Correct Test

Animals

What Makes an Animal an Animal?

no cell wall

blood

brain

breathe (respiration)

fur

scales

eat food (digestion)

World of Animals Major Phyla.asx

Introduction to the Animal Kingdom

· Animals are **multicellular**, **eukaryotic heterotrophs** whose cells lack cell walls.

· Over 95% of all animal species are **invertebrates**- animals without a backbone, the rest are called **vertebrates**- animals with a backbone.

· Animals carry out the following essential functions:

feeding respiration circulation
excretion response movement
reproduction

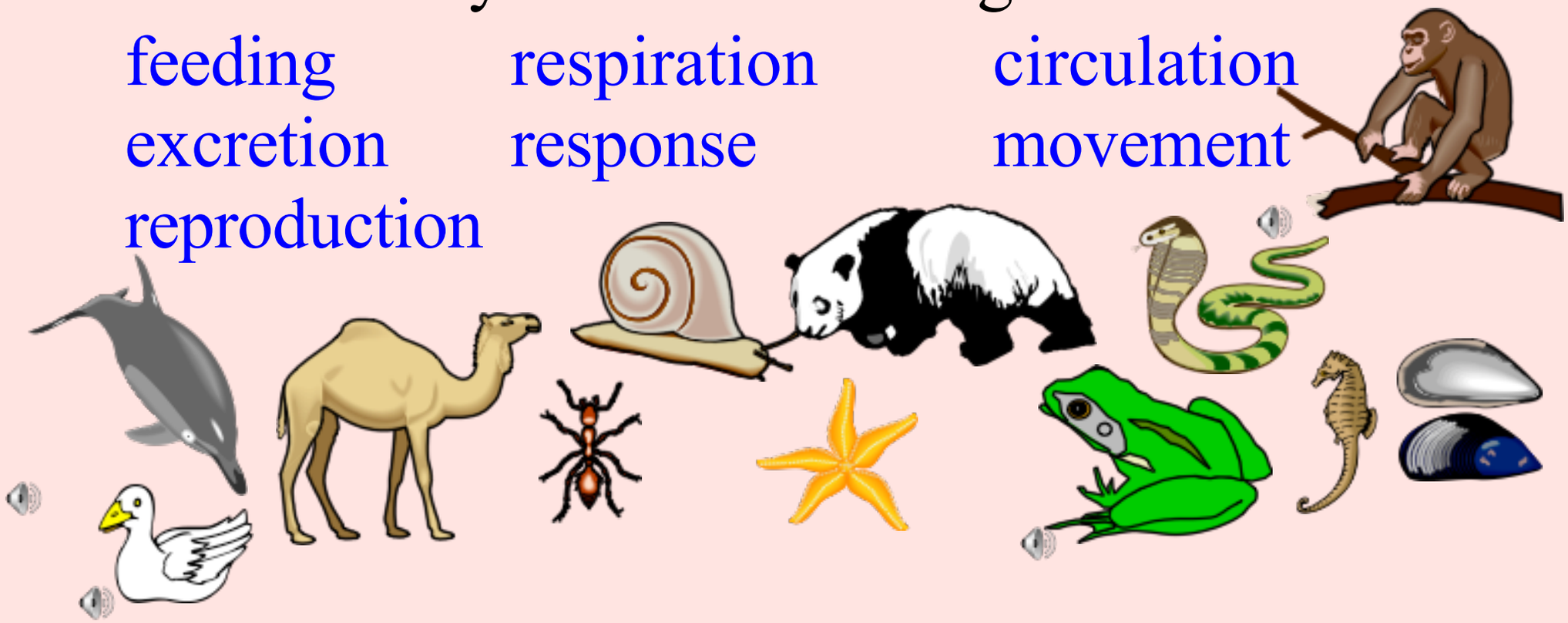
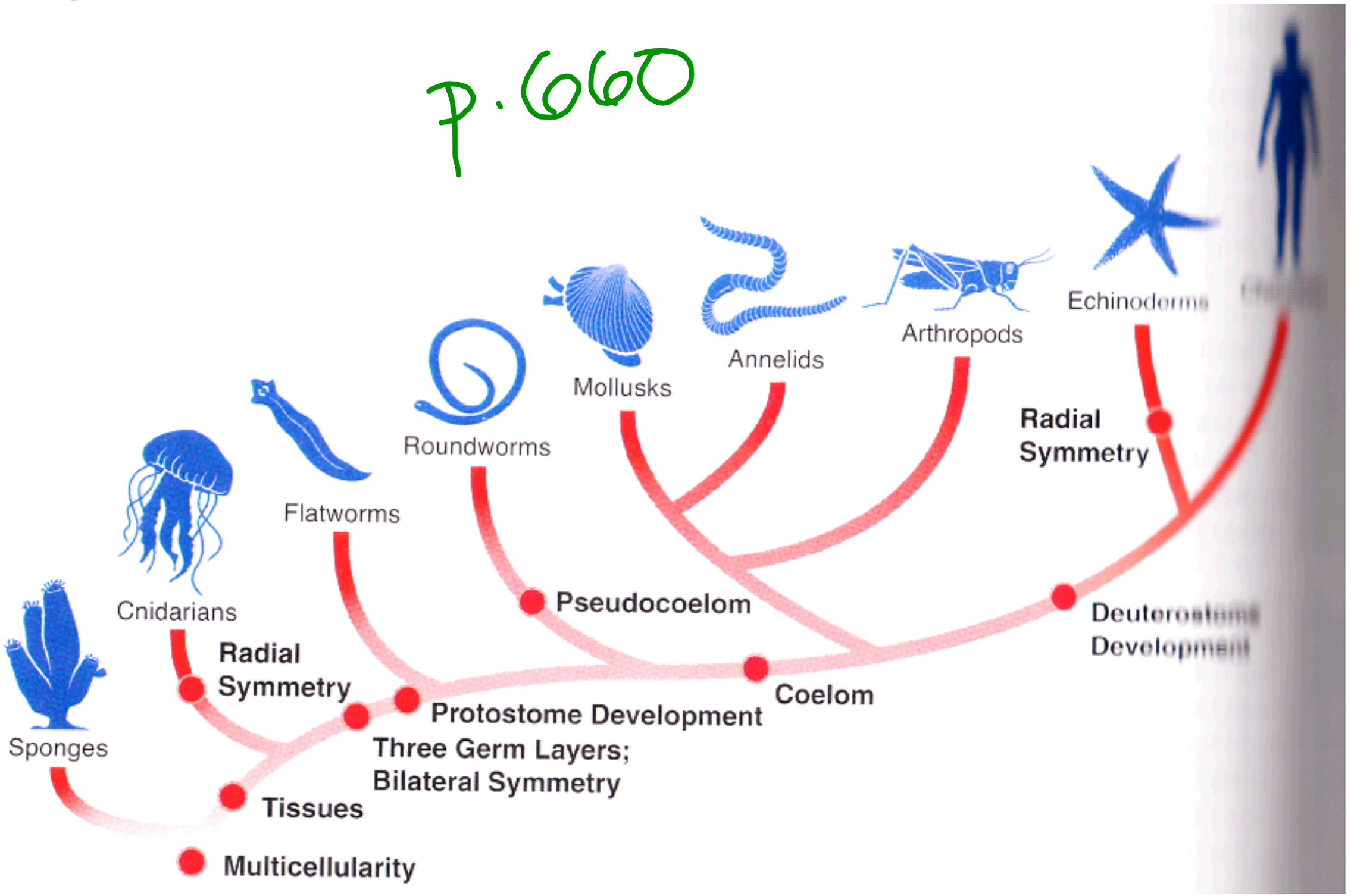


