

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.

## Nervous System

■ **Students often write:** *"The reflex arc goes: stimulus → brain → muscles."*

✓ **Correct answer:** In a REFLEX arc, the signal goes through the SPINAL CORD (relay neurone), bypassing the brain. This is precisely what makes reflexes fast. The brain is informed after the response has already occurred.

■ **Examiner insight:** The whole point of a reflex is that it bypasses the brain. If the signal went to the brain, it would be a voluntary action. Reflex = spinal cord only. Always include the relay neurone in your pathway.

■ **Students often write:** *"Neurones transmit chemical signals."*

✓ **Correct answer:** Within a neurone, signals are ELECTRICAL (action potentials). Chemical signals (neurotransmitters) are only used to cross the GAP between neurones — at synapses. The neurone itself carries electrical impulses.

■ **Examiner insight:** Neurone = electrical impulse. Synapse = chemical (neurotransmitter). Both are required in nervous system questions. Students often say "chemical signals travel along neurones" — this is incorrect.

## Blood Glucose Control

■ **Students often write:** *"Insulin destroys the extra glucose in the blood."*

✓ **Correct answer:** Insulin does NOT destroy glucose. It signals cells (especially liver and muscle cells) to take up glucose from the blood. In the liver, excess glucose is converted to GLYCOGEN for storage. Glycogen can be reconverted to glucose later.

■ **Examiner insight:** Insulin → glucose taken up by cells → liver converts glucose to glycogen (glycogenesis). The glucose is stored, not destroyed. This is reversible — glucagon triggers glycogenolysis (glycogen → glucose) when needed.

■ **Students often write:** *"Glucagon lowers blood glucose." OR confusing glycogen and glucagon.*

✓ **Correct answer:** GLUCAGON RAISES blood glucose. It is released by ALPHA cells in the pancreas when blood glucose falls too low. Glucagon signals the liver to break down glycogen into glucose. GLYCOGEN is the storage molecule (like starch but in animals).

■ **Examiner insight:** Glucagon ≠ glycogen. Glucagon is the hormone. Glycogen is the storage carbohydrate. Glucagon triggers breakdown of glycogen → glucose. Examiners note this confusion frequently.

<p>■ <b>Students often write:</b></p>	<p><i>"Type 1 and Type 2 diabetes are both treated with insulin injections."</i></p>
<p>✓ <b>Correct answer:</b></p>	<p>Type 1 diabetes: beta cells are destroyed → no insulin produced → MUST use insulin injections. Type 2 diabetes: cells are resistant to insulin → managed primarily with diet, exercise and weight loss. Insulin injections are a last resort for some Type 2 patients, not the first-line treatment.</p>
<p>■ <b>Examiner insight:</b></p>	<p>Different causes, different treatments. Type 1 = autoimmune destruction of beta cells. Type 2 = insulin resistance linked to lifestyle. Confusing treatments loses marks in compare questions.</p>

## Plant Hormones (Higher Tier)

### ★ Higher Tier

<p>■ <b>Students often write:</b></p>	<p><i>"Auxin makes plants grow towards the light because it moves towards the light."</i></p>
<p>✓ <b>Correct answer:</b></p>	<p>Auxin moves AWAY from the light to the shaded side. High auxin concentration on the shaded side causes cells there to elongate MORE than on the lit side. The differential elongation causes the shoot to curve TOWARDS the light.</p>
<p>■ <b>Examiner insight:</b></p>	<p>Auxin moves away from light → shaded side elongates more → shoot curves toward light. The mechanism is counter-intuitive: auxin moves away from what you're growing towards. Many students get the direction of auxin movement wrong.</p>

### ★ Higher Tier

<p>■ <b>Students often write:</b></p>	<p><i>"In roots, auxin promotes growth just like in shoots."</i></p>
<p>✓ <b>Correct answer:</b></p>	<p>Auxin has the OPPOSITE effect in roots compared to shoots. High auxin concentration INHIBITS root growth. This is why in gravitropism, auxin accumulates on the lower side of the root → lower side grows LESS → root curves downward.</p>
<p>■ <b>Examiner insight:</b></p>	<p>Shoots: high auxin = MORE growth. Roots: high auxin = LESS growth. This asymmetry is tested regularly in phototropism and gravitropism questions. Learn both effects.</p>