

**Taxonomy** - is the science of grouping or organizing things into groups based on common characteristics.

### **Classifying Living or Non-living**

Science biologist study life, they need to be able to tell the difference between living things and non-living things. They ask themselves a set of questions:

Can it grow and develop?

Can it reproduce to make more of its own kind?

Can it make or get food?

Can it use food?

Can it sense and react to living and non-living things in its surroundings, and react to them?

Is it made up of cells?

If the all are yes then classify as living.

**Ecology** is the study of how living things interact with each other

## Factors of our Environment

**Biotic** are living factors include:

- Plants
  - Animals
  - Dead organisms & Waste Products  
(came from living at one time)
- } organisms

**Abiotic** are nonliving factors that affect other living things:

- Air
- Water
- Soil
- Rocks
- Light
- Temperature
- Climate

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Scientists classify organisms and assign each one a universally accepted name.

- Scientists classify because it is an **organized way to communicate** about the same organism all over the world. A classification system was developed because:
- Scientists once communicated about organisms by using common names.
- Common names can vary among languages and geographical regions.

Ex: Mountain lion, puma, cougar, and panther are all **common names for the same organism**. It would be confusing for scientists to communicate across the world about an organism only using common names.



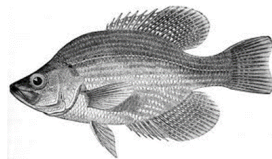
There are many **tree frogs** but **only one** with the scientific name *Agalychnis callidryas*.



Scientist over time has developed a naming system that they all understand using binomial nomenclature

## Early classification systems

- Aristotle grouped everything into simple groups such as animal or plant
- Then later grouped animals according to how they moved, if they had live young or laid eggs, and so on...



## The modern classification system :

Developed by Carolus Linnaeus

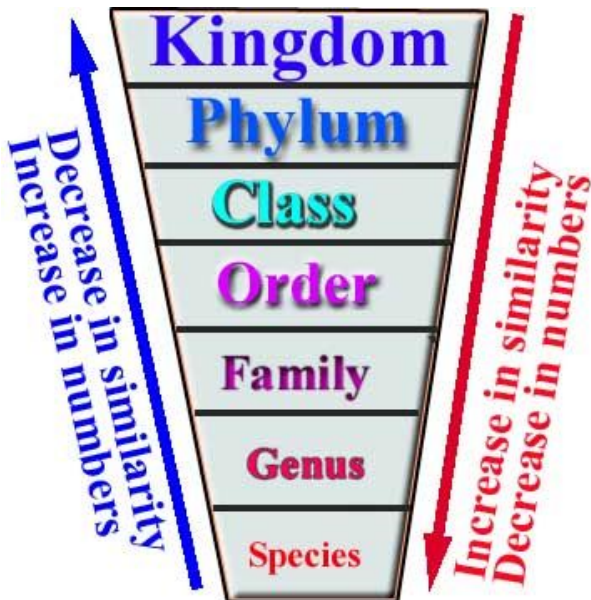
Consists of 7 levels:

- Kingdom
- Phylum
- Class
- Order
- Family
- Genus
- Species

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## Biologist group living things

Hierarchy of classifying living things



King

Philip

Came

Over

For

Green

Skittles

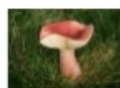
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- 1) **Kingdom**-broadest and most inclusive level that includes a group of related phyla
- 2) **Phylum**-a group of related classes
- 3) **Class**-a group of related orders
- 4) **Order**-a group of related families
- 5) **Family**-a group of related genera
- 6) **Genus**-a group of related species
- 7) **Species**-smallest and least inclusive level that names one particular type of organism

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## Kingdoms

- Any grouping of organisms into kingdoms is based on several factors:
  - Presence of a nucleus
  - Unicellular or multi-cellular
  - How organisms get their food.
- Five different kingdoms of organisms are generally recognized by scientists today
  - **Protists**
  - **Monerans**
  - **Fungi**
  - **Plants**
  - **Animals**



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### Kingdom Animalia



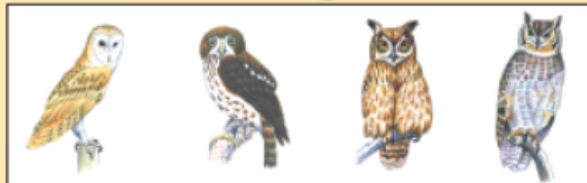
### Phylum Chordata



### Class Aves



### Order Strigiformes



### Family Strigidae



### Genus *Bubo*







### Species *Bubo virginianus*





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Classification Level				
Common Name	Human (?)	Canada goose	Lake darner	Mosquito
Kingdom	Animalia	Animalia	Animalia	Animalia
Phylum	Chordata	Chordata	Arthropoda	Arthropoda
Class	Mammalia	Aves	Insecta	Insecta
Order	Primate	Anseriformes	Odonata	Diptera
Family	Hominidae	Anatidae	Aeshnidae	Culicidae
Genus	<i>Homo</i>	<i>Branta</i>	<i>Aeshna</i>	<i>Aedes</i>
Species	<i>sapiens</i>	<i>canadensis</i>	<i>eremita</i>	<i>fitchii</i>



We share the earth with many other living things that are found in many different places such as in water, on land, in hot deserts, in deep oceans and in the polar regions. They can even be found living inside you. Some are large like a Blue Whale (30 m long) but some are microscopic, like bacteria.



- \* We classify things into groups in order to make things easier to understand.
- \* All living things share a set of characteristics in order to survive.
- \* All living things are grouped into the first level of classification known as a "kingdom".

### There are 5 Kingdoms

- 1) Animals
- 2) Plants
- 3) Fungi
- 4) Monera (Bacteria)
- 5) Protists (Single-cell)