Figure 26-3 Trends in Animal Evolution

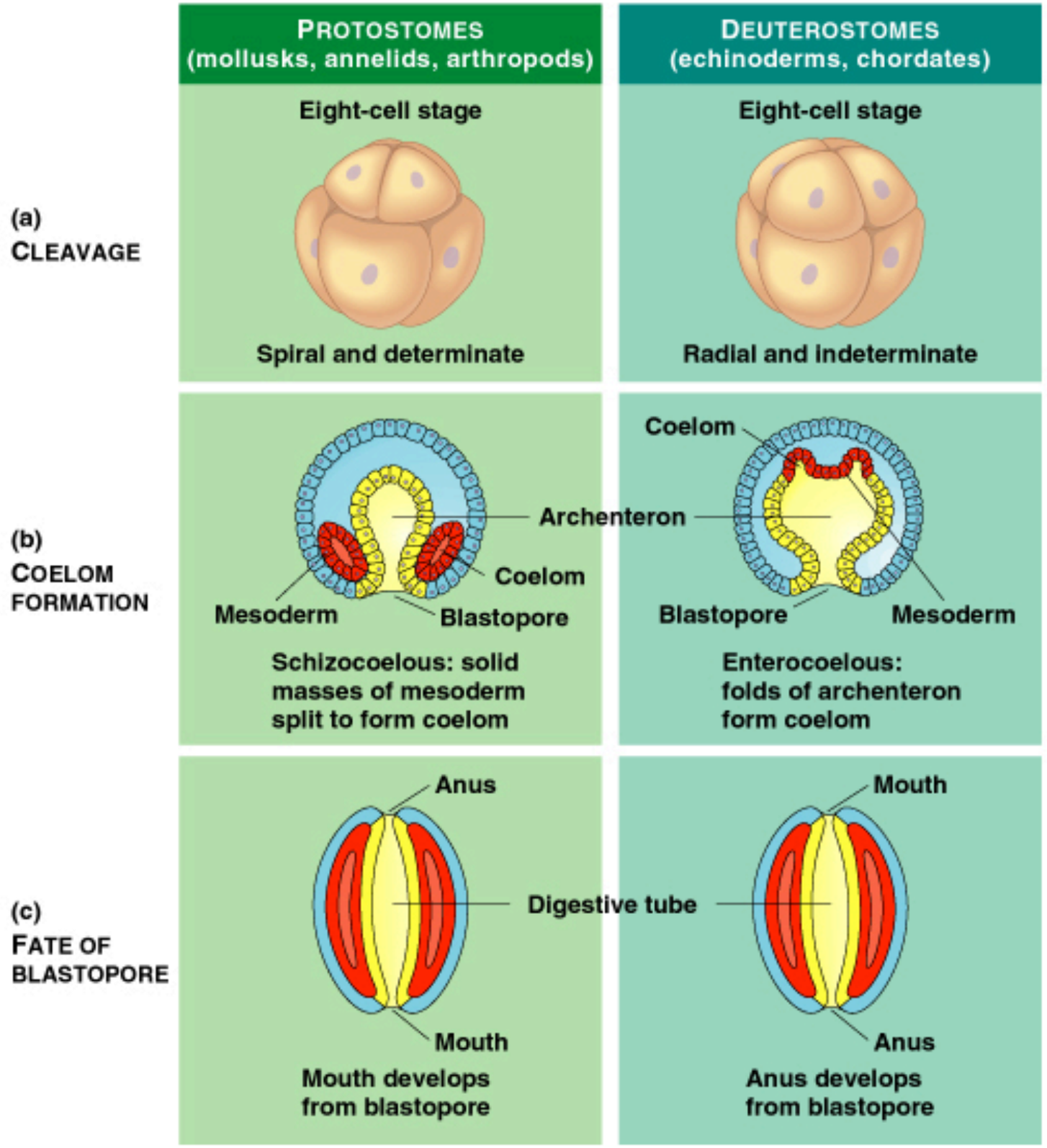
p. 660



Early Development

- Animals that reproduce sexually begin life as a zygote, or fertilized egg.
- After a series of divisions, it becomes abastula.
- The bastula folds in on itself forming a single opening called theblastopore.
- The blastopore leads to a central tube that runs the length of the embryo and will become the digestive tract.
- This happens two ways:

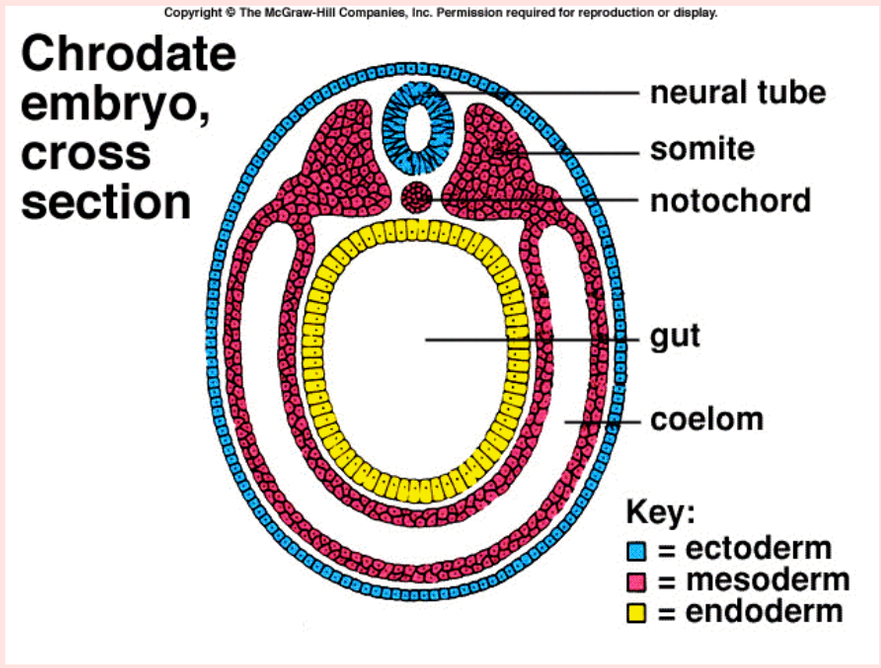
1) A protostome is an animal whose mouth is formed from the blastospore (most invertebrates)
2) A deuterostome is an animal whose anus is formed from the blastospore (echinoderms and vertebrates)



