

Section 3: Sponges and Cnidarians

Study Guide A

KEY CONCEPT

Sponges and cnidarians are the simplest animals.

VOCABULARY

sessile	medusa	gastrovascular cavity
filter feeder	mesoglea	
polyp	nematocyst	

MAIN IDEA: Sponges have specialized cells but no tissues.

Choose the correct term from the box to complete the sentence.

hard	muscle	parasites	sessile
growing	nerve	predators	toxic

1. Sponges lack _____ and _____ cells. They are _____, meaning they are unable to move from where they are attached.
2. Sponges attach to _____ surfaces. They secrete _____ substances that keep other sponges from _____ into their area and also protect them from _____ and _____.

Study Guide A *continued*

Place the following statements in the correct column in the table and in the correct order to explain the difference between sexual and asexual reproduction in sponges.

3. a. A bud breaks off an adult sponge.
- b. Eggs and sperm are released into the water.
- c. Fertilization occurs in the water.
- d. The bud attaches to a surface where it grows into an adult.
- e. The bud floats in the water.
- f. The fertilized egg develops into a free-swimming larva.
- g. The larva attaches to a surface where it develops into its adult form.

Sexual reproduction in sponges	Asexual reproduction in sponges
<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>

Circle the word or phrase that best completes the statement.

4. A sponge filter feeds by pulling water through tiny holes in its *mouth / body wall*. The sponge then strains particles from the water.
5. Sponges are made up of two layers of cells that cover a framework of collagen-like fibers called *spicule / spongin*. The skeleton is reinforced with hard calcium- or silicon-based crystals called *spicules / spongins*.

Match the types of cells that make up a sponge with their descriptions. The types of cells are called *amoebocytes*, *choanocytes*, and *pinacocytes*.

6. _____ are thin and leathery cells that form the sponge's outer layer.
7. _____ are collar cells that form the inner layer of the sponge.
8. _____ are mobile cells found in the jellylike material sandwiched between the two cell layers.

Study Guide A *continued*

MAIN IDEA: Cnidarians are the oldest existing animals that have specialized tissues.

Complete the chart with the phrases below and sketch the two cnidarian body types.

- a. mouth and tentacles facing upward
- b. mouth and tentacles on the underside
- c. cylindrical tubes
- d. umbrella-shaped

Body Form	Description	Sketch
9. polyp		
10. medusa		

11. Cnidarians can reproduce asexually when the *medusa stage* / *polyp stage* buds.

Choose the term from the box that fits the definition of a part of a cnidarian's anatomy.

cnidocytes	contracting cells	mesoglea	nerve cells
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- _____ 12. These cells interconnect and form a network over the entire animal. They send sensory information around the animal and coordinate muscular contractions.
- _____ 13. This is a non-cellular jellylike material.
- _____ 14. These cells cover the surface of a cnidarian and contain muscle fibers.
- _____ 15. These cells contain stinging structures used for defense and capturing prey.

Vocabulary Check

Circle the word or phrase that best completes the statement.

16. A *nematocyst* / *mesoglea* is a capsule containing a thin, coiled, harpoon-shaped tubule with a poisonous barb at one end.
17. The gastrovascular cavity is a sac-like space used for *digestion* / *reproduction*.