Classification

📖 Define *Classification*.

- Classification is the **grouping** of objects or information based on **similarities**.

📖 Define *Taxonomy*.

- Taxonomy is the **branch** of **biology** that groups and names organisms based on **studies** if their **different** characteristics.

🗣 Greek Philosopher Aristotle

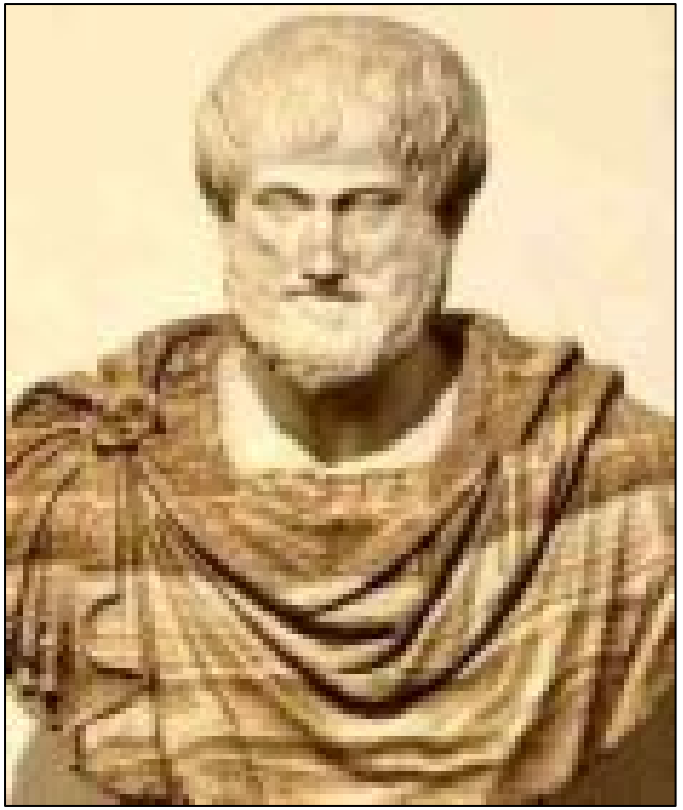
Classified into 2 groups

He subdivided plants into 3 groups:

Herb

Shrub

Tree



Teacher Note

- Aristotle did categorize animals based on their habitat and physical differences.

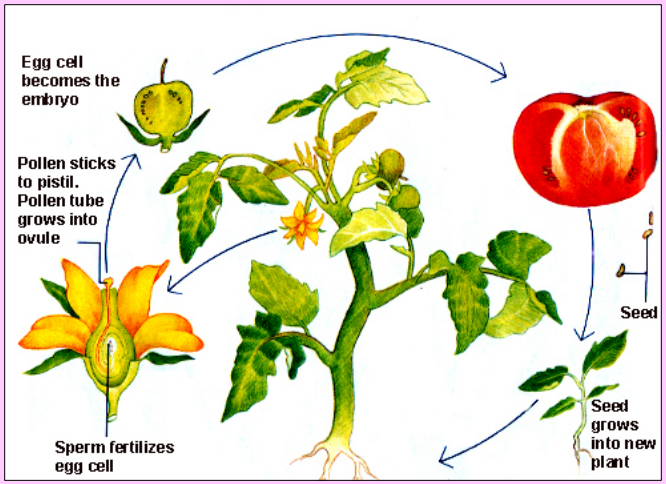
- However, he never grouped organisms according to evolutionary changes.

📖 Who is *Carolus Linnaeus*?

- Carolus Linnaeus developed a method of grouping organisms that is based on **physical** and **structural** similarities.

- Name an example:

Flowering Parts



- Do scientists still used this method today?

Yes

🗣 Therefore, need to understand that…

- Some biologists proposed that **structural** similarities **reflect** the **evolutionary relationship** of species.

Teacher Note

- Although bats fly like birds, they also have hair and produce milk for their young.

- Therefore, bats are classified as mammals rather than birds, reflecting the evolutionary history that bats share with other mammals.

📖 Define ***Binomial nomenclature***.

- Binomial nomenclature is a **two-word naming system** developed by **Linnaeus** in order to identify species.

- 🗣 It is the **modern classification system** today.

📖 Binomial nomenclature.

- The first word identifies the ***genus*** of the organism.

- A ***genus*** consists of a **group** of **similar** species.

📖 Binomial nomenclature

- The **second** word, which sometimes describes the **characteristic** of the organism, is called ***specific epithet***.

- ***Specific epithet*** is the **scientific** name for each species.

📖 Binomial nomenclature Example.

- The binomial nomenclature for modern humans is ***Homo sapiens***.

- The **genus** name is ***Homo***
- The ***specific epithet*** (***species***) name is ***sapiens***.
- The **Latin** word ***sapiens*** means "***wise***"

🗣 Why do we classify?

- Serves as a **framework**.

- Are dinosaurs **more** closely related to birds or to reptiles?

🗣 Why do we classify?

- Useful tool for scientists who work in **agriculture**, **forestry**, and **medicine**.

- Suppose a young child eats berries from a plant in the backyard.

Virginia Creeper

Poison Ivy

🗣 Why do we classify?

- Beneficial for finding **<u>new</u>** **<u>sources</u>** of lumber, medicines, and energy.

Good Disinfectants

📖 How Living Things are Classified?

- A group of organisms is called a ***taxon***.

- Plural is ***taxa***.

Lynx canadensis
(lynx)

Lynx rufus
(bobcat)

📖 The 8 Orders of *Taxa*.

- **D**omain — Eukaryota
- **K**ingdom — Animalia
- **P**hylum — Chordata
- **C**lass — Mammalia
- **O**rder — Primates
- **F**amily — Homoinidae
- **G**enus — *Homo*
- **S**pecies — *sapiens*