Early Development

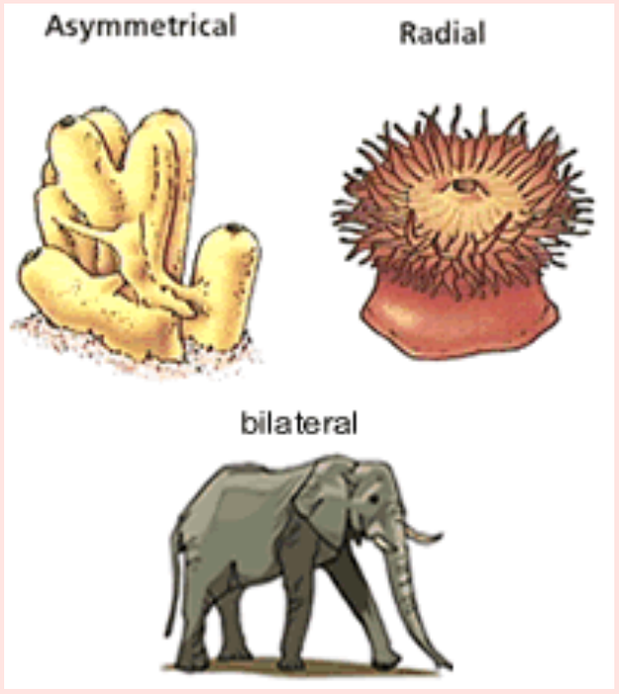
The cells of most animal embryos differentiate into three layers:

- **Endoderm**: inner layer; lining of digestive and respiratory tracts
- **Mesoderm**: middle layer; muscles, and much of the circulatory, reproductive, and excretory systems
- **Ectoderm**: outer layer; sense organs, nerves, outer layer of skin



