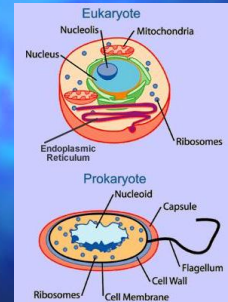


DIVERSITY OF LIVING THINGS



1. Test Monday
2. Lab Report Rough Draft (typed) due Wednesday
3. Lab Report Due Friday Oct 7th
4. Letter to MP due Tuesday Oct 11th

Prokaryote vs. Eukaryote



Taxonomy- the science of organizing and classifying organisms according to several criteria

CAROLUS LINNAEUS

(18th century Swedish naturalist)



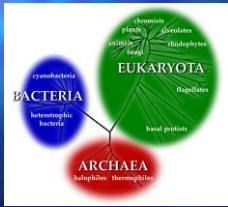
- Classified plants and animals according to similarities in form
- the more features organisms have in common, the closer the relationship
- Designed a system in which each organism is given two names. He called this **binomial nomenclature**
- His classification system is still used today

The 3 Domains are:

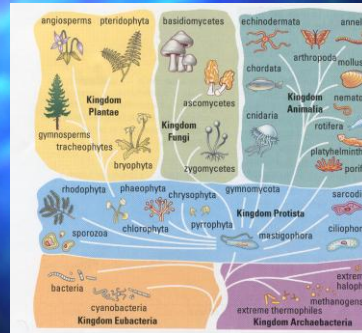
Domain Bacteria: (Kingdom Bacteria)

Domain Archaea: (Kingdom Archaea)

Domain Eukarya: (Kingdoms Protista, Fungi, Plantae & Animalia)



6 Kingdoms



	Eubacteria	Archaea	Protists	Fungi	Plants	Animals
Clades/ groups					<ol style="list-style-type: none"> 1. Seedless vascular plants (moss- Bryophytes) 2. Vascular plants (ferns- Pterophytes) 3. Gymnosperms (conifers, ginkgo) 4. Angiosperms (all flowering plants) 	
Diagram						
Cellular Organization					Eukaryotes, Multicellular	
Trophic level					Photoautotrophs	
Reproduction					Alternation of Generation in moss, Sporophyte dominant generation, Vegetative reproduction, Wind dispersed, animal dispersed, water dispersed	
Special features	Can be parasitic; causes STD's, meningitis		Malaria***			

Levels of Classification

Taxa- categories used to classify organisms. There are 7 taxa:

1. Kingdom
2. Phylum
3. Class
4. Order
5. Family
6. Genus
7. Species

Each taxon contain characteristics of the taxon prior to it plus specific characteristics that separate each taxon from another.

binomial nomenclature - each organism is given a 2-part scientific name (latin).

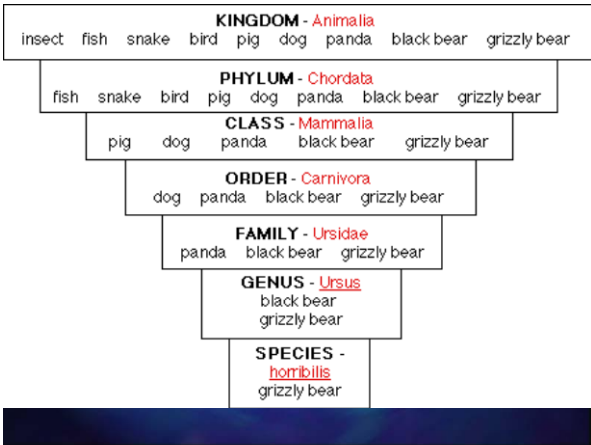
1. "Genus" is always capitalized
2. "species" remains uncapitalized

•The scientific way of writing it would be in *italics* or underlined.

Ex.1 *Salmo salar* Atlantic salmon
Salmo trutta Brown trout

HUMAN

1. Kingdom Animalia
2. Phylum Chordata
3. Class Mammalia
4. Order Primates
5. Family Hominidae
6. Genus *Homo*
7. species *sapiens*



Phylogeny

- The evolutionary history of an organism or groups of organisms
- the cornerstone of a branch of biology called systematic taxonomy.

