

# ACTIVITY 6 – sample student work

## Biology

### Paper 1B, Q2(c)(ii)

The genetically modified Salmon is longer ~~th~~ and weighs more than the regular Salmon and therefore will contain more protein. A person that eats the Salmon will receive higher levels of protein in their diet. The GM Salmon would be helpful for providing more protein but not for providing a balanced diet as the human body ~~is~~ also needs other goods such as carbohydrates and vitamins A, C and D. The person's diet would only be balanced if they ate the Salmon along with other goods such as bread, eggs, fruit and vegetables. The GM Salmon would provide higher levels of protein but not necessarily help a person eating it maintain a balanced diet.

GM salmon are useful for increasing the amount of protein ingested by humans, which is one component of a balanced diet. GM salmon ~~are~~ have a larger mass, so will have more protein in them. However, a balanced diet needs other molecules such as lipids and carbohydrates. Therefore, this conclusion cannot be made without testing the salmon for other such food molecules. Also, the ~~an~~ investigation was not repeated, and so his results are unreliable. ~~and~~ The investigation needs to be carried out for a large group of salmon to prove that these results are not anomalous. Also, other conditions need to be controlled such as temperature and water quality, so that the growth of both salmon is not affected by different conditions. ~~the~~ Therefore, this conclusion is invalid until other food molecules are tested for, and until the reliability of the investigation is improved.

## Paper 1B, Q10(b)

(b) Plants produce plant growth substances such as auxin.

Suggest why some biologists do not consider auxin to be a hormone.

(2)

Auxin is not transported in the blood plasma as plants do not have a circulatory system. It is instead diffuses throughout the plant tissue.

Auxin is not transported via blood plasma, auxin is not produced in an endocrine gland.

Auxin is not secreted from a gland and acts on a specific spot rather than having a wide spread effect.

## Paper 1BR, Q9(d)

Because it shows that water is needed for photosynthesis to happen.  $\text{Carbon dioxide} + \text{water} \rightarrow \text{glucose} + \text{oxygen}$ .  
If carbon dioxide is present but water is not then photosynthesis will not happen.

This improves the student's investigation because water does not take in carbon dioxide, so the plants can photosynthesis. This shows the plants can not photosynthesis because of the ~~pot~~ potassium hydroxide take away the carbon dioxide not due to the bell jar.

Because it ~~catches~~ carbon dioxide is needed for photosynthesis and this ~~proves~~ <sup>proves</sup> that without carbon dioxide no photosynthesis occurs. So it gives a valid comparison and also makes it more reliable.

## Paper 1BR, Q10(b)

(b) Explain why a pregnant woman may need to take extra minerals and vitamins.

(4)

Question Number	Answer	Additional guidance	Mark
<b>10(b)</b>	<p>An explanation that makes reference to four of the following points:</p> <ul style="list-style-type: none"><li>• vitamin A for (foetus) eyes / vision / sight (1)</li><li>• vitamin C for (foetus) skin / (connective) tissue (1)</li><li>• vitamin D for (foetus) bones / teeth / calcium absorption (1)</li><li>• calcium for (foetus) bones / teeth / milk (1)</li><li>• iron for (foetus) haemoglobin / Hb / <u>red</u> blood cells (1)</li><li>• phosphate for (foetus) ATP / bones / DNA / RNA (1)</li></ul>	<p>Answer makes no mention of foetus / embryo / baby = max 3</p> <p>Mp2 Ignore scurvy</p> <p>Mp3 Ignore rickets</p> <p>Allow other vitamins and minerals eg. vitamin B for nerve development</p>	<b>4</b>