Coelomate Animals

Phylum Arthropoda: Spiders

Spiders have an open blood circulation system. Blood vessels do transport the blood to a specific place but thereafter the blood flows freely in the open spaces between the organs.

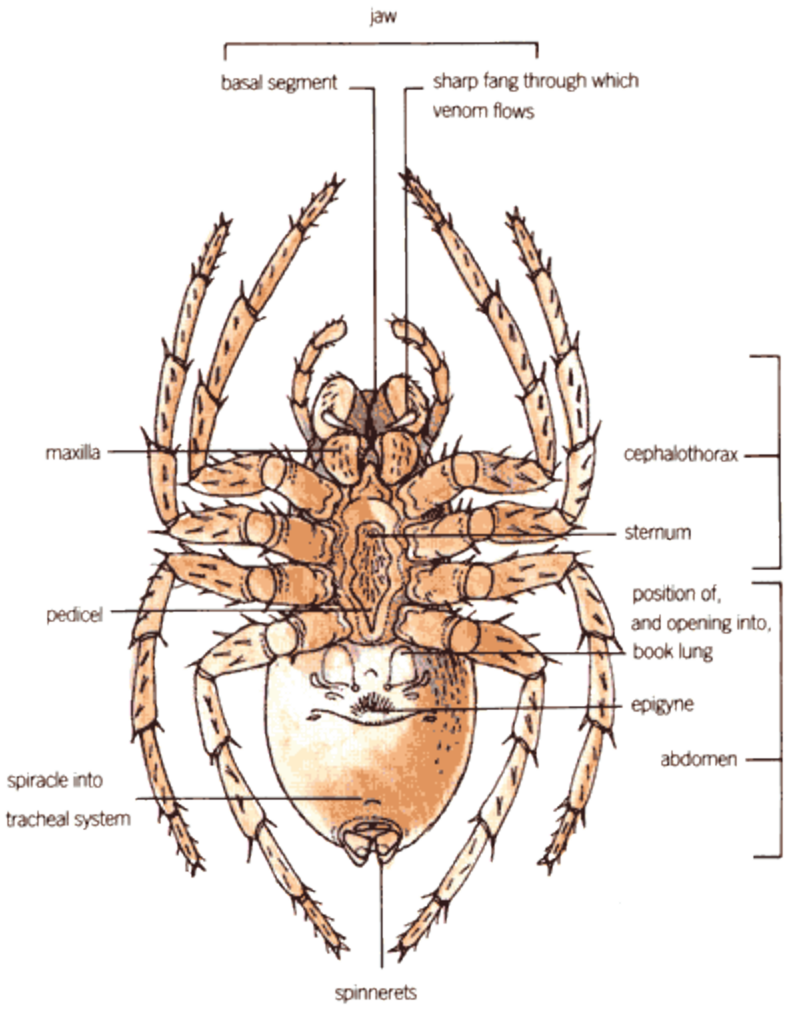
The heart is located on the dorsal of the abdomen. This is an open tube called pericardial-sinus with valves, which is hung in a cavity. Elastic muscles around this cavity contract, enlarging the tube. Because of the valves in the tube the blood can flow in only one direction. If the tube is filled with fluid the muscles relax and the blood is pressed out of the tube. The heart has it own nerve center that can let the heart beat independently from the brains. There are connections with the brain that can raise the heart frequency. This can be registered if the spider becomes excited and its heart frequency rises.