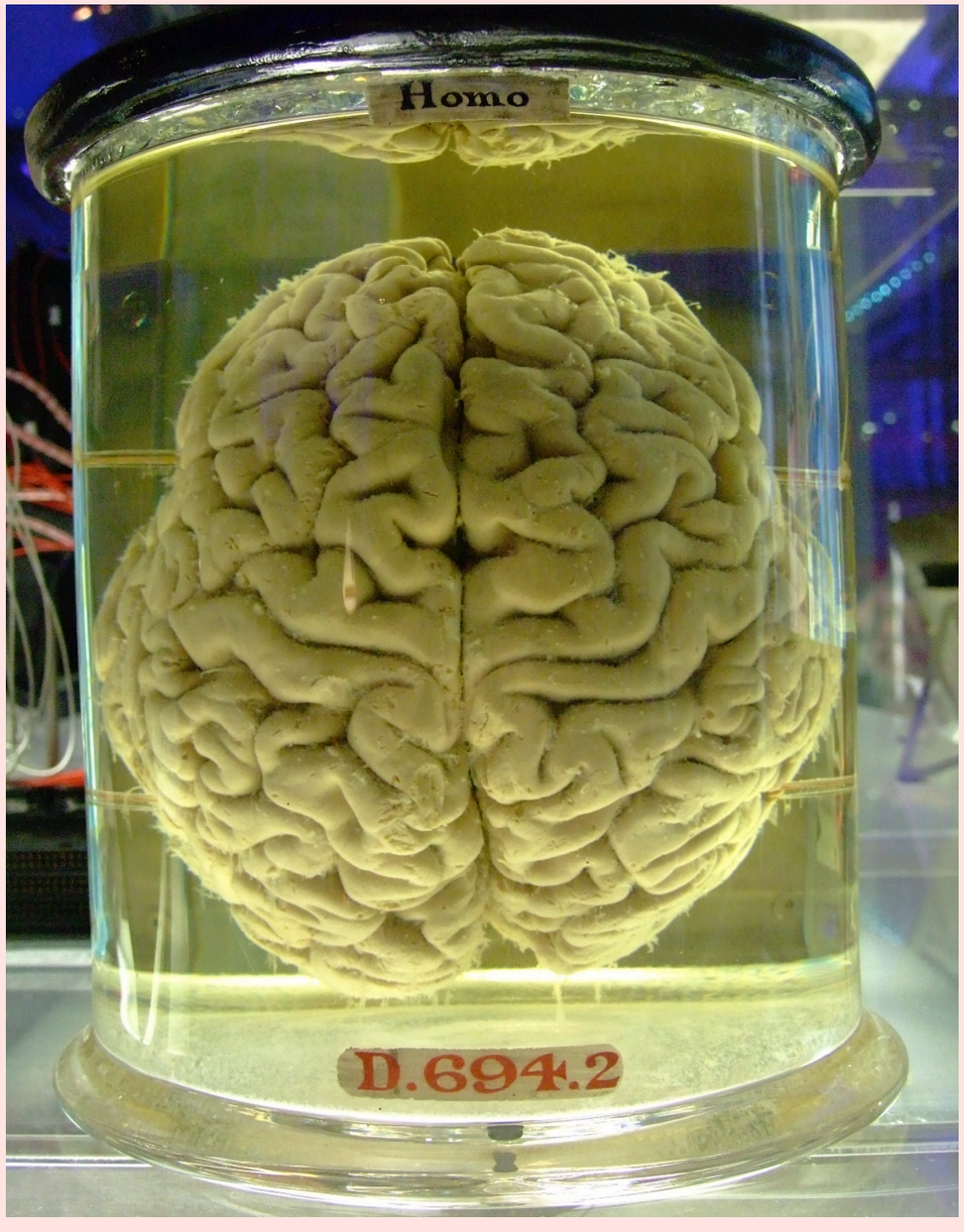
Body Symmetry

- Except for sponges, all animals have some type of symmetry.
- Radial symmetry: any number of imaginary planes can be drawn through the centre, dividing the body into equal halves.
- Bilateral symmetry: only a single imaginary plane of symmetry can divide the body in half.



Cephalization

· This is the concentration of sense organs and nerve cells at the front end of the body.

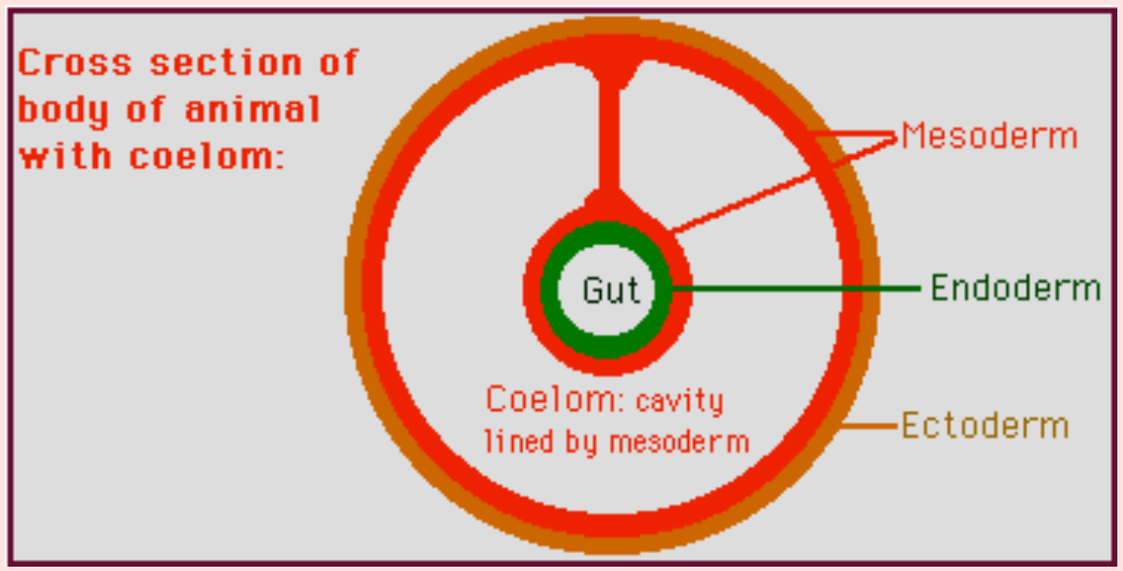


Body Cavity Formation

· Most animals have a body cavity - a fluid-filled space that lies between the digestive tract and the body wall.

