Xyphoid Heart

It is the year 2500. The planet, Earth, has discovered many new planets which contain life. Some life forms are almost human-like aside from a few features. Your star-ship has just landed on an undiscovered planet. Unfortunately, when the star-ship entered the planet’s atmosphere a grand ion charge zapped your star-ship’s power supply. To repair your star-ship, you need to find the mineral, reggeti. You decide you will lead your crew in a search for the substance.

In a short time you meet a human-like alien colony calling themselves Xyphoids. Your crew is excited to meet this population because you hope they know how to locate reggeti. In a brief time you discover the alien population can speak your language so you inquire about reggeti. To your surprise the leader knows where the mineral can be found, but he will only show it to you under one condition. The Xyphoids, ever since their known existence, have hearts which fail at a very young age. For years they have tried to invent an artificial heart without success. The alien population knows your technology is more advanced than theirs. They will lead you to the reggeti source if you can successfully make an artificial heart for their population.

**Xyphoid anatomy:**
- 3 chambers in their heart
- 2 heart valves
- 1 lung
- 3 major vena cava entering the heart
- 2 pulmonary arteries
- 3 pulmonary veins
- 2 arteries leaving the heart to supply the body with blood

**Assignment:**
1. On the paper provided for you, design a cross-section of the Xyphoid heart anatomy. The heart must work mechanically; it must pump blood to the one lung and bring it back to the heart. In addition, the blood vessels must be placed in logical positions.

2. Label all valves, arteries, chambers, and other structures.

3. Use colored pencils or markers to distinguish between oxygenated and deoxygenated blood.

4. Draw in arrows to indicate the flow of blood through the system.

5. Write a paragraph to describe how your heart will work mechanically. Describe how this circulatory system will move the blood to the one lung and out to the rest of the body.