Introduction to Zoology

I. General Information about Zoology
A. Zoology = study of animals
B. Why study animals?
   1. Learn about animals (including humans)
   2. Learn about animal interactions with each other, with other species, and with their environment
C. How do we study animals?
   Use Scientific Method:
   1. Problem
   2. Research
   3. Hypothesis
   4. Experiment
   5. Results
   6. Conclusions
D. What is scientific, what is not?

<table>
<thead>
<tr>
<th>Science</th>
<th>Not Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observable</td>
<td>Not observable</td>
</tr>
<tr>
<td>Natural laws to explain phenomena</td>
<td>Faith, Magic</td>
</tr>
<tr>
<td>Testable theories</td>
<td>Not testable</td>
</tr>
<tr>
<td>Conclusions tentative</td>
<td>Set in stone, cannot be questioned</td>
</tr>
</tbody>
</table>

II. Taxonomy
A. Definition = science of naming things & assigning them to groups
B. Why classify?
   Why have a classification system?
   1. Single, universal name
   2. Avoid confusion (be on same page)
   3. Understand how living things are related to one another
II. Taxonomy

C. E.g. What are the FIVE common names of this animal?

1. Mountain Lion
2. Cougar
3. Puma
4. (Florida) Panther
5. Catamount

II. Taxonomy

D. Wouldn’t it be confusing if we didn’t have a scientific name?

Felis concolor = scientific name of the mountain lion

Genus species

II. Taxonomy

E. Binomial nomenclature
1. System of scientific naming
2. Developed by Carolus Linnaeus (Swedish botanist) in 1750s
3. Two part scientific name Genus and species
4. Must be underlined or in italics
5. Genus capitalized, species not
6. In Latin (dead language of scholars)

II. Taxonomy

F. There are three main classification systems:
1. Binomial nomenclature
2. 3 Domain system
3. Cladistics

★ Note: Binomial nomenclature is used in this Zoology class.

2. Three Domain system

- Eukarya
- Bacteria
- Archaea

You are here

All other living things
3. Cladistics

II. Taxonomy

F. Example:

Homo sapiens
(wise man)

1. Scientific name for human beings
2. Homo = genus (capitalized & underlined)
3. sapiens = species (underlined, but NOT capitalized)

II. Taxonomy

G. 7 Taxa of living things (taxon = group)

- Kingdom (kings)
- Phylum (play)
- Class (chess)
- Order (on)
- Family (fine)
- Genus (green)
- Species (silk)

II. Taxonomy

H. Kingdom is least specific, largest group

1. Species is most specific, contains only one kind of organism

II. Taxonomy

J. An example: Classification of humans

- Kingdom: Animalia
- Phylum: Chordata
- Class: Mammalia
- Order: Primates
- Family: Hominidae
- Genus: Homo
- Species: sapiens

II. Taxonomy

K. What determines how something is classified?

1. DNA
2. Structure
K. ¿ What determines how something is classified?

3. Embryology & development

II. Taxonomy

L. There are 6 kingdoms of living things
1. Archaeabacteria
2. Eubacteria
3. Protista
4. Fungi
5. Plantae
6. Animalia

II. Taxonomy

M. Prokaryotic = does not have a nucleus to contain its DNA
N. Eukaryotic – has a membrane–bound nucleus

II. Taxonomy

N. Unicellular

Prokaryotic
1. Archaeabacteria – ancient bacteria
2. Eubacteria – most bacteria

Eukaryotic
3. Protista – single-celled organisms

O. Multicellular
4. Fungi – e.g. mushrooms
5. Plantae - plants
6. Animalia - animals