Animal survey - some preliminary comments:

- We'll be giving taxonomically recognized groups for the animals we discuss. You are responsible for knowing the names of these.

- Very easy questions to ask - what phylum, class, etc. does animal x belong to (or vice versa!).

- Also something that a lot of students miss!

- NOTE: if there's a conflict between the names given in the text and these notes, go with what's in these notes (do not use the book names).

- We'll use the traditional classification of these animals. It may not always reflect evolutionary relationships, but it's a lot easier to understand for a non-specialist in taxonomy.

Phylum Porifera - sponges

(As an example, the book uses something totally different here. We will ignore the taxonomy from the text).

Are sessile (don’t move), so until 1766 they were thought to be plants, or at least related to plants. Then it was discovered that they generate a current in the water.

Wide range of sizes (1 cm to 2 m).

Major characteristics:

- no tissues - cells are not arranged in functional or specialized groups known as tissues.

- all are aquatic, most marine.

- Either asymmetric (no symmetry at all) or radial

Go through [Fig. 33.4, p. 670]:

- Sponges essentially filter water for food

- Water is moved in through small pores in the “wall” (=epidermis (not a tissue!)) of sponge, filtered, and moved into a central cavity (=spongocoel) and then out through “osculum”, which is usually a larger opening.

- current is set up by choanocytes (=collar cells) located on the inside of the spongocoel.
- they have a flagellum which they use to set up the current.

- Choanocytes will also trap food particles on their “collar”.

- Amoebocytes take food particles and distribute them throughout the sponge. They move around in the “middle” layer between the epidermis and the choanocytes (=mesohyl).

  - also provide structure by forming fibers in the mesohyl (spicules). Spicules are often characteristic of sponges in general and are easy to spot through a microscope.

- Sponges can reproduce either:

  - asexually, through fragmentaation or gemmules
  
  - sexually, via gamete formation (smoking sponges)

Final comments:

- some sponges can literally be forced through a sieve, after which they will re-assemble themselves.

- some uses for sponges are:

  - bath sponges
  
  - an anticancer drug from a Caribbean sponge blocks DNA synthesis in tumors.
  
  - some antibiotic properties have also been noted in some sponges