*This is the **Higher Separate** version — includes all Higher Tier content (marked ★) and all Separate Science content.*

The heart is a muscular pump driving a double circulatory system to supply all cells with O■ and remove CO■.

- 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■), white cells (immunity), plasma (transport), platelets (clotting)
- CHD: plaques narrow coronary arteries. Treatments: statins, stents, bypass
- ★ **HT** Cardiac output = heart rate × 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 × 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.