

# Cnidarian

Created by: Ankush Kalia

## Taxonomy of Cnidaria

Domain: Eukaria

Kingdom: Animalia

Phylum: Cnidaria

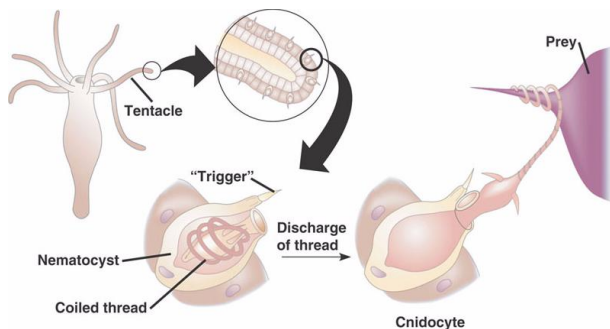
Class: Hydrozoa, Anthozoa, Cubozoa, Scyphozoa

Example of A Phylum : Cnidaria (Jelly Fish example)

## Phylum Cnidaria

### *Features of Cnidaria*

A cnidocyte fires a structure that contains the toxin, from a characteristic subcellular organelle called a Nematocyst



### Nerve Net

Made of nervous tissue with neurons but no brain or nerve cord

Transmit signals to each other, no CNS

Different response based on frequency of voltage.

### **Gastrovascular cavity:**

These animals also have an extensive internal cavity, the gastrovascular cavity, which is used primarily for digestion of food.

### **Hydrostatic skeleton:**

The gastrovascular cavity is often filled with body fluids and, consequently, serves as a hydrostatic skeleton to provide internal support for the tissues.

