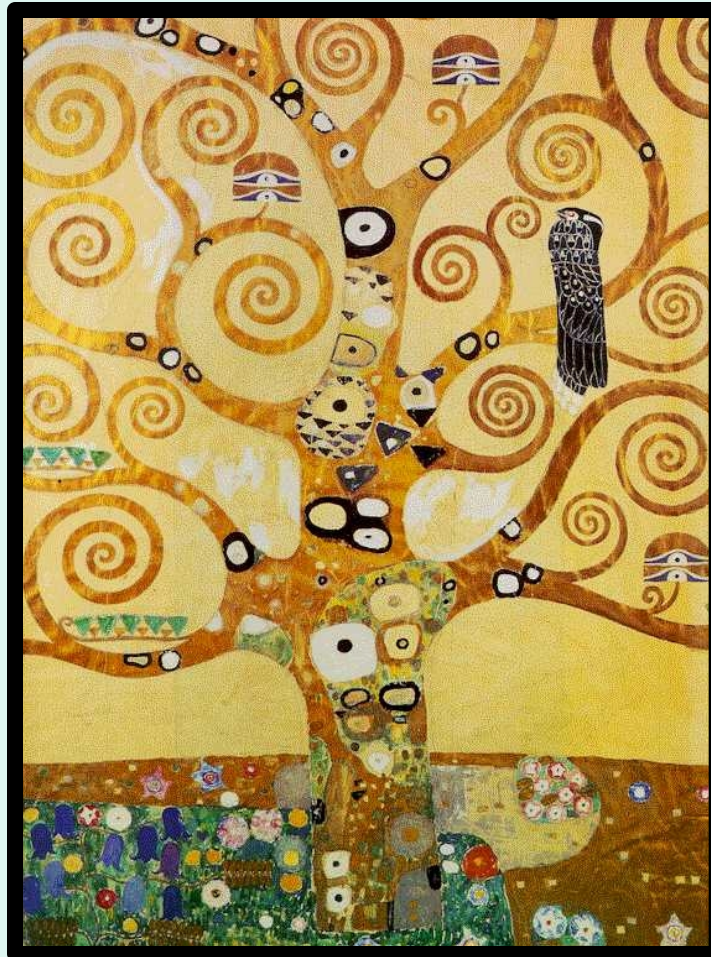


Classification



Classification

- Why?
 - There are 1.5 MILLION species on earth!- we have to organize them in some logical manner
- How?
 - Modes of development/reproduction
 - Morphology
 - Physiology
 - DNA- most recent!

The History of Organization



Aristotle 384-322 BCE

Interested in biological classification.
Patterns in nature.

Carl Linnaeus
1707-1778 CE
Father of
Biological
Classification!



Binomial Nomenclature

Carl Linneaus (Carolus Linneaus)

Two part scientific name

Genus

- Noun, Capitalized, Underlined or Italicized

Specific epithet

- Adjective, Lower Case, Underlined or Italicized

Together they are the species name (without the genus name it is useless!)



Common name: Black and Polar Bear

Ursus americanus



Ursus maritimus



Why Latin?

- Common names are not universal and meanings of words change over time
 - Mountain lion/puma/cougar (*Puma concolor*)
 - “Possums” in America are NOT possums in Australia (*Didelphis virginiana* versus *Trichosurus vulpecula*)



- Latin is universally understood
- Latin is a “dead” language- it will not change
- It does not favor any language/culture

The Science of Classification

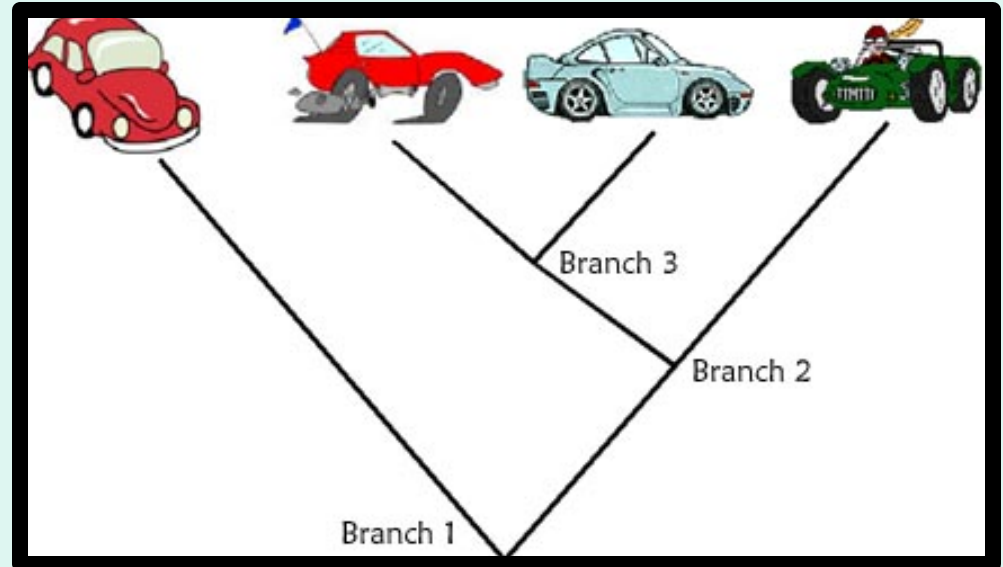
- Scientist who classify or organize organisms (animals and plants) are called **taxonomists**.
- Taxonomists study **taxonomy**- the **branch of Biology of scientifically classifying organisms**
- The groupings are called “taxons”
- LEAVE SPACE FOR LATER- the TAXONS OF LIVING THINGS

What is Classification?

