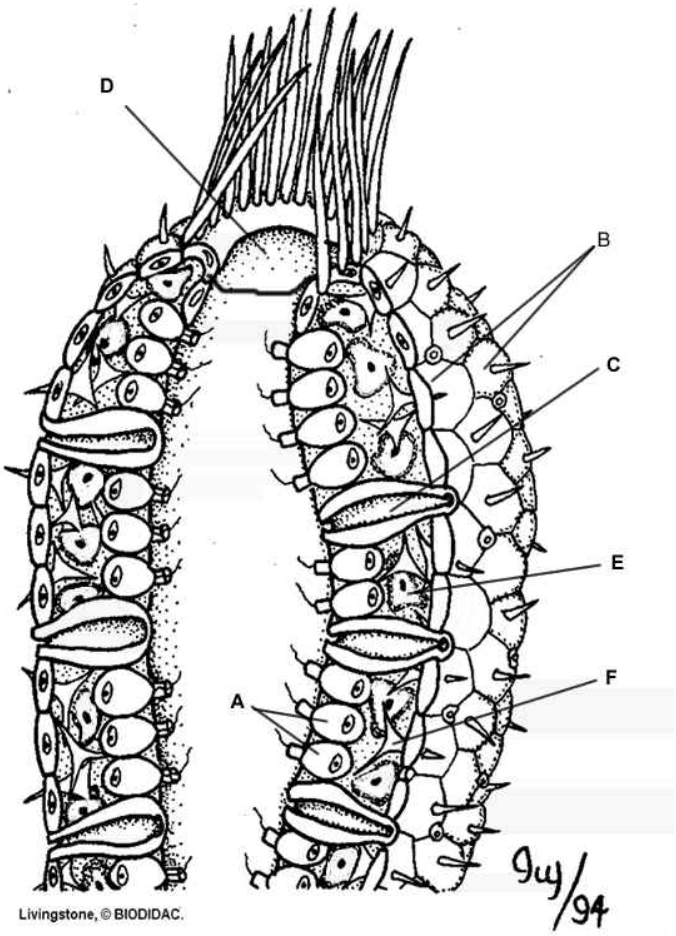
LIFE SCIENCES 11
SPONGES

Phylum	Porifera
Level of Organization	Cell
Digestive System	None
Symmetry	Asymmetrical
Coelom	None
Segmentation	None

Sponges

- composed of two layers of cells with a jellylike substance between
  - outer layer of epithelial-like cells
  - inner layer of flagellated collar cells
- sessile
- capture food by filter feeding
  - flagella on collar cells create a current pulling water in through pores on the sides of the sponge
  - food particles stick to cells on the inside of the sponge
  - waste materials are expelled with water out through the osculum (opening at the top of the sponge)
- archaeocytes
  - amoeba-like cells in the jellylike layer
  - involved in digestion, production of egg and sperm cells, and excretion
  - form spicules of calcium carbonate, silica or spongin (fibrous protein) for support → determine the class of sponge
- reproduction
  - asexually
    - by fragmentation or budding
    - gemmules
      - used by some freshwater sponges
      - small clusters of sponge cells protected by spicules that can survive drought, freezing, etc.
  - sexual
    - most are hermaphrodites → produce both egg and sperm
    - sperm is released out the osculum and collected by collar cells of other sponges
    - zygote develops into a free-swimming larva → attaches to a surface and grows into an adult sponge
- uses
  - food for tropical fish and sea turtles
  - habitat for small marine organisms

- household sponges
- some produce chemicals with possible medicinal properties



A. Collar Cells
B. Epithelial Cells
C. Incurrent Pore
D. Osculum
E. Archaeocyte
F. Spicule