Feeding, capture prey with tentacles

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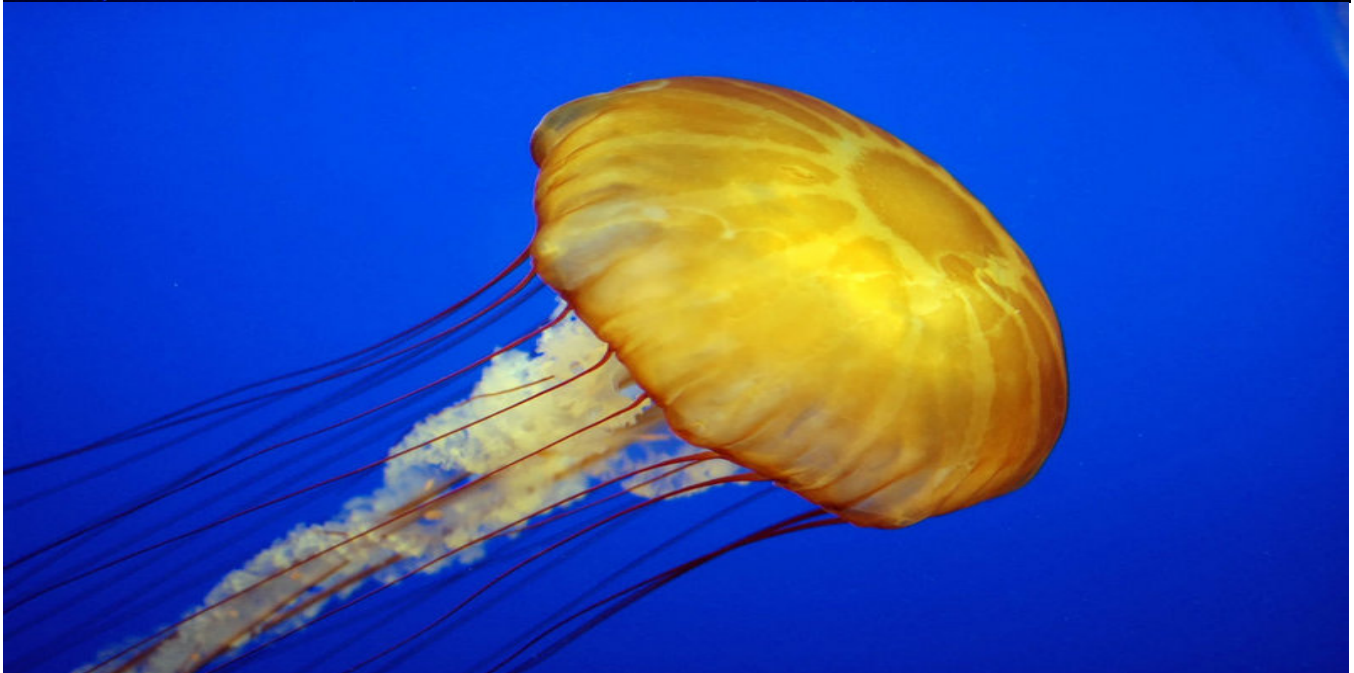
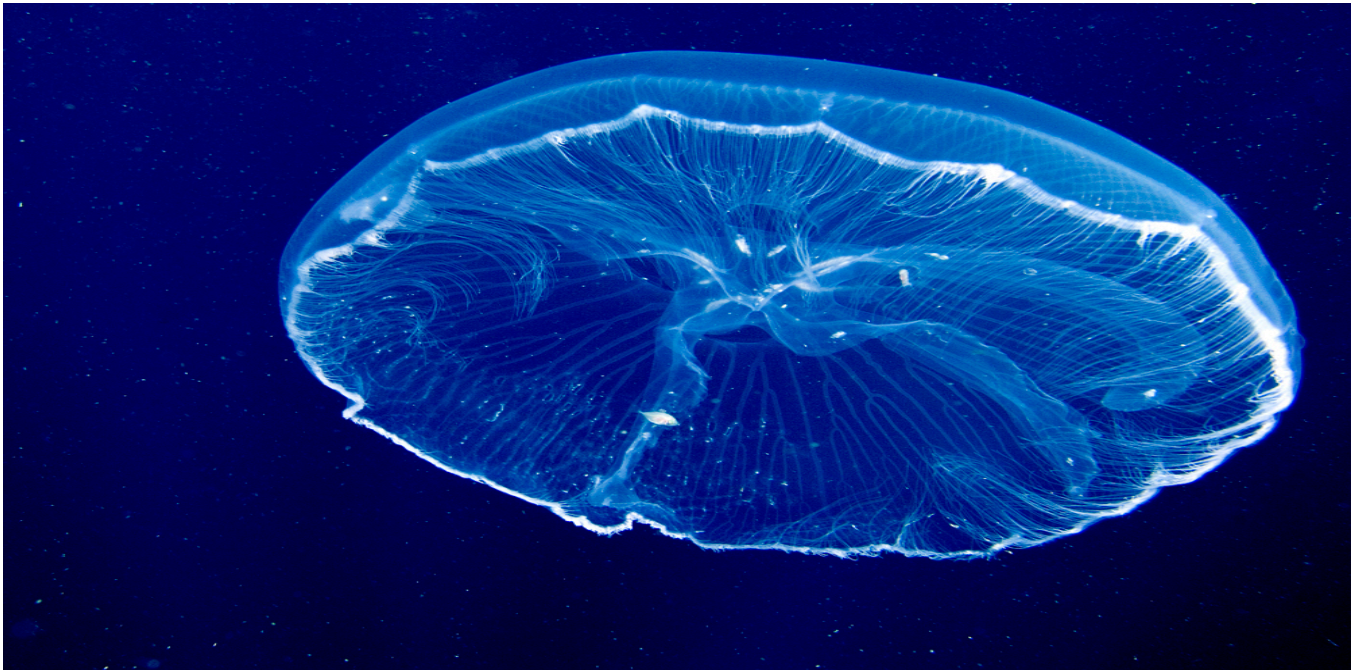
## Classification of Cnidaria

### 1. Class Scyphozoa

Example: Very large Jelly Fish

Medusa is the Dominant form

Very small stage when they are in polyp form, some may never be in polyp form.