Classification arranges
objects, ideas,
or information
into groups by finding
common
traits or characteristics.

Cladograms

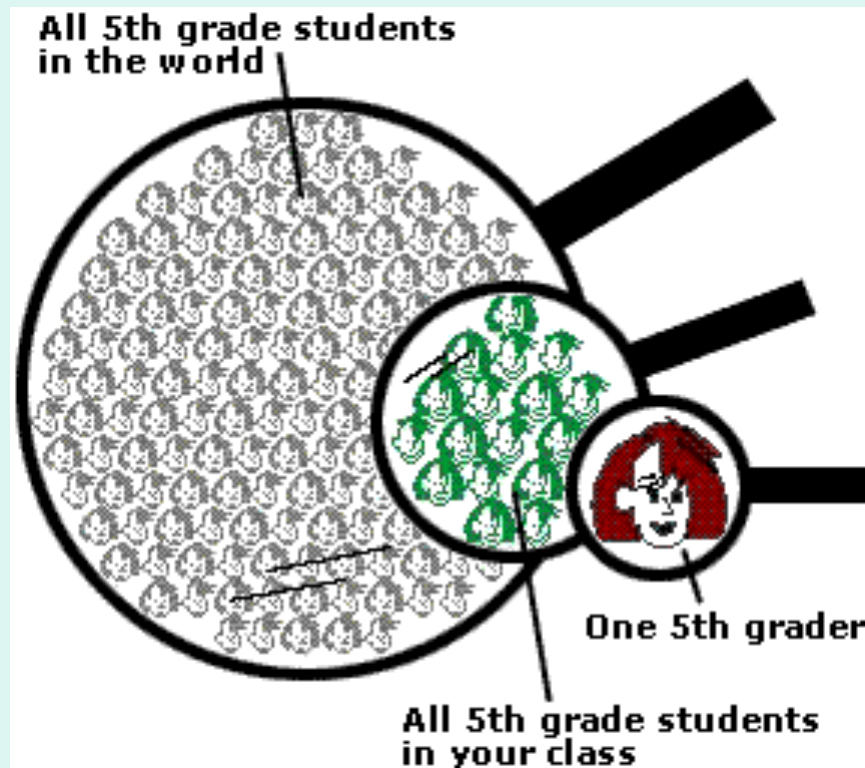
- Diagram showing evolutionary relationships.
- We use morphology and DNA evidence to construct them
- Derived characteristics: recently evolved characteristics being compared.
- Ancestral characteristics- shared characteristics of the organisms



Quick Lab – Creating Cladograms

- Turn to page (429 OR 511), in your text book
- You and a partner have 5 minutes to complete this activity.
- Make a cladogram of the organisms and their characteristics on the **BACK** of your notes

In order to make their job easier, scientists classify living things into groups, based on how they are the same, and how they are different.





Groups are also arranged in
hierarchical order.

