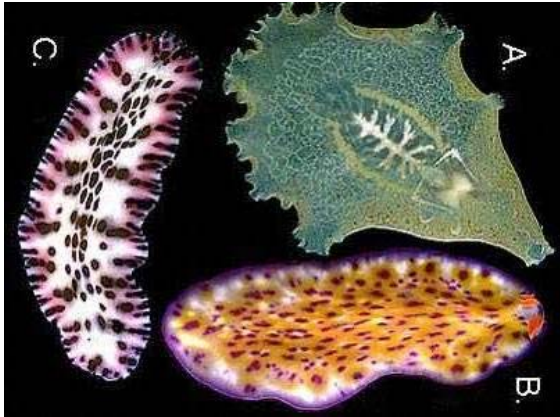
- No chlorophyll → cannot photosynthesize.
- *Their root systems have mycorrhizal fungi*
- *These fungi transfer sugars from the green host plant nearby.*

Indian Pipe



Snow Plant





Animalia

All consist of many complex cells

They are also heterotrophs

Have cell membranes

Have tissues organized into organs & complex organ systems

