

Phylum Cnidaria

Use pgs. 564-569 to complete the following questions.

1. What is a cnidarian?

① Soft bodied animals with stinging tentacles arranged in circles around their mouth.

2. List 3 general characteristics of this phylum.

③ - radial symmetry - specialized cells and tissues  
 - 2 stage life cycle (medusa + polyp) - stinging structures called nematocyst

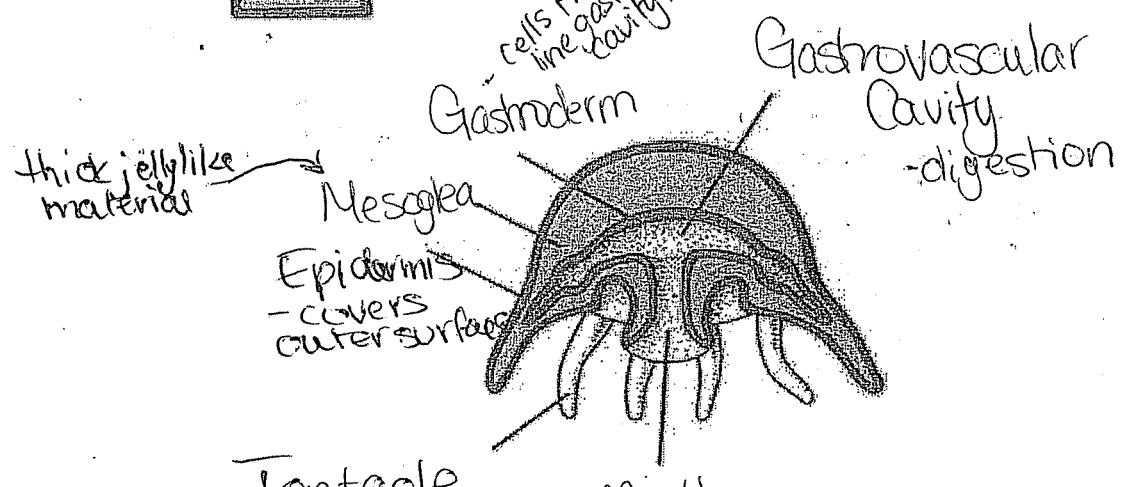
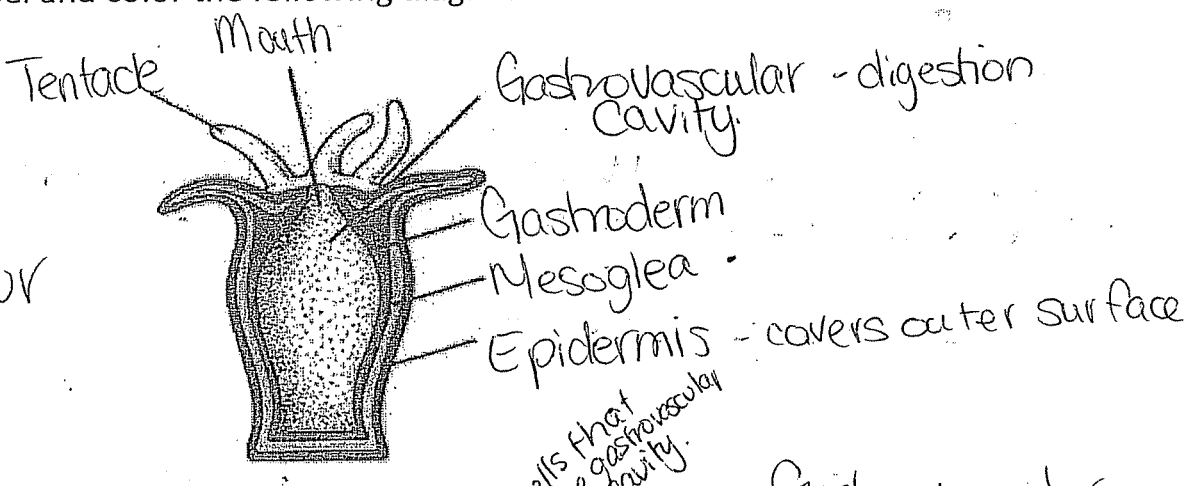
3. Describe the 2 stages in the life cycle of cnidarians. Provide an organism that is associated with each stage.

