3055 BA SANGAM COLLEGE

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WORKSHEET 16

School: **Ba Sangam College** Subject: **Biology**

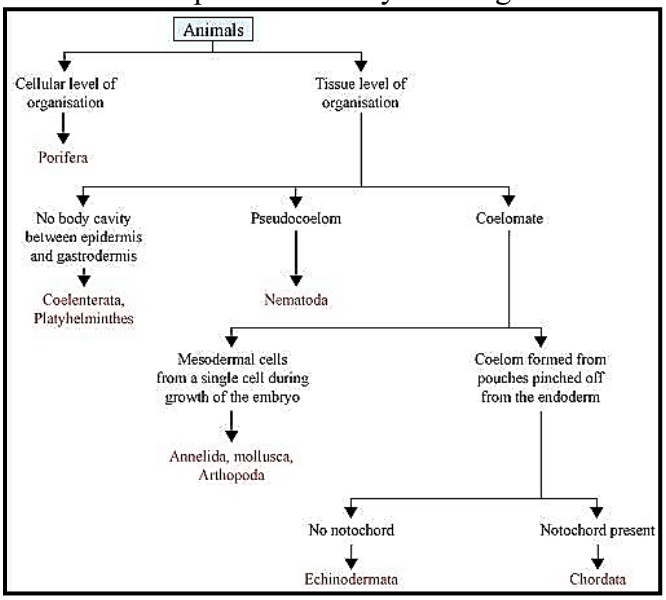
Year: **13** Name:_____

Strand	**3 Biodiversity Change and Sustainability**
Sub strand	**13.3.2 Diversity Of Life**
Content Learning Outcome B13.3.2.6	**KINGDOM ANIMALIA** Describe the characteristics that classify organisms in this kingdom to different categories; and explore the increasing complexities of the different groups from simple organisms to complex chordates

Kingdom Animalia

Characteristics

- Have eukaryotic cells
- Are heterotropic
- Multicellular
- Lack cell wall
- Higher animals show well developed sensory and neuromotor mechanism
- Capable of locomotion
- Reproduction is by copulation of male and female which is followed by the development in embryonic stages.



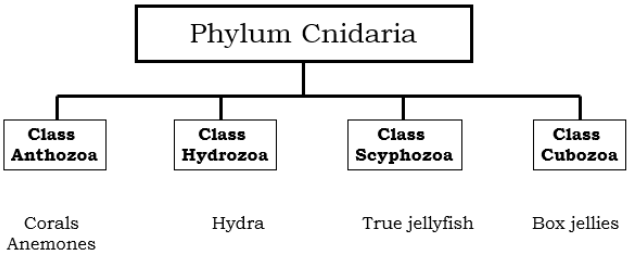
Diploblastic Condition

Phylum Cnidaria

- The phylum Cnidaria is composed of three major classes of mostly marine carnivores:
- **Hydrozoa** (Hydra, Obelia, Portuguese man-of-war)
- **Scyphozoa** (jellyfish)
- **Anthozoa** (sea anemones and coral polyps).

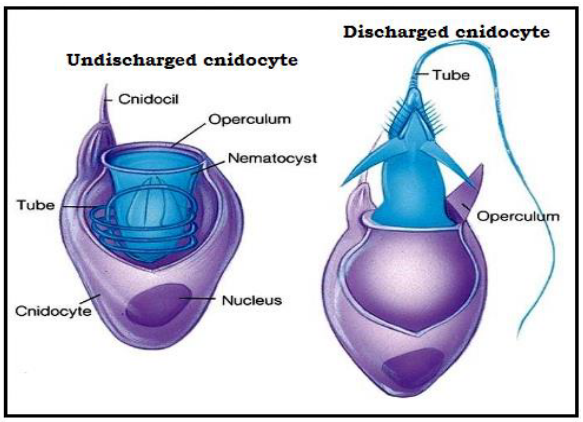
General Characteristics of Cnidarians

- Are diploblastic
- Majority are marine.
- Have no internal organ. Have a hollow space in the gastro vascular cavity.
- Lacks head and central nervous system.
- Are radially symmetrical and most are polymorphic, meaning they have distinct body forms during their lives.
- The polyp form is cylindrical organism which remains attached to the substrate by a short stalk.
- The medusa is bell shaped, free-swimming form resembling the familiar jellyfish.
- The classes of cnidarians are distinguished primarily by the dominance of the polyp or medusa stage in the lifecycle. In hydrozoans the polyp form predominates the lifecycle, while in scyphozoans it is the medusa form which predominates. Anthozoans exist only as polyps; the medusa stage has been completely lost.
- Presence of tentacles with stinging cells used for defense and for capturing prey. These cells are called **cnidocytes**, from which the phylum derive its name.
- Many cnidarians are limited to shallow waters because they depend on endosymbiotic algae for much of their nutrients.



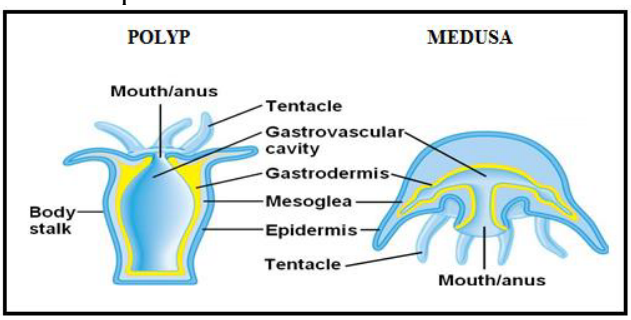
Cell specialization

- Outer epidermal cell – some function as sensory neuron cells, some as gland cells, some as interstitial cells and some as epithelial muscular cells.
- Have **cnidocytes** or **cnidoblasts** (thread cells or stinging cells) in the tentacles present in a structure called a **nematocyst,** which helps the animal to capture prey and defense mechanism.
- Endodermal cells have contractile functions.



Polymorphism and its Significance

- **Polymorphism** – occurrence of two or more distinct forms of an individual. Some members of Cnidaria have more than one body form eg. *Obelia*
- Having different body forms serves as an advantage for *Obelia*, where the sedentary (polyp) form allows the organism to grow and colonise, while the motile forms(medusa) allows for dispersal and reproduction.



Advantages of polymorphism

- Enable it to colonise different habitat thus reducing competition
- Avoids predations.
- Help in dispersal of organism.

Reproduction

1. Asexual – by budding. Buds forms tentacles, break off finds a suitable place and attaches itself with basal disc.
2. Sexual – development of egg and sperm in the same individual (**hermaphrodites**)

CLASS Hydrozoa

Example 1: *Hydra*

- Sedentary/Sessile and found in fresh water Polyp body form.
- Most live in colonies.
- Attach themselves to rock or water plants by means of a sticky secretion produced by the basal disc.
- Produces gas bubbles which allows hydra to float near the surface.

Activity

1. State the significance of polyp and medusa form.

_____
_____
_____
_____
_____
_____(2 marks)

2. Name of the larva of Obelia and state its biological importance.

_____
_____
_____(1 mark)

3. Name the germ layers present in cnidarians and which tissues do they produce?

_____
_____
_____(1 mark)

4. What are cnidocytes? What is the name of the organelle inside cnidocytes? What are the biological functions of this structure?

_____
_____
_____
_____(1 mark)