

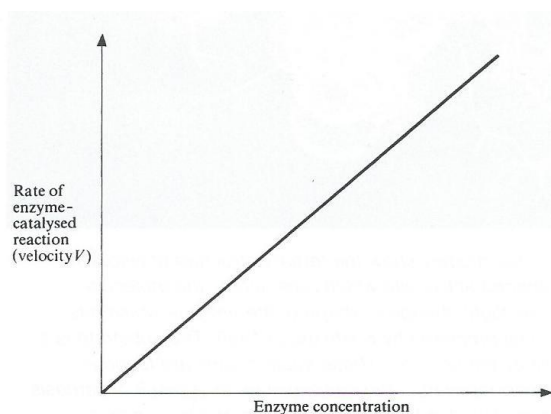
M3.1 – Translate information between graphical, numerical and algebraic forms

Teacher answers

Quiz

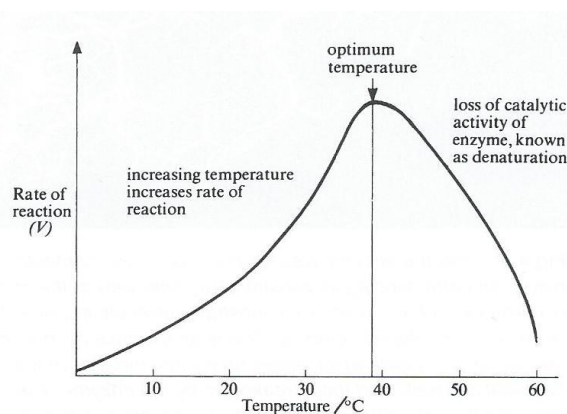
1. Describe the graphs below focussing on the relationship between the x and y axis variables.

A.



Relationship between enzyme concentration and the rate of an enzyme-controlled reaction.

B.



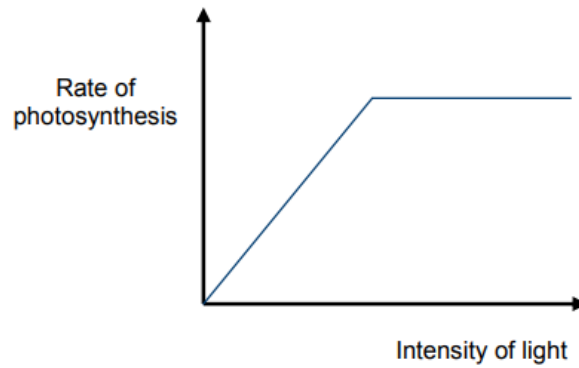
Effect of temperature on the rate of an enzyme-controlled reaction.

Graph A) No scales on either axis so description and interpretation will be qualitative e.g: As enzyme concentration increases, so does rate of reaction in a linear relationship.

Graph B) A scale on the x axis means that the description and interpretation can be partially quantitative e.g: The rate of reaction increases with temperature between 0°C and 40°C. A maximum rate is reached at 40°C. From 40°C to 60°C the rate falls with increasing temperature. For extra marks these changes could be explained using knowledge of enzymes.

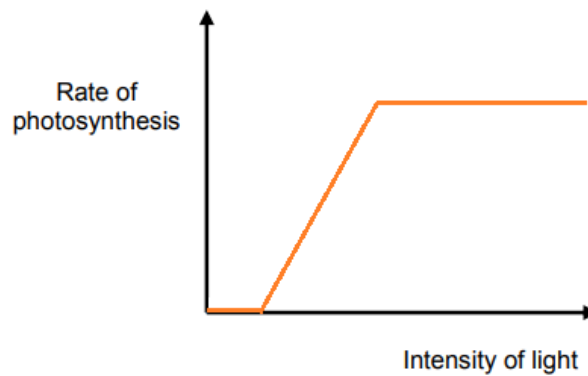
2. A simplified description of photosynthesis: 'Photosynthesis is dependent on light. When there is no light no photosynthesis takes place. As light intensity increases, the rate of photosynthesis increases linearly until it reaches an upper limit. Further increases in light intensity beyond this point have no effect on rate of photosynthesis.'

Draw a sketch graph to show this description of the relationship between rate of photosynthesis and light intensity.

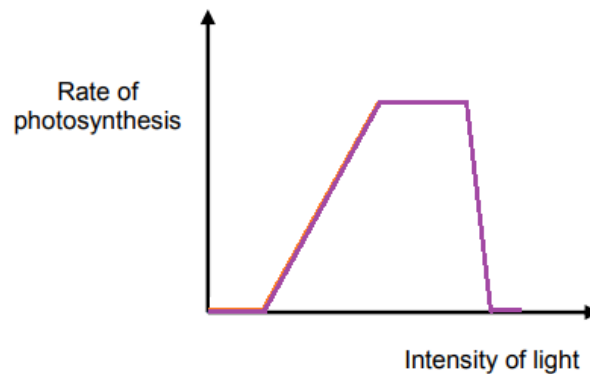


How would the curve you have drawn change if you were to represent the following modifications to the description?

- a) at very low light intensity no photosynthesis occurs – a threshold light intensity must be reached before any photosynthesis happens



- b) in addition, at very high light intensity the chlorophyll is damaged and the rate of photosynthesis drops sharply



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