②

- ⑤ Polyp - sessile flowerlike stage
- ⑤ - class Hydrozoa
- ⑤ - Hydras
- ⑤ - sea anemones
- ⑤ Medusa - motile + bellshaped
- ⑤ Jelly fish - spends most of lifecycle as medusa.

4. Label and color the following diagram.

⑥ label  
 ① colour



5. a. What is a nematocyst?

① - stinging structures

b. Where are they located?

① tentacles

c. Describe how a Cnidarian consumes its prey once caught.

③ tentacles push food through mouth into gastrovascular cavity. From there the food is broken up into smaller pieces. Food fragments are then taken up by special cells in the gastroderm that digest them further.

6. Describe an example of symbiosis involving a Cnidarian.

② Photosynthetic protists grow inside the cells of the gastroderm. Protist uses  $CO_2$  and other waste to make  $O_2$  and carbohydrates + proteins which are released into the tissues of the Cnidarian.

7. Describe how Cnidarians perform the following functions:

a. Internal transport

① Diffusion

b. Responding to the environment

② - simple nerve net nervous system, no brain, - sensory cells that detect chemicals - touch - statocysts - balance, ocelli - eyespots, detect light.

c. Movement

① Jet propulsion - medusa.

d. Reproduction

Sexually

② - Medusa releases egg + sperm

- separate sexes - once fertilized, forms larva

Asexually

- polyps reproduce by budding. (new medusa)

8. Which life cycle stage is dominant in each of the following Cnidarian classes?

③ a. Hydrozoa Polyp. dominant

b. Scyphozoa Medusa dominant

c. Anthozoa Polyp. only

① 16

9. Describe the lifestyle of members of class hydrozoa.

2

live in branching sessile colonies, specialized polyps perform different functions (feeding, reproduction, defence)

10. a. Identify this organism.

1

Portuguese man-of-war.

b. What makes it so unique?

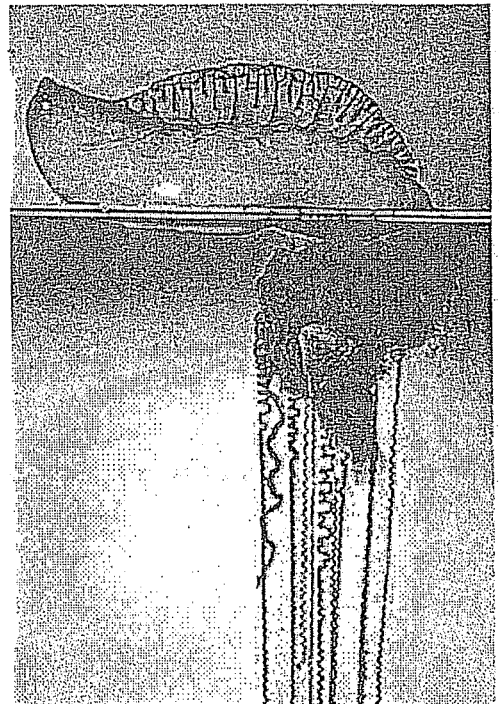
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Form floating colonies with specialized kinds of polyps. One polyp forms a balloon like float.

c. Do these organisms pose a danger to humans?

