

Chapter Nine: Classification

Section 1: Sorting it all out

Classification: the division of organisms into groups, or classes, based on specific characteristics

- Scientists classify organisms to make sense and order of things

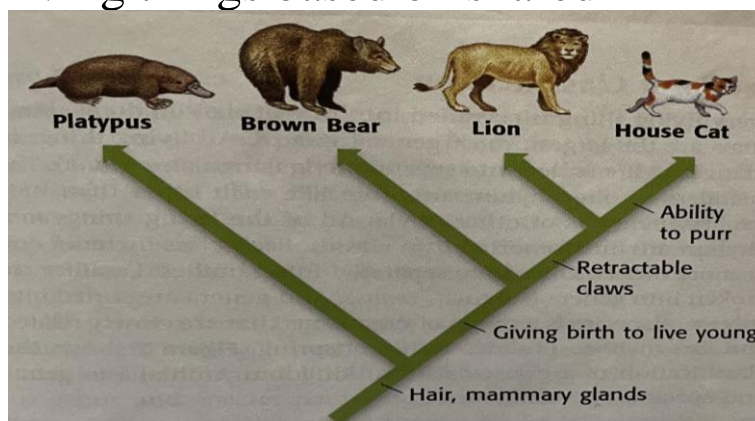
Before the 1600s, divided into two groups: plants and animals

Carolus Linnaeus: Swedish scientist in the 1700s

- Founded modern taxonomy
- Described a seven-level system of classification

Taxonomy: the science of describing, classifying, and naming living things

- Taxonomists use the seven-level system to classify living things based on shared



On a branching diagram, several characteristics are listed along the line that points to the right. Each characteristic is shared by the animals to the right of it.

Seven Levels of Classification:

1. Kingdom (everything is classified into 6 kingdoms)
 - a. This is the largest and most general group
2. Phylum
3. Class
4. Order
5. Family
6. Genus
7. Species

Species: a group of organisms that are closely related and can mate to produce fertile offspring

By classifying organisms, biologists give organisms scientific names, usually Latin or Greek

The first part of a scientific name is the genus name.
The second part is the species name.

- Ex. *Homo sapiens*

Rules for writing genus and species names:

1. No other species can have the same genus and species name
2. All genus names begin with a capital letter
3. All species names begin with a lowercase letter
4. Both genus and species names are either underlined or italicized
5. If surrounding text is italicized, then genus and species names are not

The species name is not correct without the genus name or its abbreviation

- *Tyrannosaurus rex*
 - *Tyrannosaurus* means “tyrant lizard”
 - *rex* is Latin for “king”
 - *T. rex* is another appropriate way to say it

Dichotomous Key: an identification aid that uses sequential pairs of descriptive statements

- There are only 2 alternative responses for each statement

Dichotomous Key

- 1a. It has fur.....**It belongs to the class Mammalia.**
- 1b. It does not have fur.....**Go to number 2.**
- 2a. It cannot change locations (move) on its own.....**Go to number 3.**
- 2b. It can change locations on its own.....**Go to number 4.**
- 3a. It has a flower.....**It belongs to the phylum Phanerogams (flowering plants).**
- 3b. It does not have a flower.....**It belongs to the phylum Cryptogams (non-flowering plants).**
- 4a. It has feathers and can fly.....**It belongs to the class Aves.**
- 4b. It cannot fly.....**Go to number 5.**
- 5a. It does not have a backbone.....**It belongs to the phylum Cnidaria.**
- 5b. It swims in water.....**It belongs to the phylum Chondrichthyes.**