**Microscopy Lab: Arteries and Veins**

**Purpose:** To examine and measure the sizes of various blood vessels in the human body.

**Materials:** Artery and vein slides, stage micrometers, microscopes

**Procedure:**You will be examining cross-sections of veins and arteries and measuring the widths of their tissue layers.  
 1. For one artery and one vein, create a plan diagram on low power. Label the three tissue layers and the lumen on each drawing.  
 2. Calculate the average width of all three tissue layers for both cross-sections.  
 3. Calculate a ratio comparing the three tissues layers between arteries and veins.  
 4. Create a drawing of one of the following: heart cross section (plan diagram), heart   
 muscle (plan diagram), blood smear (draw cells), and measure the actual size of one   
 layer or cell.

**Results:** (LARGE plan diagrams—at least ½ page each + a clear data table of measurements for each tissue layer on each cross-section. Data does not need to be in a specific order—draw in the order of what slide you get to look at first.)

**Conclusion Questions** (copy into your lab notebook and answer in complete sentences):

1. What are the roles of veins and arteries in a mammalian body?
2. Describe the differences you observed in these two types of cross-section.
3. Why are veins and arteries different in the thickness of their layers?
4. What might happen if blood were to flow the incorrect direction (from the heart via veins and to the heart via arteries)?