The Science of Biology:

Biology is the natural science that studies life on earth in all of its forms and living organisms, including their physical structure, chemical processes, molecular interactions. An organism is a living entity consisting of one cell e.g. bacteria, or several cells e.g. animals, plants and fungi. it is derived from the Greek words "bios" meaning "life" and "logy" meaning "knowledge or study". It is divided into three broad areas of expertise, including the study of plants (Botany), the study of microorganisms (Microbiology) and the study of animals (Zoology).There are generally considered at least nine fields of biology, each of which consists of multiple subfields, they are**:**

Biochemistry, Botany, Cellular biology, Ecology, Evolutionary biology, Genetics, Molecular biology, Physiology and Zoology.

In general, biology recognizes the cell as the basic unit of life, genes as the basic unit of heredity, and evolution as the engine that propels the creation of new species.

Why study biology is importance:

Biology plays an important role in the understanding of complex forms of life involving humans, animals and plants, from the smallest bacteria to blue whales. Biology helps individuals understand the interaction between humanity and the world. It also develops interests in the lives of living organisms in an effort to preserve them. Study biology is importance because:

1-Biology helps us understand the big picture of life.

2- Students learn more informed about their own health, such as use of antibiotics.

3- Students become more aware of ecological issues.

4- Biology help to learns a career opportunities. Such as: Agronomist, biochemist, treatments, and vaccines for many diseases.

5- It is the study of how lives evolve.

6- It teaches how various organs and system works in human body.

7- Medical and Pharmacology sciences depend on biology.

8- Knowledge of Biology helps to make better environment to live in.

9- The study of Biology involved in improves of agriculture.

Division of Biology:Division is a taxonomic rank used differently in zoology and in botany. Biology is the natural science that involves the study of life and living organisms, including their physical and chemical structure, function, growth , evolution and distribution of living organisms. Below is a list of some branches of biology.

Anatomy - The study of the structure of organisms and their parts.

Biochemistry - The study of the structure and function of proteins, carbohydrates, lipids, nucleic acids, and other biomolecules.

Botany - the scientific study of plants.

Zoology: Branch of biology deal with animals.

Cell biology - Study of cells at microscopic or molecular level.

Genetics - a science that deals with heredity,

Immunobiology - Study of structure and function of immune system.

Medicine -Science relates to prevention, cure, or alleviation of disease.

Microbiology - Branch of biology deals with microorganisms.

Mycology - the study of fungi.

Parasitology- the study of parasites and parasitism.

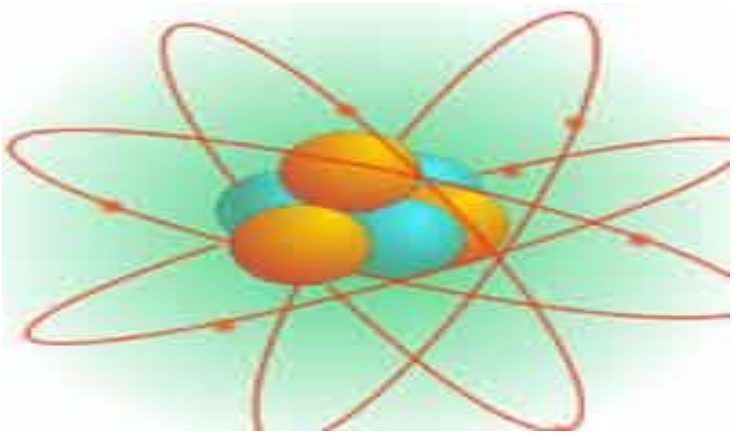
Pathology - the study of the nature of disease and its causes.

Pharmacology - the study of preparation and use of drugs.

Physiology -Biological study of the functions of living organisms.

Virology - study of viruses.

Radiobiology- branch of biology involves action study of ionizing radiation on living things. And others.



The Kingdom of Living things:

All living things can lumped together into two kingdoms, namely plants and animals. Animals included every living thing that move, eat, and grow to a certain size and stopped growing. Plants included every living thing that did not move or eat and that continued to grow throughout life.

Kingdoms are divided into categories called phyla; each phylum is divided into classes, each class into orders, and each order into families, each family into genera, and each genus into species. A species represents one type of organism, such as dog, tiger and shark.

Classification of organisms:

All living organisms are classified into groups based on very basic shared characteristics. Organisms within each group are

then further divided into smaller groups, which based on more similarities within each larger group. This grouping system makes it easier for scientists to study certain groups of organisms. These specialized groups are called the classification of living things, which includes 7 levels:

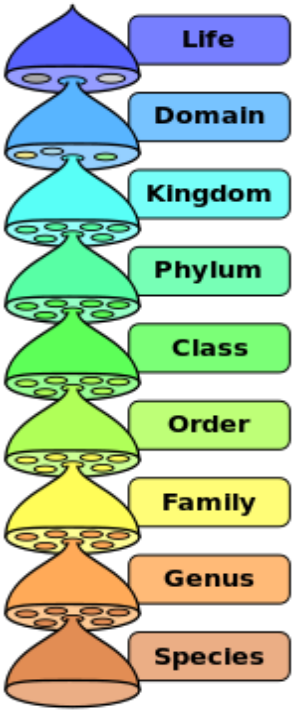
Kingdom: A group of phylum forms kingdom. It is the largest group of living organism. Differences are higher and similarities are very less in Kingdom. Currently there are five kingdoms. Living things are placed into certain kingdoms based on how they obtain their food, the types of cells that make up their body, and the number of cells they contain.

