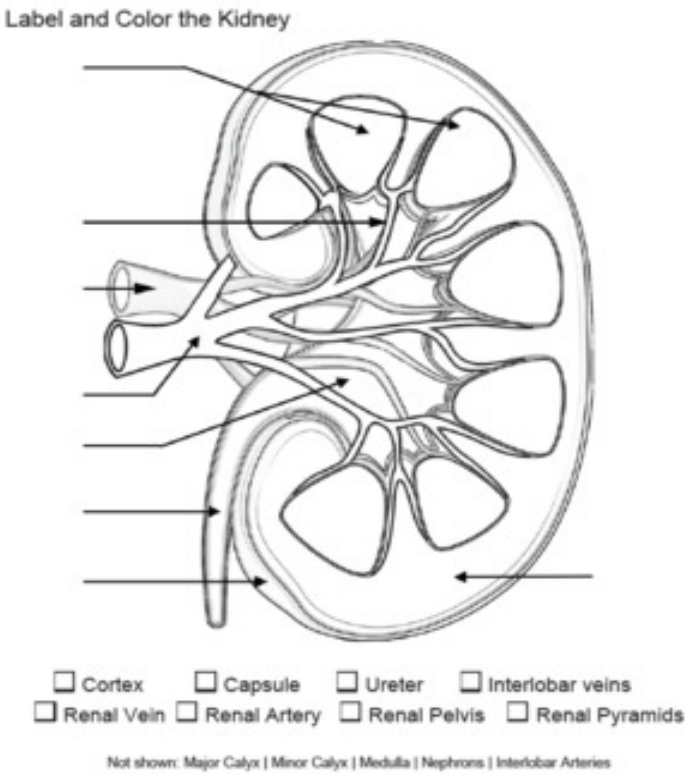
11.3 The Kidney and Osmoregulation **Name_____**

Use 11.3 in the text to answer the following:

1. Explain the difference between an animal that is an osmoregulator and an osmoconformer and give 2 examples of each type of animal. Which one are humans?

2. Explain how the Malpighian tubule system in insects removes nitrogenous waste? You can draw a diagram to help explain.

3. Label the diagram of the human kidney below. You do not have to color it, but can if you want. :)



4. What substances are in higher amounts in the renal artery than the renal vein?

5. Where did the excess amount go?

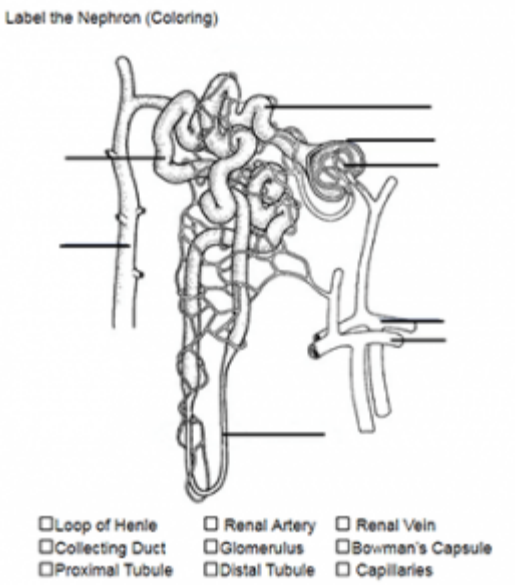
6. What substances are in equal amounts in the renal artery and the renal vein? Explain why they are in equal amounts (reasons will be different for different substances).

7. A process called ultrafiltration occurs between the Bowman's capsule and the glomerulus of the kidney. According to the book, what is "ultrafiltration"? What types of molecules do not make it through?

8. Describe the 3 parts of the ultrafiltration system.

9. Describe the role of the proximal convoluted tubule and the features that help it do its job.

10. The functional unit of the kidney is the nephron. Label the parts of the nephron on the diagram below and to the right, try to describe what happens at each labeled part!



11. How does the length of the loop of Henle relate to the need of water conservation in animals?

12. What is the function of ADH (antidiuretic hormone: man-made form is called vasopressin).

13. Discuss the different types of nitrogenous waste for 3 types of animals: fish, birds, and humans.