

# 2.8 Transport

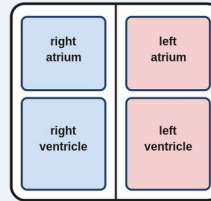
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## 1. KEY VOCABULARY

TERM	MEANING
Artery	Carries blood AWAY from the heart, at high pressure.
Vein	Carries blood BACK to the heart; has valves.
Capillary	Tiny vessel where exchange with cells happens.
Xylem	Plant tissue carrying water up from the roots.
Phloem	Plant tissue carrying dissolved sugars around the plant.
Transpiration	Loss of water vapour from a plant's leaves.

## 2. THE HEART

THE HEART — a double pump



### DOUBLE CIRCULATION

Blood passes through the heart TWICE per circuit:

- Heart → lungs → heart  
picks up oxygen, drops off CO<sub>2</sub>
- Heart → body → heart  
delivers oxygen to the cells

Arteries carry blood AWAY from the heart; veins carry blood BACK; capillaries exchange materials with the cells.

## 3. THE BLOOD VESSELS

VESSEL	FEATURE
Artery	Thick muscular wall — withstands high pressure
Vein	Thinner wall, wide lumen, valves stop backflow
Capillary	One-cell-thick wall — fast exchange with cells

## 4. WHAT BLOOD CARRIES

**Red blood cells:** carry oxygen (haemoglobin); no nucleus.

**White blood cells:** fight pathogens.

**Platelets:** help the blood to clot.

**Plasma:** liquid that carries CO<sub>2</sub>, nutrients, urea and hormones.

## 5. TRANSPORT IN PLANTS

**Xylem** carries water and minerals UP from the roots to the leaves.

**Phloem** carries dissolved sugars from the leaves to the rest of the plant.

**Transpiration** is faster in hot, dry, windy and bright conditions.

## 6. THE WHY

**Why the left ventricle wall is thicker:** it has to pump blood all the way around the body, not just to the nearby lungs.

**Why veins have valves:** blood in veins is at low pressure, so valves stop it flowing backwards.

## 7. COMMON EXAM MISTAKES

- ✗ "Arteries always carry oxygenated blood."
- ✓ Arteries carry blood AWAY from the heart — the pulmonary artery is deoxygenated.
- ✗ "Xylem carries sugars."
- ✓ Xylem carries water; phloem carries sugars.
- ✗ "Red blood cells have a nucleus."
- ✓ Red blood cells have no nucleus — more room for haemoglobin.

## 8. SELF-CHECK · cover & quiz

Can you...

- Name the four chambers of the heart?
- Describe the features of arteries, veins and capillaries?
- State what each component of blood does?
- Explain the difference between xylem and phloem?
- State the conditions that increase transpiration?
- Explain why the left ventricle wall is thicker?