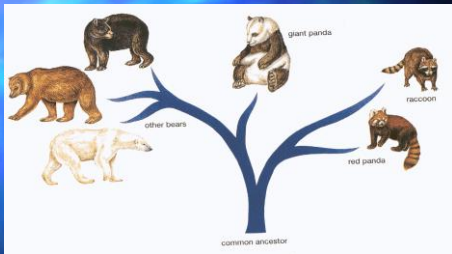
Phylogenetic Tree

A diagram representing the evolutionary history of an organism by a branching tree

Phylogenetic trees are usually based on a combination of these lines of evidence:

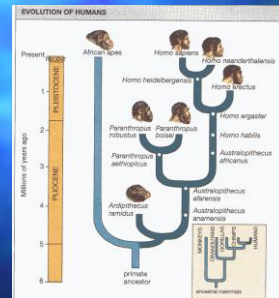
- The fossil record
- Morphology
- Embryological patterns of development
- Chromosomes and DNA

PHYLOGENETIC TREE



- The common ancestor to bears, pandas and raccoons is located at the base of the tree.
- The branches represent newer, modern day species while the common ancestor to the cluster is represented by the base of the fork in the tree.

The Human Lineage



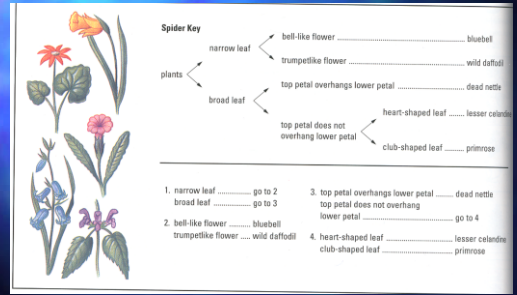
DICHOTOMOUS KEY

•A TWO-PART KEY USED TO IDENTIFY LIVING THINGS.

•WHEN CLASSIFYING AN ORGANISM, A SERIES OF CHOICES MUST BE MADE, WITH EACH CHOICE LEADING TO A NEW BRANCH.

•THE END RESULT IS THE NAME OF THE ORGANISM BEING IDENTIFIED.

A Sample Classification Key

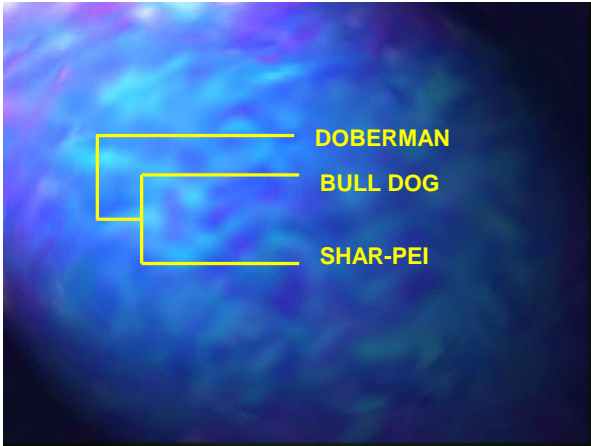


Cladistics- groupings based on shared commonly derived characteristics.

A cladogram may be represented by a. horizontally lines or via b. V-shaped diagram.