### 2. Class Cubozoa

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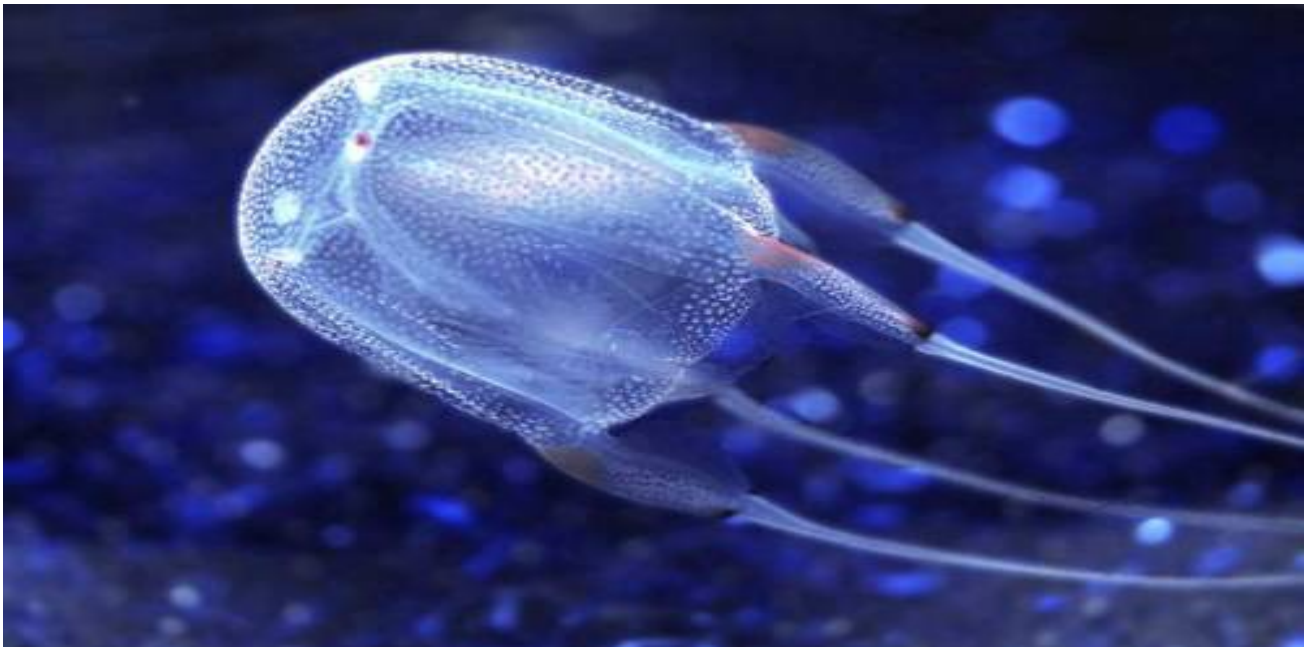
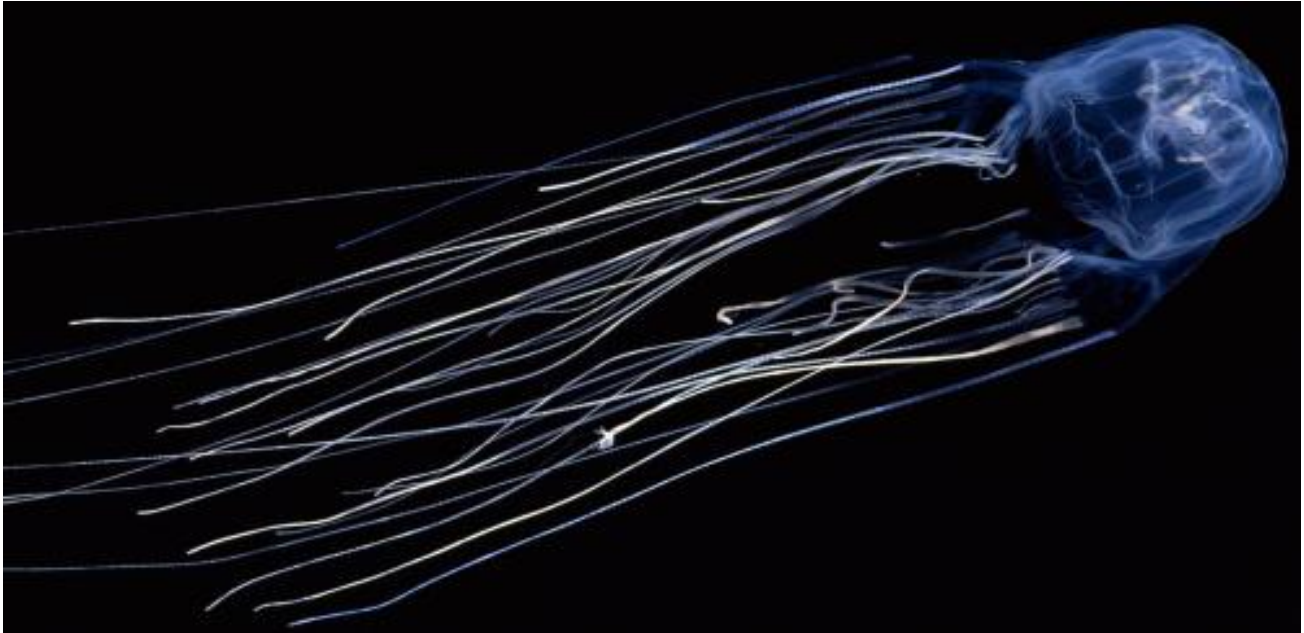
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Example: Box Jelly Fish

Have complex eyes which give blurred vision

Can swim quickly to hunt prey

Produce toxins which can be fatal (Cnidocyte / Nematocyst)



