1. Draw a heart and label the four types of chambers as well as the four types of valves.

2. Draw the systemic circuit and label the 5 types of vessels.
3. Describe how conduction of the cardiac cycle works.

4. Explain the forces that allow nutrients to leave capillaries to tissues and for wastes to enter capillaries from tissues.

5. Draw a graph that shows the relationship of blood pressure and velocity in the five types of vessels.
6. Describe 5 ways in which the lymphatic system differs from the cardiovascular system.

7. What is the function of the spleen and the thymus gland?

8. Briefly describe the differences in purpose between the innate and adaptive immune systems.

9. Explain why your body would produce a fever.
10. What are the cell types and their functions in humoral immunity.

11. What are the cell types and their functions in cell-mediated immunity

12. Describe how clonal selection works.
13. Draw out and label three functions of antibodies.

14. Explain how vaccines work and how they can give long-term immunity.

15. Who was David Vetter? How was his case important?

16. Describe the three stages of HIV infection.
17. What are some typical treatments for HIV infection?

**Multiple Choice**

1. The pulmonary circuit takes blood to and from the heart and what other organ?
   a. Brain
   b. Liver
   c. Lung
   d. Muscles
   e. Skin

2. In the cardiac cycle, relaxation of the muscle is referred to as ____________.
   a. Diastole
   b. Defibrillation
   c. ECG
   d. Systole
   e. Vasodilation

3. What type of vessel has the thickest layers of smooth muscle?
   a. Arterioles
   b. Arteries
   c. Capillaries
   d. Veins
   e. Venules

4. What type of vessel has the smallest diameter?
   a. Arterioles
   b. Arteries
   c. Capillaries
   d. Veins
   e. Venules

5. Edema is caused by what situation?
   a. Blockage of arteries in the cardiovascular system
   b. Blockage of vessels in the lymphatic system
   c. Damage to the spleen
   d. Overproduction of histamine
   e. Thymus blockages
6. What are the two main functions of lymph nodes?
   a. Fat storage and mineral storage
   b. Filtration and immunity
   c. Filtration and oxygen transport
   d. Fluid balance and storage
   e. Oxygen transport and immunity

7. Mucous membranes are found in all of these parts of the body except:
   a. Respiratory tract
   b. Skin
   c. Small intestine
   d. Stomach
   e. Urinary tract

8. Antibodies are produced from what specific type of white blood cell?
   a. Cytotoxic T cell
   b. Helper T cell
   c. Memory B cell
   d. Memory T cell
   e. Plasma B cell

9. What immune cell type can kill cells directly by binding them?
   a. Cytotoxic T cell
   b. Helper T cell
   c. Memory B cell
   d. Memory T cell
   e. Plasma B cell

10. This is a type of disease when your own immune system attacks your body.
    a. Allergies
    b. Autoimmunity
    c. HIV infection
    d. Immunodeficiency
    e. Transplant rejection

11. What cell type does HIV attack?
    a. Cytotoxic T cell
    b. Helper T cell
    c. Memory B cell
    d. Memory T cell
    e. Plasma B cell

12. How does HIV avoid the immune response?
    a. It attacks many different cell types
    b. It attacks the brain
    c. It creates an autoimmune response in the body
    d. It has a high mutation rate
    e. It kills the host very rapidly