Division (Phylum): group of class forms division. There is a physical similarities suggest that there is a common ancestry among the organisms in a same phylum.

Classes: A group of orders forms class.

Order: A group of families, which inter-related with each other to forms order.

Family: Orders are divided into families. A group of genera forms family that possesses certain common characters.



Genes: A group of species form genus that are having common ancestor. The genus is used to determine the first part of its two-part name.

Species: It is a group of organism that shows maximum similarities and capable of interbreeding. They are capable to give fertile offspring. The species of an organism determines the second part of its two-part name.

The five kingdoms Classification:

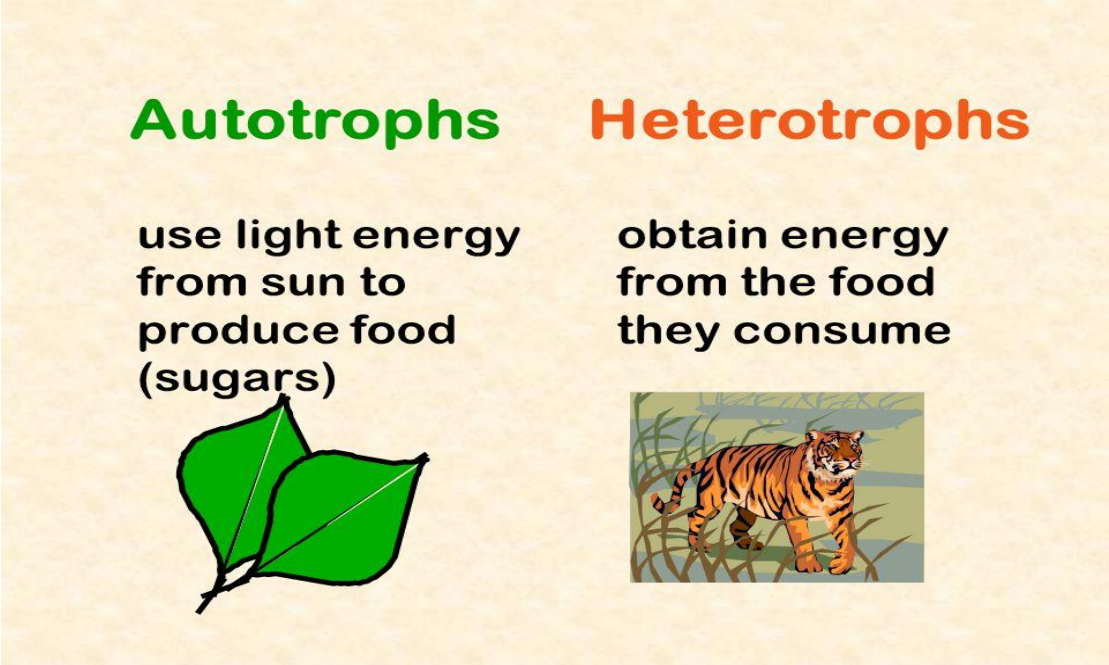
Kingdoms are a way for scientists to develop a divide for all living things. Currently there are five kingdoms: Monera Kingdom**,** Protist Kingdom**,** Fungi Kingdom**,** Plant Kingdom, **and** Animal Kingdom. Many biologists now recognize six distinct kingdoms, dividing Monera into the **Eubacteria** and **Archeobacteria**.

Monera Kingdom: It consists of organisms that are made up of one cell such as Bacteria. These organisms are called unicellular, they often lacks many of cell parts, such as a nucleus.

Protist Kingdom: Protists are similar to monera in that they are unicellular but a bit more complex because they contain a nucleus. They also have moving parts and can move within their environment, for example algaes.

Fungi Kingdom: Fungi are saprophytes; this means that an organism eats dead or decaying organic matter. Fungi have their own kingdom because there is no other organism like them. They were thought to be plants but they differ from plants in one major way. Fungi cannot make their own food. Mushrooms are a type of fungi.

Plant Kingdom: All plants are a part of the Plant Kingdom. Plants include trees, grass, flowers, and algae. Plants are autotrophs, this means that it can make its own food, using photosynthesis. Because they only require a few simple requirements, plants can grow almost anywhere.



Animal Kingdom: Organisms in the animal Kingdom are multicellular and have a nucleus and rely on other organisms for food. It is the largest of all the kingdoms. Animals are heterotrophs, this means that an organism must eat other organisms to survive, for example, herbivores eat plants and carnivores eat other animals.