· A body cavity is important because it provided space for internal organs to be suspended.

· They also allow for specialized regions to develop.



Homework:

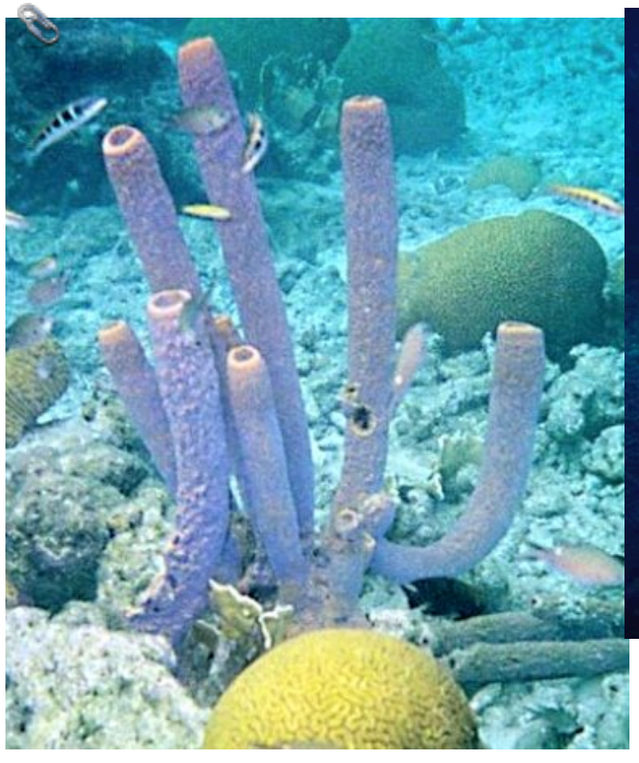
1. Read p. 657 - 663
2. Section Assessment Questions p. 663 # 1 - 5

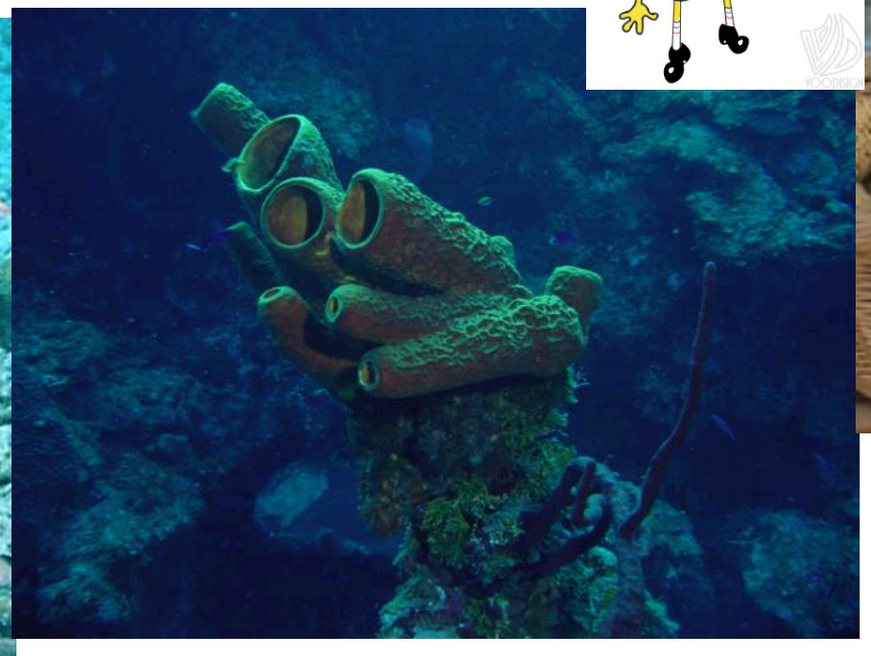
http://www.youtube.com/watch?v=wFY_KPFS3LA&feature=aso

Sponges (Phylum *Porifera*)

- Sponges are classified as animals because they are multicellular, heterotrophic, have no cell walls and contain a few specialized cells.
- "Porifera" means "pore-bearers." Sponges have tiny openings, or pores, all over their bodies.
- Sponges are sessile: they spend their entire adult life attached to one spot.

