

This is the **Higher Combined** version — includes Higher Tier content. Some Separate-only details are omitted.

The heart is a muscular pump driving a double circulatory system to supply all cells with O_2 and remove CO_2 .

- Double circulation: pulmonary (to lungs) and systemic (to body)
 - Four chambers: right atrium, right ventricle, left atrium, left ventricle
 - Left ventricle: thicker walls — pumps to body at higher pressure
 - Valves: prevent backflow. Arteries: away, thick walls. Veins: valves, towards. Capillaries: one cell thick, exchange
 - Blood: red cells (O_2), white cells (immunity), plasma (transport), platelets (clotting)
 - CHD: plaques narrow coronary arteries. Treatments: statins, stents, bypass
- ★ **HT** Cardiac output = heart rate \times stroke volume

Key Terms

Double circulation	Pulmonary and systemic circuits — keeps oxygenated and deoxygenated blood separate
Cardiac output	Volume of blood pumped per minute = heart rate \times stroke volume

■ **Exam Tip:** Left ventricle has **THICKER** walls — it pumps blood to the **WHOLE BODY**. Right ventricle only pumps to **NEARBY LUNGS**. This distinction comes up every year.