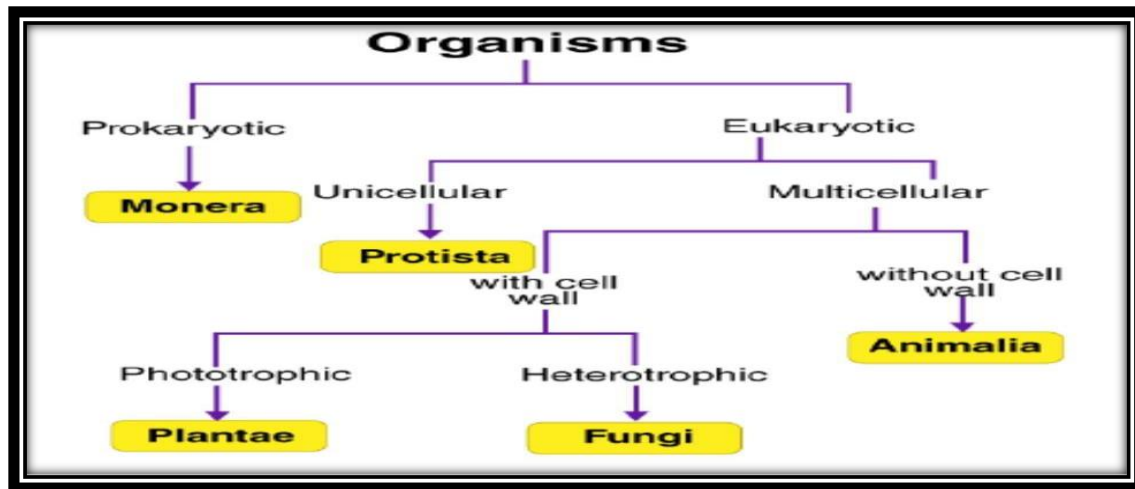


Classification of living organisms

R.H Whittaker proposed the five kingdom classification in 1969 (the most common system of classification in use today):-



Kingdom: Animalia

Members of the animal Kingdom are distinguished by sharing the following characteristics:

1-Multicellular, eukaryotic organisms.

2-Animals are made up of cells that do not have cell walls and more mitochondria.

3-Cells differentiated into complex tissues : epithelial ,connective, muscular , nervous, and tissues differentiated into complex organs and organ systems.

4-Heterotrophic nutrition (herbivores, carnivores).

5-Most are much more active and have a much higher metabolism than members of any other kingdom.

6-Require free oxygen for energy production.

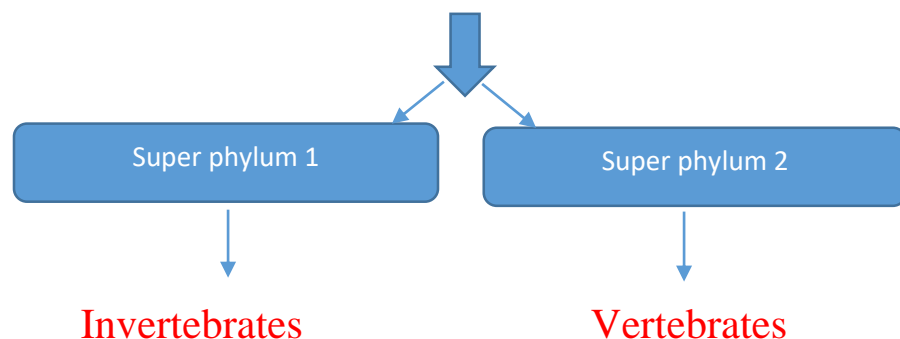
7-Extra energy usually stored as fats and oils.

8-Animals are capable of motion in some stage of their lives..

9- Show a great diversity in kinds of reproduction.

Animals have been categorized into two primary categories in the animal kingdom based on **the presence or absence of a backbone or spinal cord.**