Phylum_Porifera__Sponges__the_Simplest_Animals.asf





Porifera.asf

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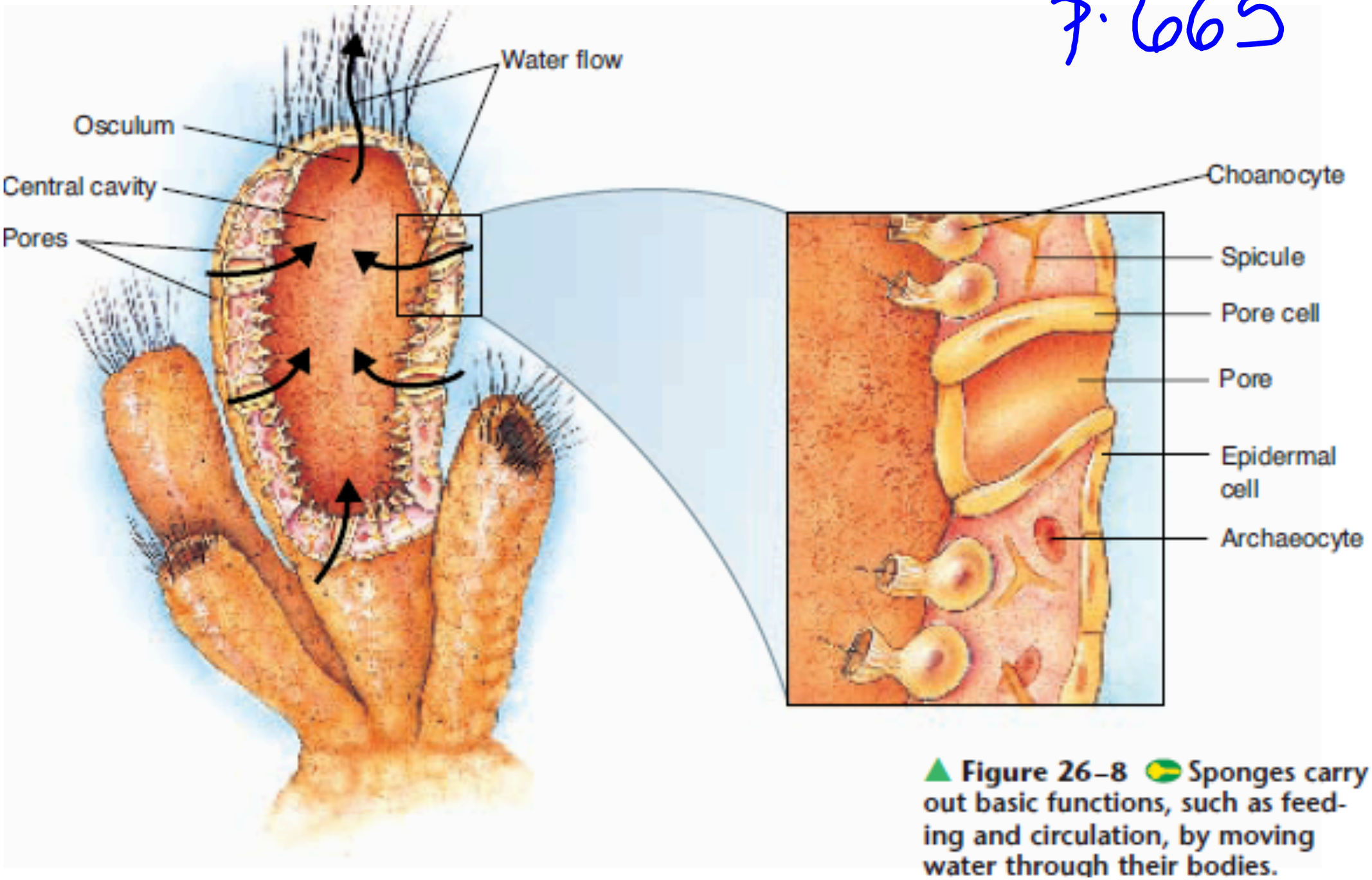
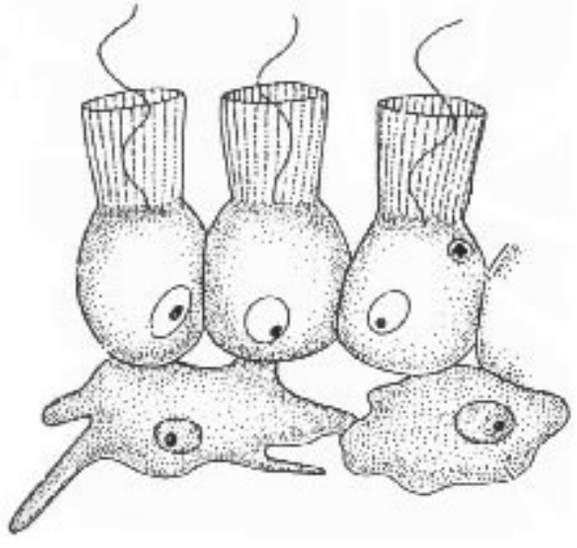