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## 3. Class Anthozoa

Sea Anemones, Coral

They are in Polyp Form

May be solitary or colonial

Some asexual



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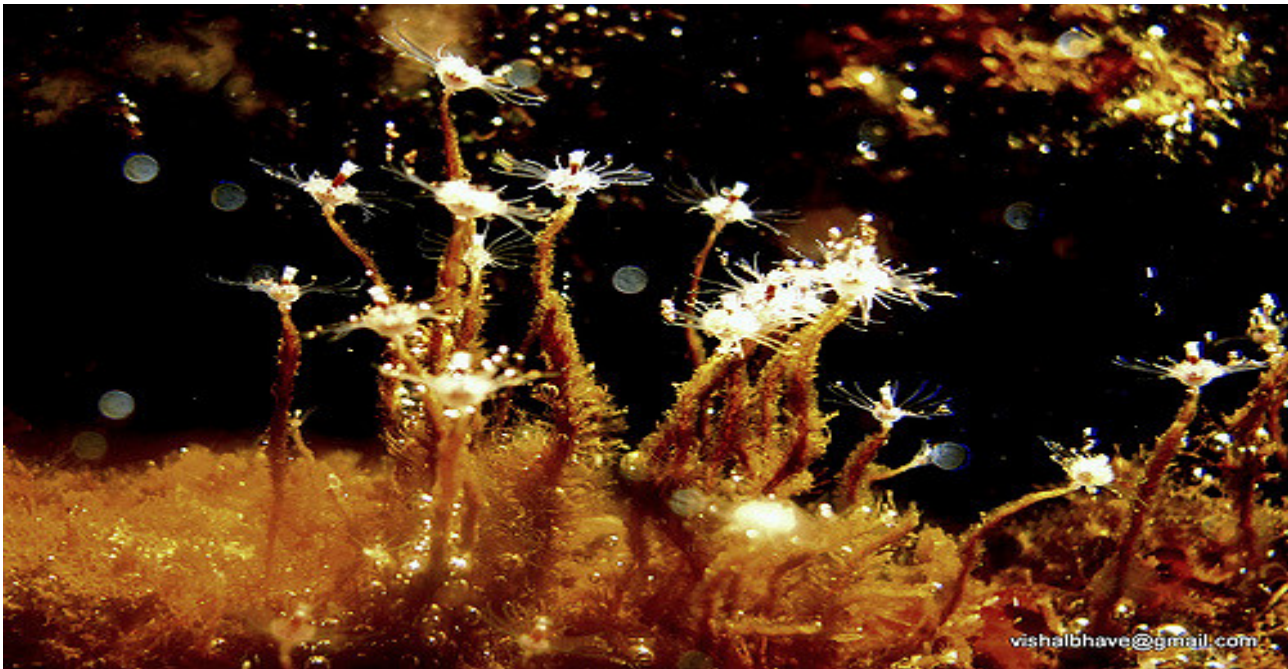
## 4. Class Hydrozoa

Examples: Hydras, Obelia

Typically in Polyp Form, sometimes in Medusa Form

May be Solitary or Colonial

Reproduction is sexual or asexual, they switch from one phase to another



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## Cnidarian Work Sheet

Cnidarians are composed of a number of different cell types and many of these operate together to form tissues. The outer layer of cells in the adult cnidarian is known as the 1. \_\_\_\_\_ and is derived from an embryological tissue known as the 2. \_\_\_\_\_. The epidermis includes 5 types of cells: 3. \_\_\_\_\_ \_\_\_\_\_. The epidermis is separated from the inner layer of cells by a variously thickened layer of secreted intercellular material, this is called the 4. \_\_\_\_\_. These secretions arise from the ectoderm or the endoderm. The endoderm comprises the inner embryological tissue that gives rise to the adult inner tissue known as the 5. \_\_\_\_\_. The gastrodermis is primarily for 6. \_\_\_\_\_, although it also contains muscle cells, nerve cells, gland cells, cnidocytes, and reproductive cells. The Cnidaria, with these two-basic embryological and adult tissue layers, are often referred to as diploblastic animals. This is in comparison to other animals which have three embryonic tissue layers (the third is mesoderm) and are referred to as triploblastic

1. epidermis
2. ectoderm
3. epithelio-muscular cells, sensory cells, nerve cells, cnidocytes, and gland cells
4. mesoglea
5. gastrodermis
6. digestion

### References:

The following resources were referenced in the creation of this handout: [Earth History's page on siphonophores](#), [Extreme marine's page on coral reefs-anthrozoa](#), [Tumblr's page on box jellyfish](#), [Alamy's stock photo of hydroid colony of hydrozoa polyps](#) and Campbell Biology (10<sup>th</sup> edition) textbook.