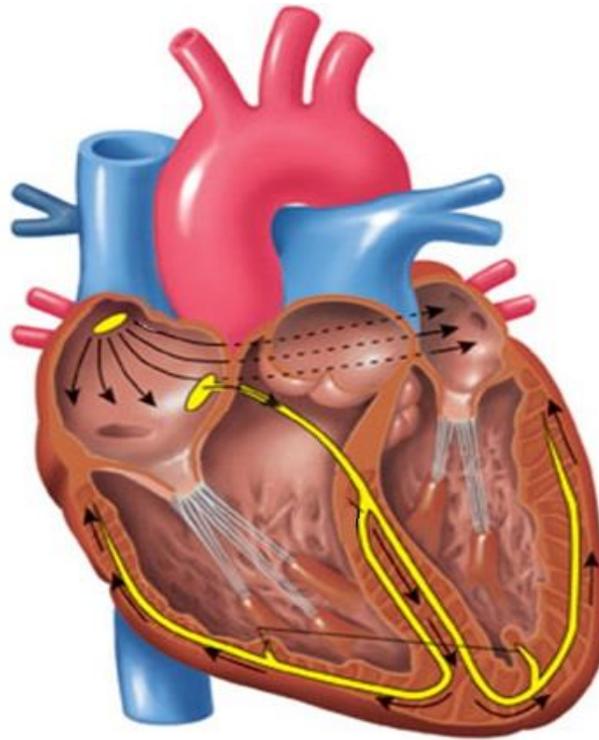


**Chapter 12- Physiology of the Heart
Honors Anatomy**

Using the list below, label the different parts of the cardiac conduction system.



Atrioventricular bundle
Atrioventricular node

Chordae tendinae
Left bundle branch

Papillary muscle
Purkinje fibers

Right bundle branch
Sinoatrial node

Using the given list, create a flow map illustrating the start and end of the cardiac conduction system.

Atrioventricular bundle
Atrioventricular node

Bundle branches
Purkinje fibers

Sinoatrial node

1. Look at the diagram. Explain how the cardiac conduction system is involved in closing the atrioventricular (tricuspid and bicuspid) valves.

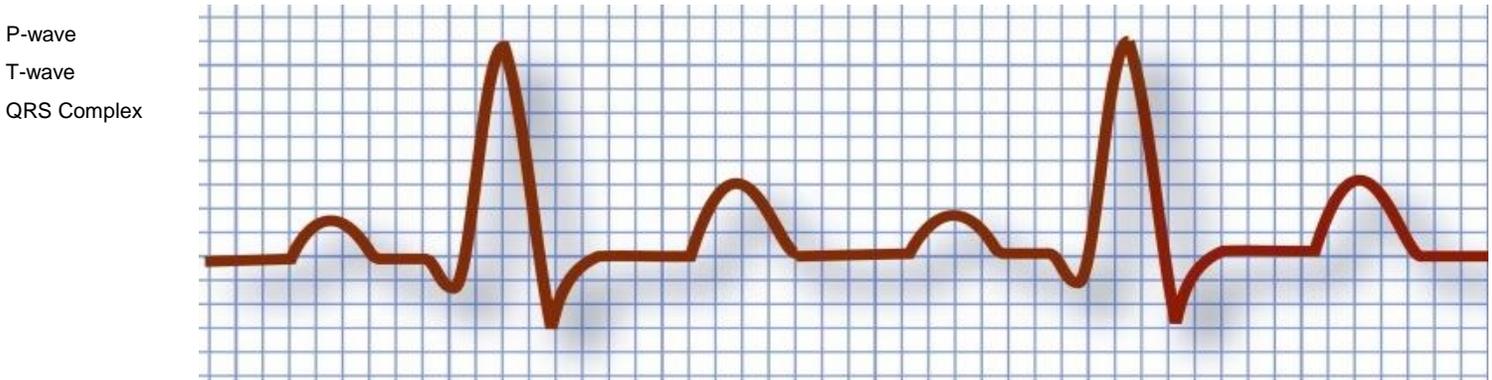
Complete the paragraph about the cardiac conduction system by using the list below. Some words will be used more than once.