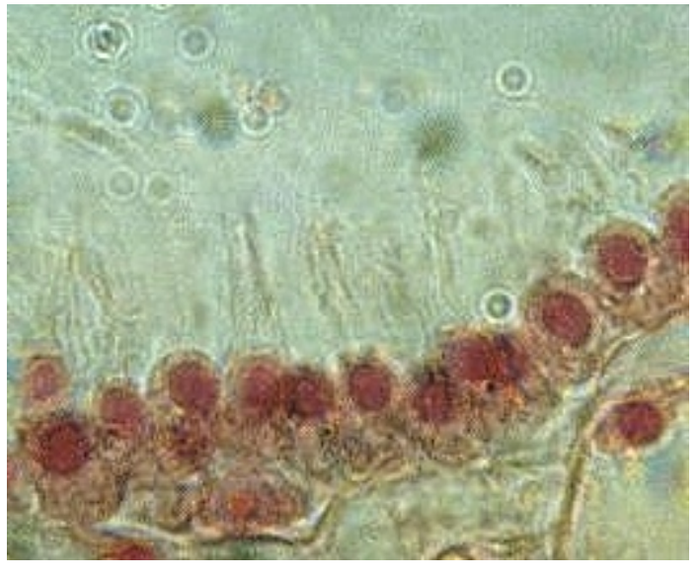
▲ **Figure 26–8** Sponges carry out basic functions, such as feeding and circulation, by moving water through their bodies.

Form and Function in Sponges

- No mouth, gut, organs or tissues.
- Simple processes are carried out by a few specialized cells.
- Body plan: Assymetrical (no front or back, left or right)
- Body forms a wall around a large central cavity through which water circulates.
- Choanocytes: specialized cells that use flagella to move a current of water.



Collar cells



· Water enters through pores in the body wall, then leaves through the osculum.

· Osculum: large hole at the top of the sponge

· The movement of water through the sponge provides a simple mechanism for feeding, respiration, circulation and excretion.

· Sponges have spicules: spike-shaped structures of hardened material.

· Spicules are made by archaeocytes (also called amoebocytes): specialized cells that move around

Read p. 664-667

Feeding

- Filter feeders: sift microscopic food particles from the water.
- Digestion takes place in the cells.
- Particles in the water are trapped by choanocytes, and are then digested or passed on by archaeocytes.

Respiration, Circulation and Excretion

- Rely on movement of water.
- Oxygen dissolved in water diffuses into cells.
- Carbon dioxide and other wastes diffuse into water and carried away.

Homework: Read p. 664 - 667

p. 667 # 1 - 4

Reproduction

Sexual:

· Single sponge can form both egg and sperm.

· Sperm released from one sponge and carried by water to pore of another.

· Archaeocytes carry sperm to egg cell.

· After fertilization, a larva develops.

· Larva: immature stage that looks different from adult form.

· Larvae of sponges are motile and carried by water currents.

Asexual:

· Budding: part of the sponge breaks off, settles to the sea floor and develops into a new sponge.

· Gemmules: may be formed under harsh conditions; can eventually grow into a new sponge.

1. Read p. 664 - 667.

2. p. 667 Section Assessment: Questions #1 - 4

3. Figure 26 - 8 p. 665: Sketch in notebook, and label using the correct terms.

4. Handout: Sponge Study Questions. Complete all questions for tomorrow!

1. Why are sponges classified as animals?

_____

_____

_____

2. Why is the movement of water key to a sponge's survival?

_____

_____

_____

Match the terms on the left with the definitions on the right.

3. _____ osculum
4. _____ spiculus
5. _____ pores
6. _____ choanocytes
7. _____ archaeocytes

a. water moves into the central cavity through these small openings
b. spike-shaped structures that make up a simple skeleton
c. large opening at the top of the sponge where water exits
d. specialized cells that move around within the walls of the sponge, making spicules and digesting and transporting food
e. cells that use flagella to move water through the sponge to trap food

8. Describe how a sponge feeds.

_____

_____

_____

9. What triggers a sponge to produce gemmules?

_____

_____