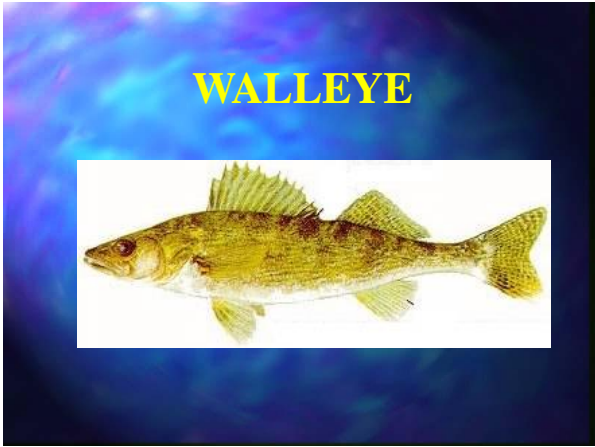
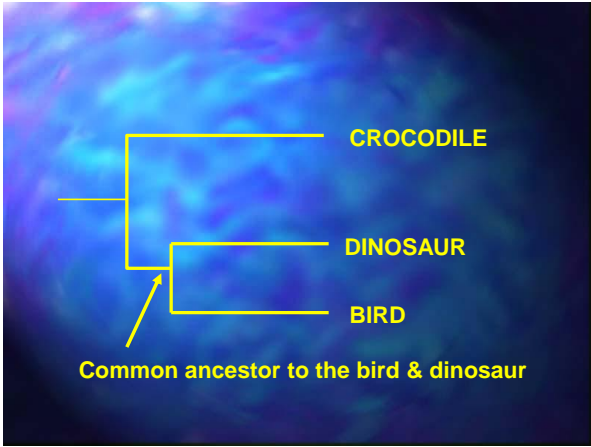


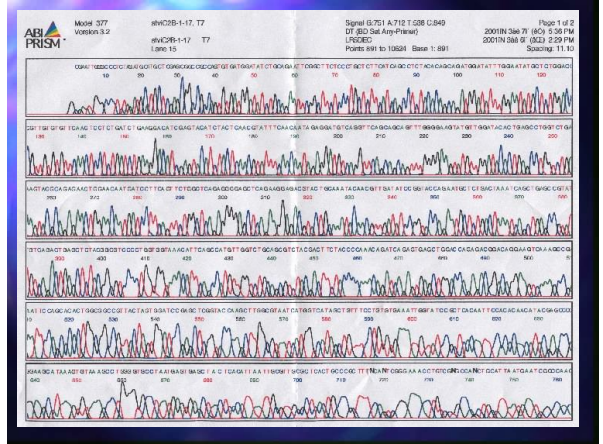
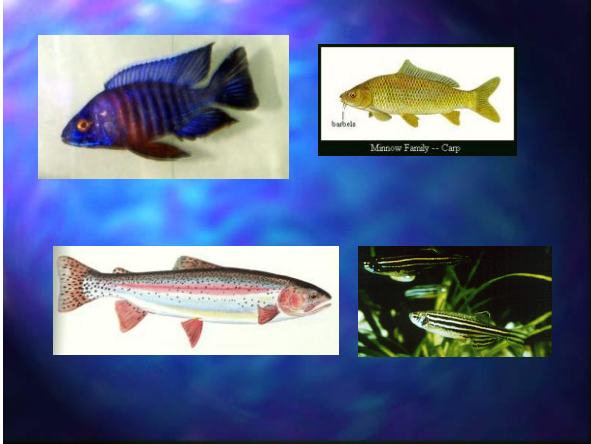
Based on Cladistics, is the Chinese Shar-Pei more closely related to the Bulldog or the Doberman Pincher?



Based on Cladistics, which two species are more closely related?

crocodile - dinosaur
dinosaur- bird
crocodile-bird





Alpha 3 - 100	Sequence
Wallaby - G14	QMPVRLQKQFSSPVSCRHATGYFDKAMFWKDGSEHHEVDVGETLPNHDGSFQ
Wallaby - G146	-----N-----
Wallaby - G179	-----B-----
Wallaby - G149	-----S-----
Wallaby - G181	-----N-----
African - F18	VK---V---TS---QPH-----N---E---V---G---VK---I---N---ET---
African - F17	VK-----S-----H---N---ELV-----V---L---G---ER---I---T---N---N---
R. trout - G8A	Vp-----A-----T-----RDV---VS---Q---QD-----EY-----D---T---
Carp - GAA	Vp-----D---L---P---T-----SGVTI---Q---N---QD---D-----L---LII---E---T---
Zebrafish - G86	Vp-----S-----V---V-----SGLKIS---QRN---QD---D---EL---LI---E---TY---