The lungs

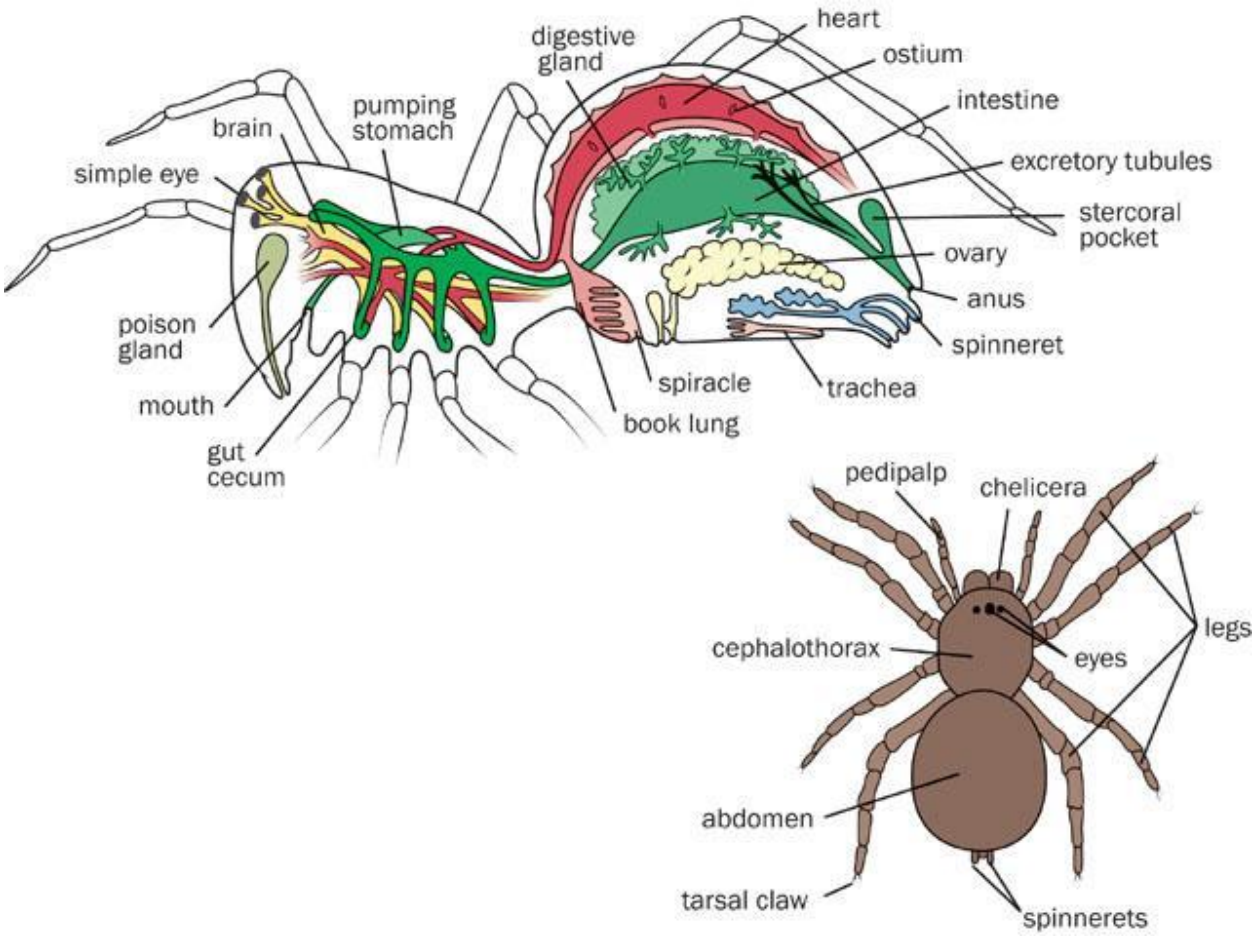
In mammals the uptake of oxygen in the blood and the release of carbon dioxide from the blood take place in the lungs. Spiders use other organs. Above the spinners there is a slit that can be opened and closed. Long small tubes run from this slit into the body. These tubes are called trachea. The gasses are exchanged with the blood by diffusion.

Besides trachea many spiders also have book lungs. These are hollow leaf-like structures through which the blood flows. These book lungs hang in an open space that is connected to a tube. The other side of the tube is in open contact with the air. The entrance is located below the abdomen.

Draw and label the external anatomy of your spider. Cut in across (anterior to posterior) and list what internal structures (don't draw) you locate.