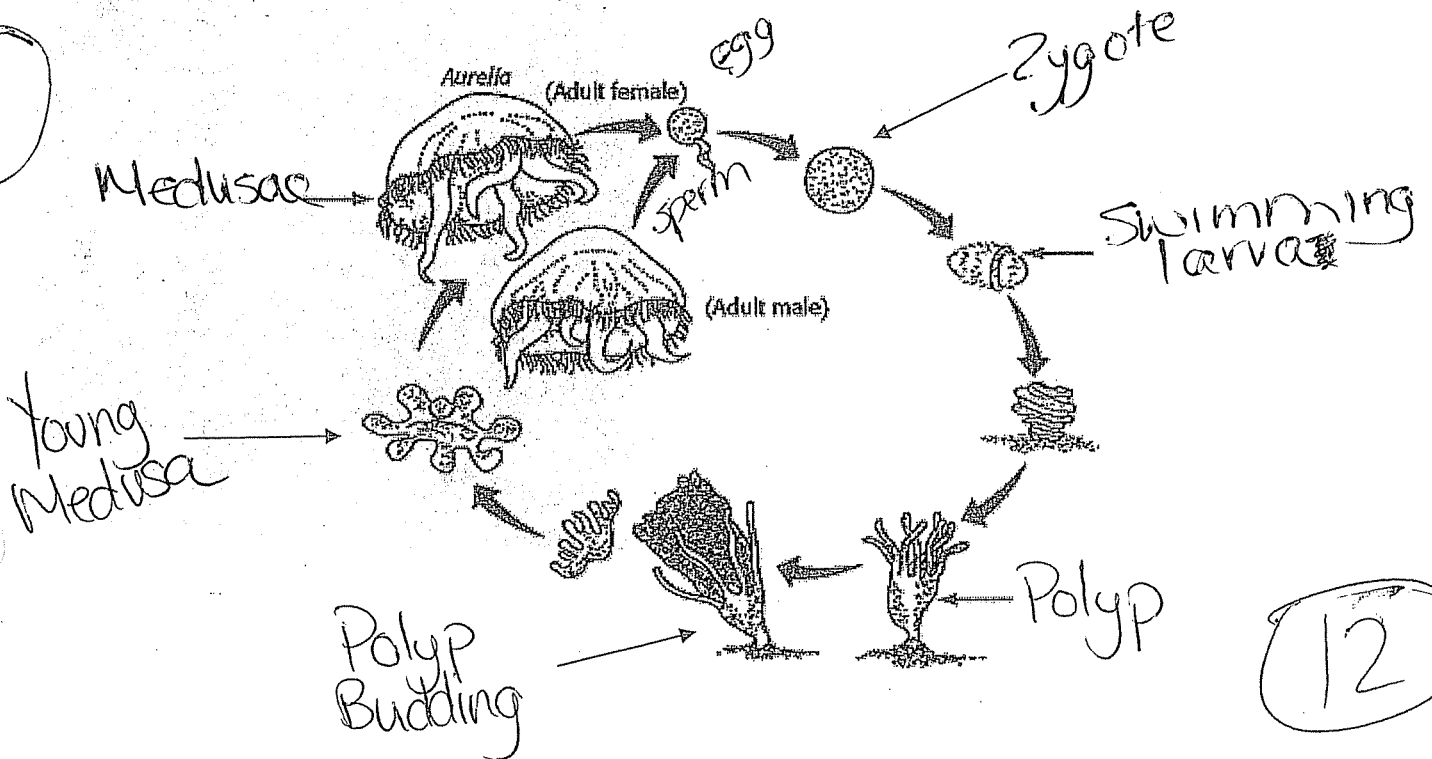
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Yes. They can sting.



11. Label each of the stages in the life cycle of an Aurelia jelly.

6



12

12. How large can jellyfish grow?

largest

2m in diameter. - 3.6m diameter  
- 30m long tentacles.

13. What is the skeleton of coral made of?

Calcium Carbonate ( $CaCO_3$ )  
or limestone

14. How does a coral reef grow?

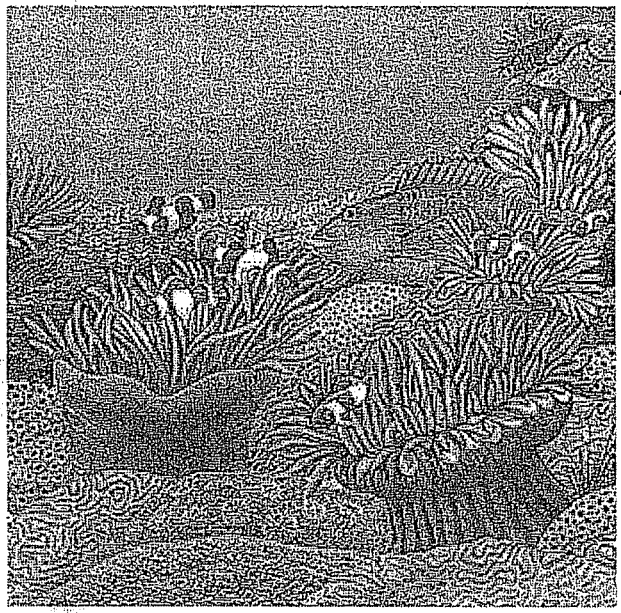
new polyps are produced by budding  
and more limestone is laid down.