Classification of Kingdom: Animalia

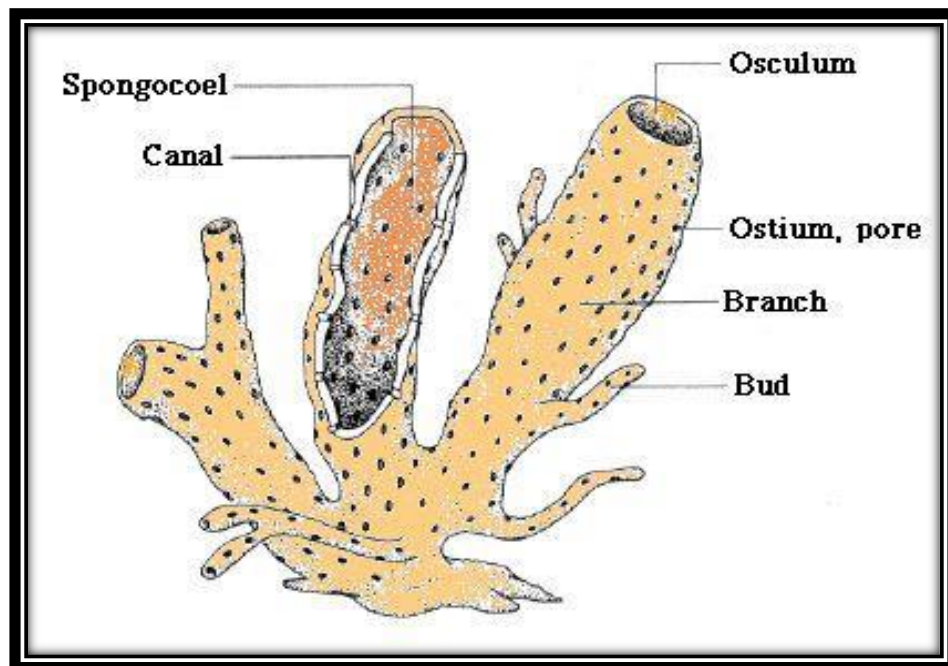


Super phylum 1: Invertebrates

Phylum 1 : Porifera

Example: Marine sponge

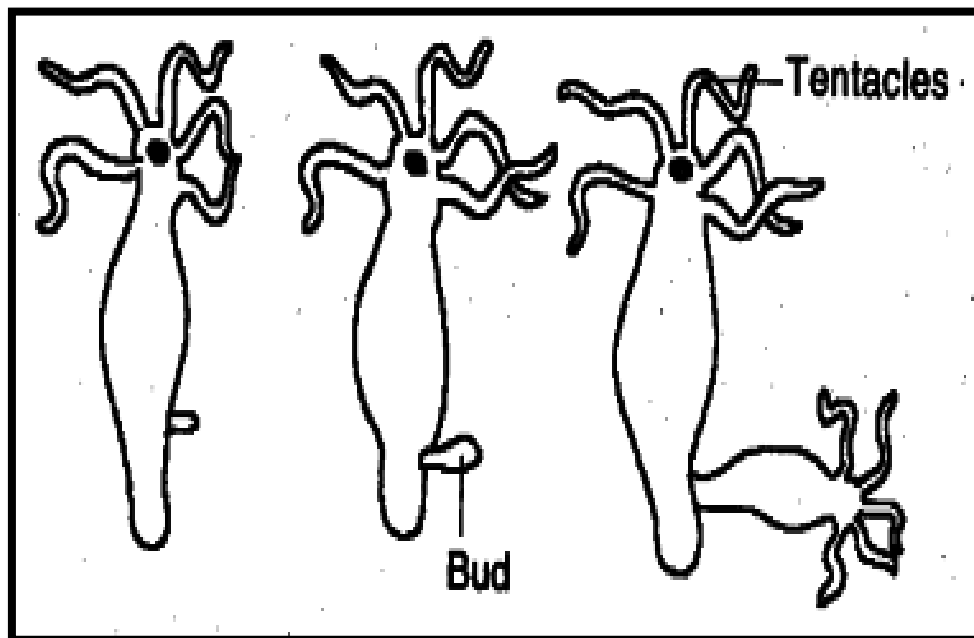
1. These are multicellular.
- 2- They have a cellular grade of construction without the occurrence of tissues.
- 3- They are characterized by the presences of a canal system in their body.
- 4- The body wall contain spicules.
- 5- They can reproduce both by asexual and sexual method.



