Cardiovascular System

EQ: Why is having a 4 chambered heart so important?

I. General Info
   a. 4 Chambers
   b. About the size of a fist
   c. Triangular in shape with apex pointed down (distal end)
   d. The base of the heart is the superior portion
   e. The great vessels attach to the base
   f. The heart is surrounded by a loose-fitting sac called the **pericardium**
   g. Beats 42,000,000 times/year
   h. Pumps 700,000 gallons of blood

II. Heart Wall – 3 Layers
   a. Epicardium – the heart's surface
   b. Myocardium – middle layer, all muscle
   c. Endocardium – the inner layer

III. Heart Chambers
   a. A double pump
      i. Atria (L/R)
      ii. Ventricles (L/R)
   b. A double circuit – (two circulatory systems in one)
      i. Pulmonary (lungs only)
      ii. Systemic (rest of the body)
   c. 2 Atria: thin upper chambers
      i. receive blood via veins
   d. 2 Ventricles: Thick and powerful
      i. blood from atria and pump blood out of heart through arteries
   e. Septum: Separates the right & left sides of the heart

IV. Heart Structures
   a. Valves: allow one-way flow of blood (4 total)
      i. 2 Atrioventricular valves (AV)
         1. L AV or bicuspid or mitral valve between L atrium & ventricle
         2. R AV or tricuspid valve between r atrium & ventricle
      ii. 2 Semilunar valves
         1. Aortic Semilunar; between L ventricle and the aorta
         2. Pulmonary Semilunar; between R ventricle and the pulmonary artery

V. Path of Blood Flow
   a. Systemic circulation – delivers blood to all body cells and carriers aways waste
   b. Pulmonary circulation – eliminates carbon dioxide and oxygenates blood (lung pathway)
   c. It is all ONE BIG LOOP
      i. Superior Vena Cava
      ii. Right Atrium
      iii. past tricuspid valve to Right Ventricle
      iv. past the semilunar valve to the pulmonary arteries
      v. Lungs
      vi. Left Atrium
      vii. past bicuspid valve to Left Ventricle
      viii. past aortic semilunar valve to the Aorta
      ix. to the body

d. Coronary Circulation
    i. The heart gets its blood via the coronary circulation
    ii. This is before anything else in the body!
    iii. The blood leaves the heart via the coronary sinus