

## Phylum Porifera

(section 24.3)

## SPONGES

## Body Structure

- asymmetrical and bright colored
- do NOT have tissues
- two layers of independent cells with a jelly-like substance between the layers accomplish all the life functions of the sponge

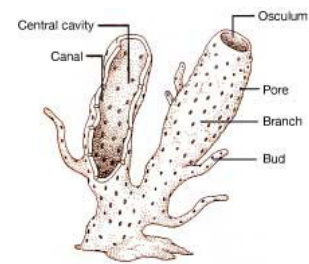


\* Porifera = pore bearer, has pores

- sponges have pores where water is sucked into the body

## Feeding and Digestion

- sponges are known as filter feeders
  - when an organism gets its food by filtering small particles from water
- sponges are sessile organisms
  - organisms that are attached to and stay in one place
- as water passes through the sponge, food particles cling to the cells. The nutrients are then taken out of the food by the cells
- water and waste materials are expelled from the sponge through the osculum



## Support

- sponges use spicules for support
  - small, needle-like structures made of calcium carbonate, silica, or tough fibrous protein called spongin

## Reproduction

- sponges can reproduce asexually by fragmentation, through budding, or by producing gemmules

- ① fragmentation - when a small part of the sponge breaks off due to some event and develops into an adult sponge
- ② budding - a small growth forms on the sponge, breaks off and lands in a spot where it grows into a new sponge
- ③ gemmules - seed like particles that can withstand bad conditions. They contain sponge cells that will grow when conditions improve

- most sponges reproduce sexually

- some have male and female sexes but most are hermaphrodites

an organism that can produce both sperm and egg

## Phylum Cnidaria (sec 24.3)

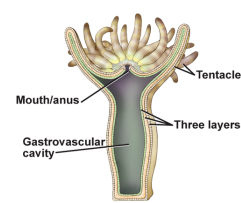
## Body Structure

- have only one body opening and most have 2 layers of cells (like sponges)
- the outer layer protects the internal structure and the inner layer helps in digestion
- display radial symmetry



## Feeding and Digestion

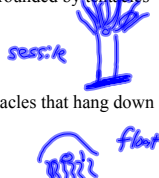
- are aquatic floating or sessile
  - NO MOVE
- Cnidarians have tentacles that are armed with stinging cells called cnidocytes
- Cnidocytes contain nematocysts
  - a coiled, threadlike tube containing poison and barbs
- nematocysts are like tiny harpoons that can discharge in 3/1000ths of a sec. 0.003 sec
- cnidarians have a gastrovascular space
  - cells line this space and release digestive enzymes. the prey is digested in this space
  - where digestion occurs



Reproduction

- have 2 body forms

polyp - tube shaped body and mouth surrounded by tentacles



medusa - umbrella shaped body and tentacles that hang down



- cnidarians reproduce sexually with both male and female separate

Cnidarian Diversity

*Hydroids* - ~ 2700 species, both polyp and medusa forms

*Jellyfish* - ~ 200 species, medusa body form, nearly transparent

*Sea Anemones and corals* - ~ 6200 species, colorful, polyp body form  
coral live in colonies called reefs

Phylum Platyhelminthes (sec 25.1)FLATWORMSBody Structure

- display bilateral symmetry
- range in length from many meters to less than 1 mm
- their bodies have no cavities
- most are parasitic

Feeding and Digestion

- free-living flatworms feed on dead or slow moving organisms. They extend a tube-like organ called a pharynx out of their mouths  
non-parasites secretes enzymes and sucks food into the body
- parasitic flatworms have feeding structures called hooks and suckers
- these hooks and suckers allow them to attach to their host and absorb food from the host

Respiration, Circulation, and Excretion

- flatworms do not have a respiratory or circulatory system, but they do have an excretory system

- a series of small tubes that run through the body

- on the sides of the tubes their are flame cells that are lined with cilia that sweep water and excretory substances into tubules

- these substances exit through pores in the body

Movement

- some flatworms move by contracting muscles in the body wall
- free-living flatworms use cilia on their undersides to move
- mucus helps the worms glide along

Reproduction

- flatworms are hermaphrodites (produce both sperm and egg)
- free-living flatworms can reproduce by regeneration  
a process in which body parts that are missing due to damage or predation can be regrown

Diversity of Flatworms

- Turbellarians
- Trematodes
- Cestodes - tapeworms

Phylum Nematoda (sec. 25.2)ROUNDWORMSBody Structure

- display bilateral symmetry
- round, unsegmented, and taper at both ends
- found in both land and water
- some are parasitic (dogs and cats)
- most less than 1 mm long (can be bigger)

Feeding and Digestion

- free-living roundworms feed on tiny invertebrates and decaying plant and animal matter
- have a full digestive tract.  
- food enters the mouth, goes through the gut, and exits out the anus
- parasitic roundworms live off the hosts that they inhabit

Movement

- have muscles that run the length of their bodies which allow them to move

hydrostatic skeleton - fluid within a closed space that provides rigid support for muscles to work against

Reproduction

- reproduce sexually
- females produce eggs and males (which are smaller than females) produce the sperm

Diversity of roundworms

- Trichinella - cause trichinosis

- Hook worms

- Ascarid worms - most common infection in humans is ascariasis (in soil)

- Pinworms - most common human parasite