Phylum 2 : Coelenterata

Example: *Hydra*

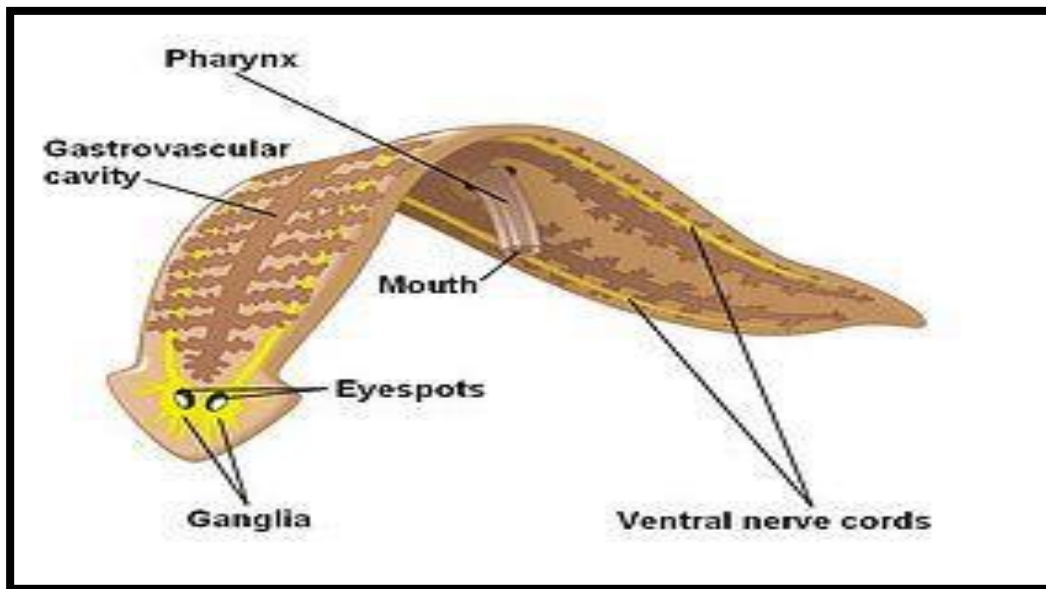
- 1-All Coelenterata are aquatic animals, they are mostly marine.
- 2-The body is radially symmetrical.
- 3-Many Coelenterates exhibit polymorphism.
- 4-The layers in the body wall contain several cells and tissues such as muscle cells epithelial tissues gland cells and sensory cells.
- 5-They reproduce both asexually and sexually methods.



Phylum 3 : Platyhelminthes

Example: *Planaria*

- 1-This phylum includes flatworms.
- 2-These are acoelomates, without a body cavity called coelom.
- 3-The alimentary canal is either absent or very simple.
- 4-These worms are mostly having both male and female reproductive organs in a single individual.



2- Super phylum :- Vertebrates

Vertebrates are a subphylum of animals within the phylum Chordata and are characterized by :

- 1- the presence of a vertebral column or backbone, which contains and protects the spinal cord.
 - 2- Exhibit bilateral symmetry and are generally more complex than invertebrates.
- The phylum Chordata contains all of the animals that have a rod-like structure used to give them support. In most cases this is the spine or backbone. Within Chordata there are five classes of animals: fish, amphibians, reptiles, birds, and mammals. Three dividing factors separate these classes:
 - 1-Regulation of body temperature:
Animals are either **homeothermic** (can regulate their internal temperature so that it is kept at an optimum level)
or
poikilothermic (cannot regulate their internal temperature, the environment affects how hot or cold they are).

- 2- Oxygen Absorption: the way in which oxygen is taken in from the air, which can be through gills, the skin (amphibians), or lungs
- 3- Reproduction: this factor is particularly varied. Animals can be oviparous (lay eggs) or viviparous (birth live young). Fertilization can occur externally or internally. In mammals, the mother produces milk for the young.



For example to vertebrate ; the frog which belong to the Class:
Amphibians

The external appearance of a frog:-

1-The skin is sticky and moist, and not attached to the muscles underneath it.

2-The head is triangular in shape, flat and wide, compressed on the dorsal and ventral sides, and pointed at the front, Its parts are the mouth, which is a wide opening extending around the front and sides of the head, The eyes are large and protrude above the surface of the head, and the nostrils are two small external openings located at the basic end of the dorsal side of the head.

3 - The trunk (torso) region has a spine.

4- Limbs: It has front limbs and hind limbs, the front limbs consist of a part close to the body, followed by the upper arm, then the hand, which consists of the wrist, metatarsus, and fingers. The number of fingers is four, and the thumb is missing. The hind limbs consist of the thigh, followed by the leg, then the foot. The foot consists of a wrist, a metatarsus, and five fingers connected to each other by a membrane,

which is a fold of skin. There is a vestigial finger called a finger before the thumb.

5-The oral cavity contains the tongue, the front end of which is attached to the front of the lower jaw, and its rear end is free.