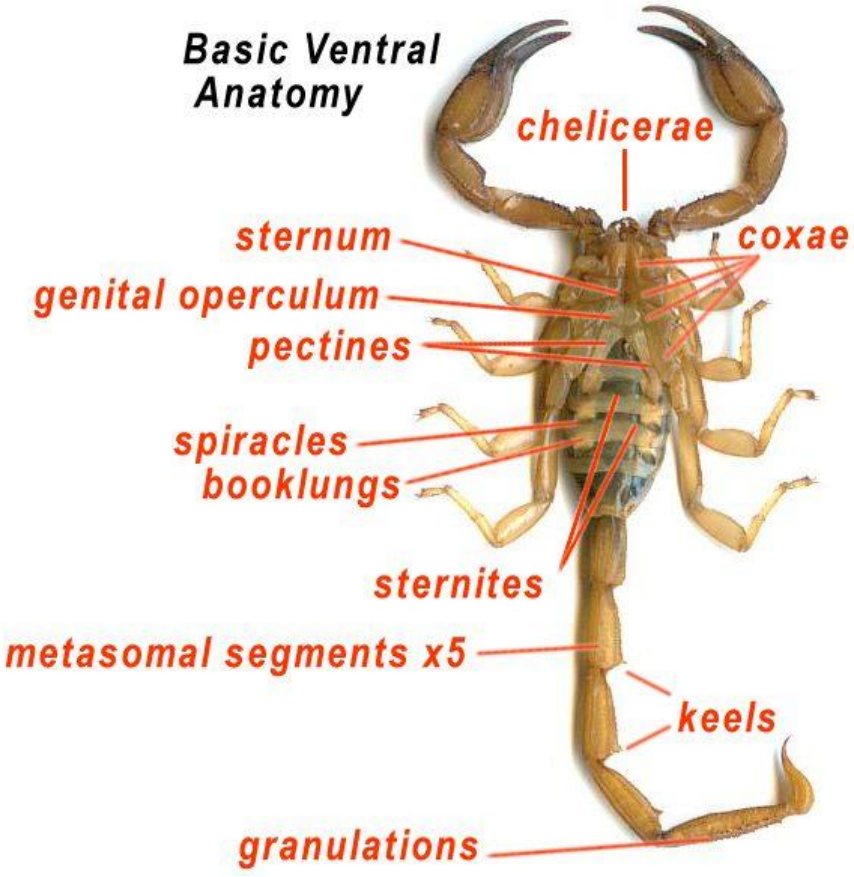


From: http://scienceblogs.com/pharyngula/2006/03/spider_kama_sutra.php



From:
http://animaldiversity.ummz.umich.edu/site/resources/Grzimek_inverts/Arachnida/v02_id303_con_araanat.jpg/view.html

Basic Anatomy of a Scorpion

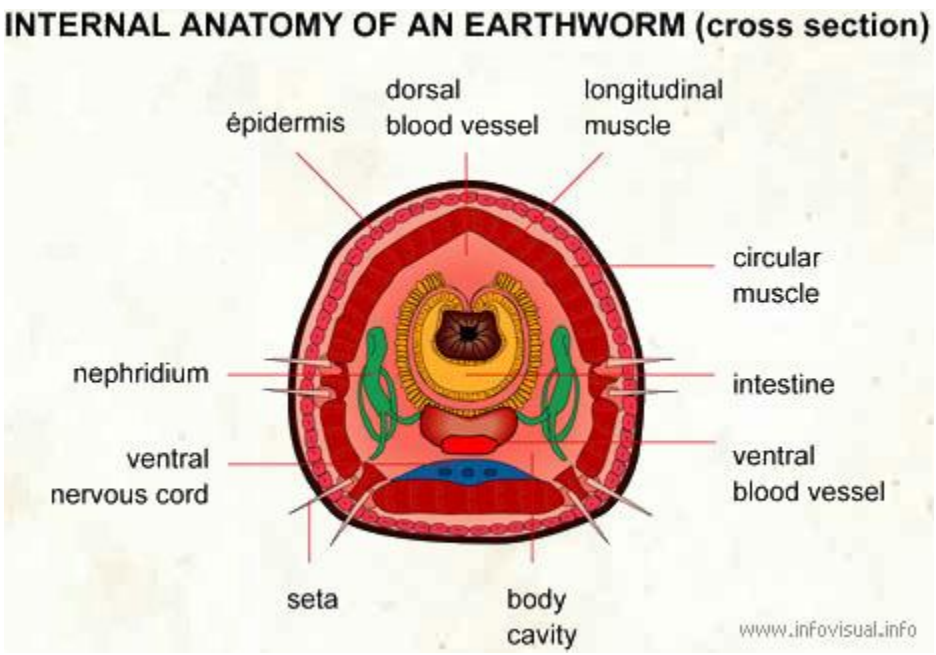


From: http://www.thedailylink.com/thespiralburrow/anatomy/anat02.html

The basic external morpholgy of most scorpions includes:
1) 4 pairs of legs
2) 2 pincers known more correctly as pedipalps
3) Chelicera which are the appendages which brings food to the 'mouth'
4) Prosoma which is the 'head' containing the eyes if present. More commonly referred to as cephalothorax
5) Opisthosoma which is the abdomen. Contains 7 mesosomal segments, 5 metasomal segments (tail) and the telson (sting)
6) Pair of pectines – feathery like sensory organs – ventral side.
7) Genital operculum
8) Sternum
9) Metasoma

Phylum Annelida, Class Oligochaeta (earthworms)