15. How large is the Great Barrier Reef?

more than 2000 Km long, 80Km wide

16. Provide 3 roles Cnidarians play in their environment.

- symbiotic relationships = fish <sup>in</sup> shrimp
- provide homes for fish/animals
- protection for fish/animals.



**Interpreting Diagrams: Exploring the Main Ideas**

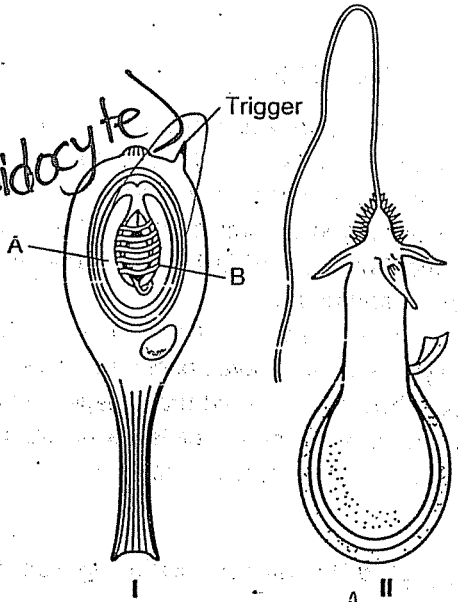
Use the accompanying diagrams to answer the questions that follow.

1. Where on the body of a cnidarian are these structures located? tentacles

2. What occupies the region labeled A on the diagram? Stinging Cell (Cnidocyte)

3. What is the structure labeled B? Nematoblast

4. Briefly describe the condition of the stinging cell in Figure I.  
Has not yet been triggered



5. What is the function of the trigger? When an animal brushes past trigger the dart uncoils, and buries itself in the skin of the animal.

6. What is the condition of the nematocyst in Figure II? What has happened?  
It has been triggered. An animal has touched the trigger and the "harpoon like" nematoblast has shot out and that is why you see it on the outside.

**Concept Mapping**

The construction of and theory behind concept mapping are discussed on pages vii-ix in the front of this Study Guide. Read those pages carefully. Then consider the concepts presented in Section 26-3 and how you would organize them into a concept map. Now look at the concept map for Chapter 26 on page 258. Notice that the concept map has been started for you. Add the key facts and concepts you feel are important for Section 26-3. When you have finished the chapter, you will have a completed concept map.

**SECTION REVIEW**

In this section you were introduced to the phylum Cnidaria. You discovered that cnidarians are soft-bodied animals with stinging tentacles arranged in circles around their mouths. Some familiar cnidarians include jellyfish, corals, and hydras.

You learned that all cnidarians exhibit radial symmetry and have specialized cells and tissues. You also learned that a typical cnidarian has an internal space called a gastrovascular cavity, in which digestion takes place.

You discovered that almost all cnidarians capture and eat small animals by using stinging structures called nematocysts, which are located on their tentacles. You also learned that cnidarians lack a centralized nervous system and muscle cells. There are, however, specialized epidermal cells that serve the same function as muscle cells.

In the last part of this section, you read about the three classes of cnidarians. You also learned how cnidarians fit into the world.

**Applying Definitions: Building Vocabulary Skills**

Most cnidarians have life cycles that involve two different body forms. Label each diagram below with the name of the correct body form. Then label both diagrams to show the following parts:

epidermis  
mesoglea

gastroderm  
mouth

gastrovascular cavity  
tentacle

