

Question 24 (5 marks)

Design an experiment that tests the effect of opening a window on the blood oxygen saturation level of the people in a room.

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<p><u>Independent variable</u></p>	<p>Amount of O_2 entering room</p>
<p>Control</p>	<p>Someone in a room without a window open</p>
<p>Variables to be kept constant and justification for keeping each constant.</p>	<p>Variable 1: Position of people in room in relation to window Justification: People closer to the window will receive more O_2 faster, whereas people further away receive less O_2, much later as O_2 molecules disperse throughout the room. Having the people position evenly around the window will produce a more valid and accurate result</p> <p>Variable 2: Amount of time exposed to open window Having the pulse oximeter on the same finger on the same hand Justification: The longer a person stays in the room exposed to the open window, the more oxygenated their blood will be, so to ensure fairness and accuracy, have everyone exposed ^{for} the same amount of time at the same time.</p>
<p>Technology used to measure oxygen saturation in blood</p>	<p>Pulse oximeter (a peg on the finger used to detect colour of the blood (blue or red))</p>