1. The right side of the heart is the ___________________ pump and sends  
__________________ blood to the______________.
2. The left side is the ____________________ pump, and sends __________________  
blood to the ______________.
3. During ________________, the heart's chambers are contracting.  
During ________________, the heart's chambers are relaxed.

VALVES
4. _______________________ valves are always slightly open and draining blood, but open  
further when pressure builds up in the atria sending more blood into the _______________.  
These are also known as ______________ valves (on right) and _______________ valves  
(on left).
5. ___________________________ valves in the _____________ and ________________  
open when pressure builds up in the _________________ and send blood out of the heart.
6. Which valves open when the atria are in systole? ________________________________  
Which valves are open when the ventricles are in systole? ____________________________  
Which valves are open, and which are closed when the heart is in diastole?  
Open ________________________  Closed_____________________________
7. What causes valves to open and close? ________________________________________
8. What causes heart sounds? ________________________________________________

BLOOD VESSELS
Name the blood vessels found in the 4 chambers.
9. Right atrium__________________________________________  
Left atrium__________________________________________  
Right ventricle__________________________________________  
Left ventricle__________________________________________  
10. ______________ take blood toward the heart.  
The _______________ and _________________  _________________ bring  
deoxygenated blood from body tissues to the ________________.  
The ___________________________ veins bring oxygenated blood from the lungs to the  
______________.
11. ______________ take blood away from the heart.
   The ______________ exits the right ventricle and branches into the ______________
   ______________ arteries, that bring deoxygenated blood to the ______________ for
   gas exchange.
   The ______________ exits the left ventricle and brings oxygenated blood to the
   ________________________.

12. Where are the coronary vessels found? _______________________________________
    What is their function? __________________________________________________

HEART STRUTURE

13. The two upper chambers are called the _____________.
    The two flaps on the exterior of the heart that expand to hold more blood are called ____ .
    The two lower chambers are called the _____________.
    Which contracts first, or do they contract at the same time? ______________________

14. Name the membranes surrounding the heart. _________________________________
    What is the function of the fluid in between them? ______________________________
    Define cardiac tamponade __________________________________________________

15. Define the 3 layers of the heart.
    Endocardium _____________________________________________________________
    Myocardium _____________________________________________________________
    Epicardium _____________________________________________________________

16. Cardiac muscle cells have alternating light (actin) and dark (myosin) lines called_______ .
    The cells are branched, also called ____________________________.
    Gaps that connect the heart muscle cells are called ____________________________.
    What is the function of these gaps? _________________________________________

17. Which chamber has the thickest myocardium? _________________________________
    Why? _________________________________

18. Chordae tendineae are attached to ____________________________ muscles.
    What is their function when these muscles contract? ____________________________

19. Name the pressure produced during systole. _________________________________
    Name the pressure produced during diastole. _________________________________
PULMONARY PUMP

List the route of one RBC bringing deoxygenated blood from the tissues to the right side of the heart, and returning oxygenated blood to the left side of the heart. Include blood vessels, chambers and valves.

20. _____________________________________________________________

                                                                 ______________________________________________________________________
                                                                 ______________________________________________________________________

21. What process causes gas exchange at the lungs? ________________________________


1. pulmonary; deoxygenated; lungs
2. systemic; oxygenated; body
3. systole; diastole
4. atrioventricular; ventricles; tricuspid; bicuspid
5. semilunar; aorta; pulmonary trunk; ventricles
6. tricuspid and bicuspid; pulmonary and aortic semilunar;
   open - atrioventricular; closed - semilunar
7. blood flow
8. blood flow against valves
9. RA - superior and inferior vena cavae; LA - 4 pulmonary veins;
   RV - pulmonary trunk; LV - aorta
10. veins; superior; inferior; vena cavae; right atrium; right and left pulmonary; left atrium
11. arteries; pulmonary trunk; right and left pulmonary; lungs; aorta; body tissues
12. branch off of aorta and go to outer surface of heart; supply heart muscle with oxygenated
    blood and nutrients and remove wastes (CO₂)
13. atria; auricles; ventricles; atria contract, then ventricles
14. visceral and parietal pericardium; prevents friction with movement of the heart;
    bleeding into pericardial cavity
15. endocardium - endothelium and connective tissue that lines heart
    myocardium - cardiac muscle
    epicardium - visceral pericardium
16. striae; bifurcated; intercalated discs; heart chambers contract at same time (first atria,
    then ventricles)
17. left ventricle; pumps blood a long distance through body
18. papillary; put tension on atrioventricular valves, preventing eversion of valves (or backflow of
    blood) into atria
19. systolic pressure; diastolic pressure
20. superior and inferior vena cava → right atrium → through tricuspid valve → right ventricle →
    through pulmonary semilunar valve → pulmonary trunk → right and left pulmonary arteries →
    lungs (gas exchange) → right and left pulmonary veins → left atrium
21. gas exchange - simple diffusion