Hierarchical Classification

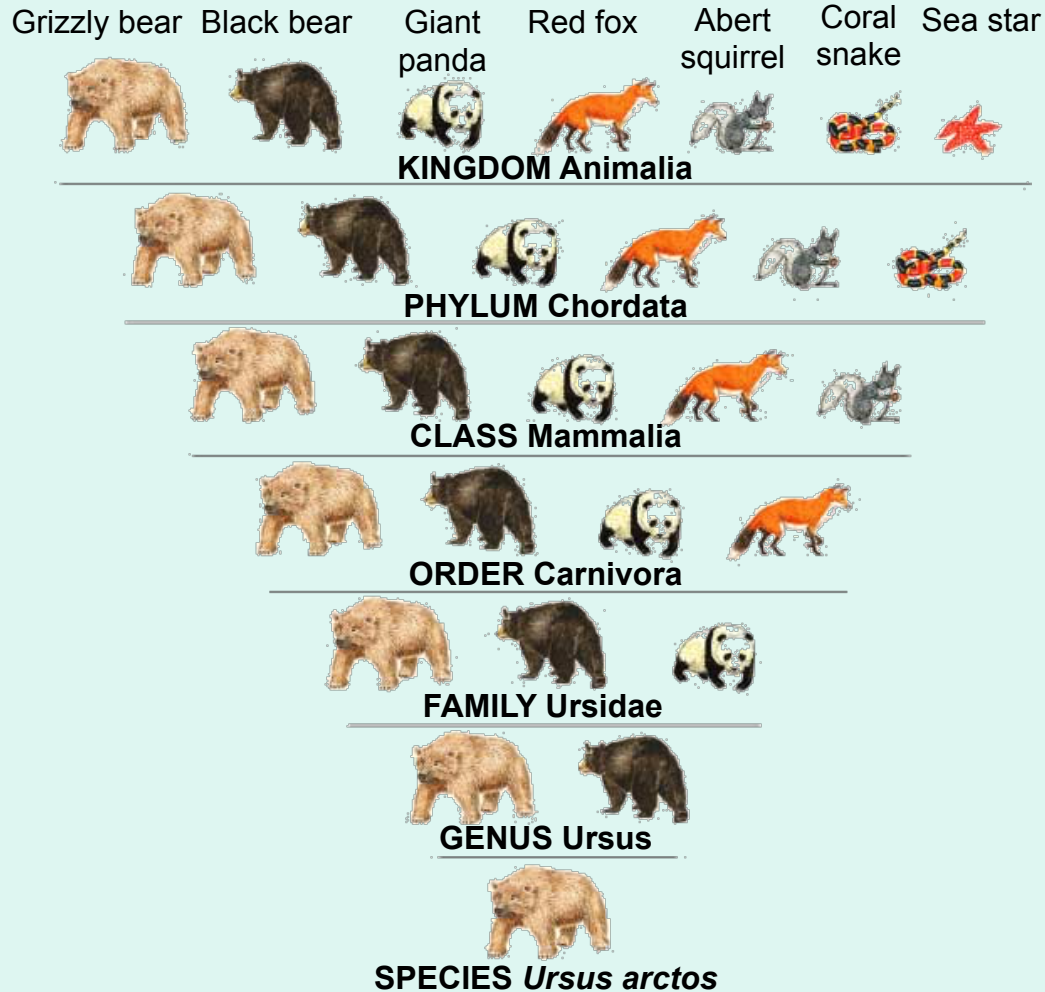
- Taxonomic categories

- Domain- newly added
- Kingdom (big)
- Phylum
- Class
- Order
- Family
- Genus
- Species (small)



**King
Philip
Came
Over
For
Grape
Soda**

Taxonomy



Kingdom

Animalia

Phylum

Chordata

Subphylum

Vertebrata

Class

Mammalia

Order

Carnivora

Family

Canidae

Genus

Canis

Species

C. lupus

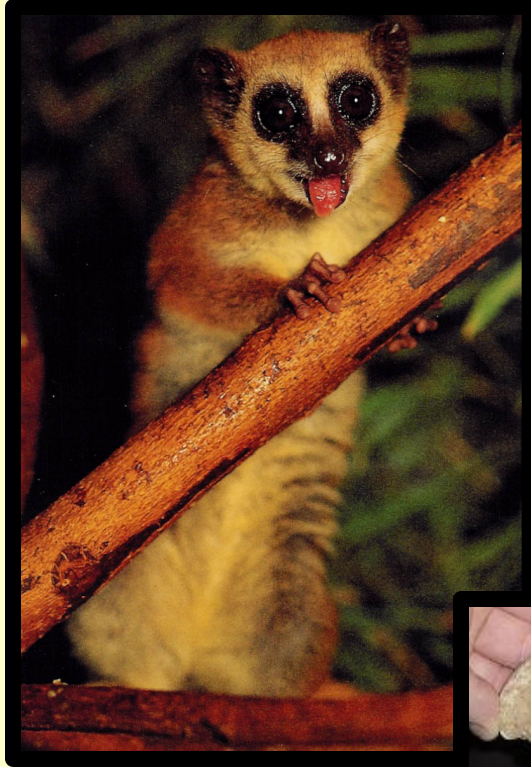


Engage Activity - Mnemonic

On the back of your paper, create your own sentence to help you remember the order of classification.

King Philip Came Over For Good Spaghetti

Why is Taxonomy Important?



Unknown species discovered.

New fossil Uncovered.



What are Dichotomous Keys?

- a method for determining the identity of something (like the name of a butterfly, a plant, a lichen, or a rock) by going through a series of choices that leads the user to the correct name of the item.
- Dichotomous means "divided in two parts".

Using a dichotomous key

At each step of the process of using the key, the user is given two choices; each alternative leads to another question until the item is identified.

- 1a. If the leaves are flat....go to question 4.
- 1b. If the leaves are needle-like....go to question 2.
- 2a. Are the needles in a bunch? Go to question 5
- 2b. Are they spread along the branch?“...pine tree

Eventually, when enough questions have been answered, the identity of the tree is revealed.

Engage Activity –Create your own dichotomous key

Create a dichotomous key to identify 2 people in this classroom, using questions based on gender, hair length/color, glasses (or not), clothing color, etc.

- 1a. Is this person male? Go to question 2.
- 1b. Is this person female? Go to question 3.



Exit Ticket

On a half sheet of paper and in your own words, what did I want to you to learn today (give at least 2 things)?

Don't list the activities...tell me what was the point.