- | | | | |
|-------------------------|------------------|-------------------|-----------------|
| Atria | Bundle branches | Contract | Sinoatrial node |
| Atrioventricular bundle | Cardiac muscle | Papillary muscles | Valves |
| Atrioventricular node | Chordae tendinae | Purkinje fibers | Ventricles |
| Atrioventricular valves | | | |

Contraction of the 1 and 2 is coordinated by specialized 3 cells in the wall of the heart. The cardiac conduction system begins when the 4, or pacemaker, generates a spontaneous action potential. The action potential then spreads throughout the walls of the 5 causing them to 6. The action potential then spreads to the 7 in the lower part of the right atrium. From here, the electrical impulse then travels down the 8 before branching into the left and right 9, located in the interventricular septum. The bundle branches then further divide into 10, which extend into the ventricle walls. Bundle branches cause the 11 to contract, while Purkinje fibers cause 12 to contract. The contraction of papillary muscles pulls on the 13, which in turn pulls on the cusps of the 14. Pulling on the cusps of the 15 prevents blood from flowing backwards up into the 16.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____

Using the list below, label the different parts of an electrocardiogram.



Complete the sentence about the electrocardiogram using the list below.

- | | | |
|---------------|---------------------|--------|
| cardiac cycle | electrical activity | muscle |
|---------------|---------------------|--------|

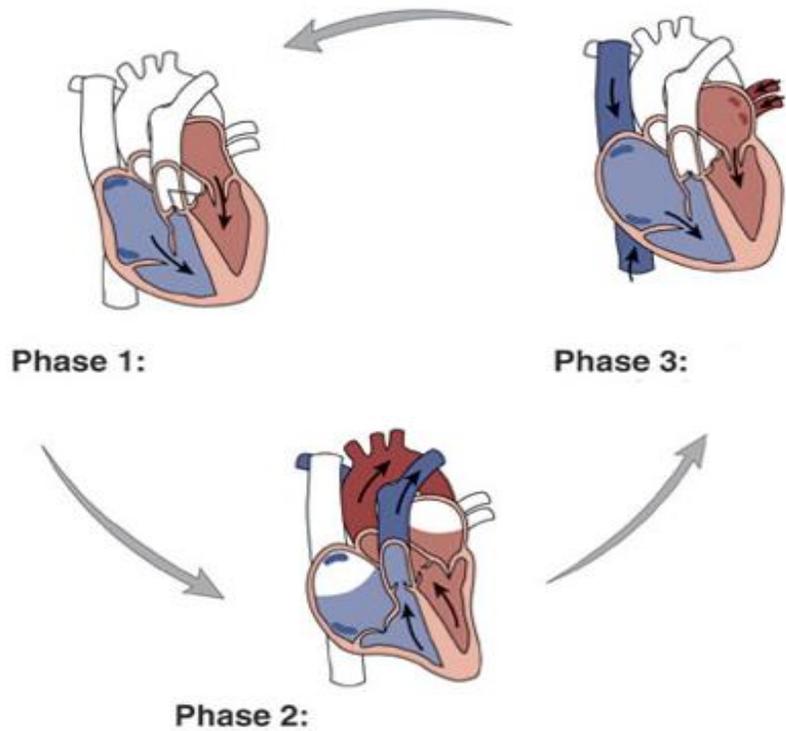
An electrocardiogram is a graph that records the 1 of the 2 during a 3.

1. _____
2. _____
3. _____

4. The P-wave represents _____ of the atria.
5. The QRS complex represents depolarization of the _____.
6. The T-wave represents _____ of the ventricles.

Using the list below, label the actions of the heart chambers during the cardiac cycle.

- Atrial diastole
- Atrial systole
- Ventricular diastole
- Ventricular systole



1. _____ refers to the contraction of the myocardium.
2. _____ refers to the relaxation of the myocardium.
3. Heart sounds are due to the _____ of the heart closing.
4. The "LUB" sound is due to the _____ valves closing.
5. The "DUP" sound is due to the _____ valves closing.

Complete the table about the cardiac cycle by filling in the name of the phase, recording the actions (contracted or relaxed) of the atria and ventricles, and recording the actions (open or closed) of the valves.

	Name of Phase	Action of Atria Contracted/Relaxed	Action of Ventricles Contracted/Relaxed	Action of AV Valves Open/Closed	Action of SL Valves Open/Close
Phase 1					
Phase 2					
Phase 3					

6. _____ is the volume of blood (mL) pumped out of a ventricle in one minute.
7. Cardiac output is dependent on 2 factors: _____, which is beats per minute, and _____, which is the amount of blood (mL) pumped by a ventricle each time it contracts (beat).