

These are the errors that appear year after year in examiner reports. Knowing *what not to write* is just as important as knowing what to write. ★ marks Higher Tier only. Every mistake here has cost students marks in real exams.

## Digestive System and Enzymes

■ **Students often write:** *"Bile is an enzyme that digests fat."*

✓ **Correct answer:** Bile is NOT an enzyme. It is an alkaline liquid produced by the liver and stored in the gall bladder. Bile EMULSIFIES fats — it physically breaks large fat droplets into smaller ones, increasing surface area for lipase to act on.

■ **Examiner insight:** "Bile is an enzyme" is one of the most commonly cited errors in AQA examiner reports. Bile does not break chemical bonds — it is a physical emulsifier. LIPASE is the enzyme that chemically digests fat.

■ **Students often write:** *"Enzymes are destroyed by high temperatures."*

✓ **Correct answer:** Enzymes are DENATURED, not destroyed. Denaturation means the bonds holding the protein in its 3D shape break, permanently changing the shape of the active site. The amino acids still exist — the protein is just unfolded and non-functional.

■ **Examiner insight:** Use "denatured" — never "destroyed." Also: at LOW temperatures enzymes are not denatured, just slow (less kinetic energy = fewer collisions). "Inactive" at low temp; "denatured" above optimum.

■ **Students often write:** *"The enzyme changes shape at high temperature and stops working, but when cooled it works again."*

✓ **Correct answer:** Denaturation is IRREVERSIBLE. Once the active site has permanently changed shape due to high temperature, the enzyme cannot return to its original conformation, even if cooled. You cannot "un-cook" an egg white.

■ **Examiner insight:** Denaturation = permanent. This comes up in exam questions: "Suggest why cooling the enzyme did not restore its activity." Answer: it had already been denatured (permanently changed shape).

■ **Students often write:** *"The left side of the heart pumps blood to the lungs."*

✓ **Correct answer:** The RIGHT side of the heart pumps deoxygenated blood TO the lungs (pulmonary circulation). The LEFT side receives oxygenated blood FROM the lungs and pumps it to the rest of the body (systemic circulation).

■ **Examiner insight:** Remember: Right = lungs. Left = body. The left ventricle has THICKER walls because it pumps blood further (around the whole body). This is tested almost every year.

■ **Students often write:** *"Veins always carry deoxygenated blood."*

✓ **Correct answer:** MOST veins carry deoxygenated blood back to the heart, but the PULMONARY VEINS are a critical exception — they carry oxygenated blood FROM the lungs TO the left atrium. Similarly, the pulmonary artery carries deoxygenated blood (atypical for arteries).

■ **Examiner insight:** "Arteries carry oxygenated blood, veins carry deoxygenated blood" — this rule has important exceptions at the lungs. If an exam question mentions pulmonary vessels specifically, the usual rule is reversed.

■ **Students often write:** *"Statins open up the blocked artery."*

✓ **Correct answer:** Statins are drugs that reduce blood LDL cholesterol levels, slowing the formation of new fatty plaques. They do NOT open existing blockages. STENTS are the devices inserted into narrowed arteries to physically hold them open.

■ **Examiner insight:** Statins = lower cholesterol = prevent plaques. Stents = widen arteries. Two completely different treatments, often confused. Bypass surgery = reroutes blood around the blockage.

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## Plant Tissues and Transport

■ **Students often write:** *"Xylem carries sugar and phloem carries water."*

✓ **Correct answer:** Xylem carries WATER and mineral ions from roots upward. Phloem carries dissolved SUGARS (sucrose) from leaves to all parts of the plant (translocation). Students frequently swap these — it is a common exam error.

■ **Examiner insight:** X for Xylem, X for water. Or: "Xylem = eXit water from roots." Phloem = "food" (sugars). Also: xylem cells are dead; phloem cells are living. Xylem is one-way up; phloem can go both ways.