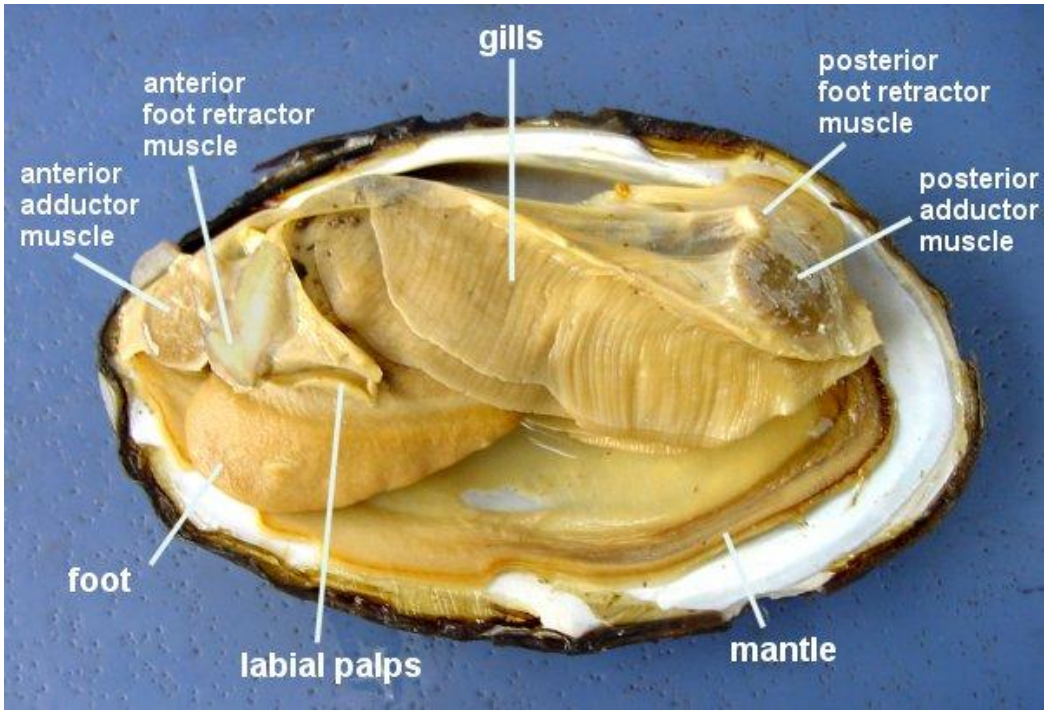
Make a sketch and label the anatomy from a **prepared slide** of the earthworm (x-section). Use the drawing below as a guide, though you may not locate every structure listed.



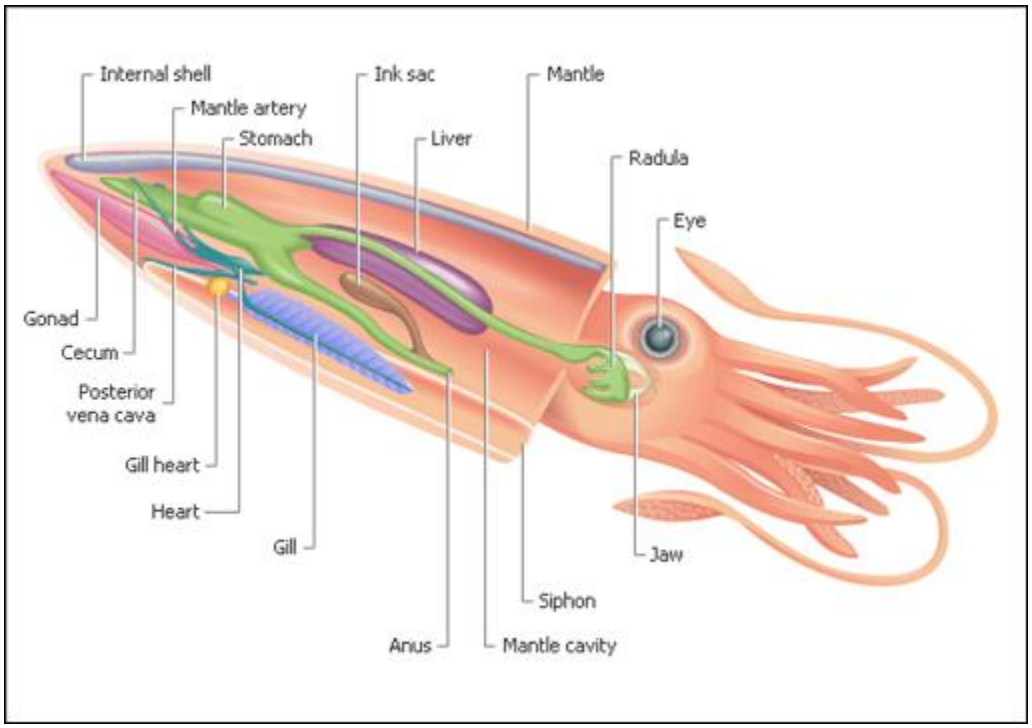
From : http://siera104.com/bio/annelid.html

Ph. Mollusca (Classes Bivalves, Gastropods and Cephalopods).

1. Open up and dissect the clam or mussel and examine its internal anatomy. Most of this can be examined by moving the mantle fold (if it is still covering the visceral organs. Sketch and label (1 - 2 per group),
2. Examine and draw the snail radula slide (100 x).
3. Examine the squid and try to locate the external parts (and any internal parts – if dissected). Sketch and label.



From: http://www.blackspvbiology.50megs.com/clam.dissect.html



From: http://deepseanews.com/2010/11/leaping-squid/internal-anatomy-of-a-squid/