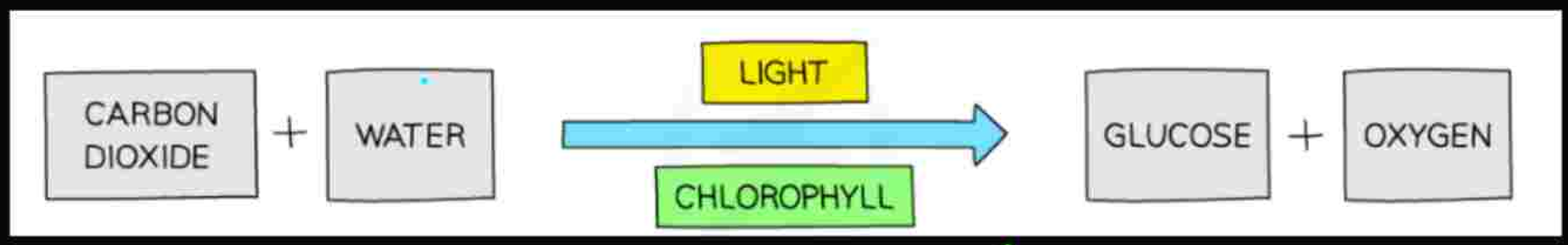
Photosynthesis

=) endothermic process

↳ it releases energy.



(IMP)

word Equation.

reactants

conditions

Products.

Formula Equation :- (IMP)

$$6CO_2 + 6H_2O \xrightarrow[\text{Chloro phyll}]{\text{light}} C_6H_{12}O_6 + O_2$$

starch (storage)

converted into fats + oils in seeds.

glucose

cellulose for strength of cell wall

Respiration to release energy.

Is light a raw material for photosynthesis?

⇒ ↓

its energy not material

↓

something made up of atoms

↓

eg CO_2 or H_2O

←

limiting factors for photosynthesis :-

↓

the one that's present in less amount

↓

it gonna determine my process.

- There are three main factors that limit the rate of photosynthesis:
  - **Temperature**
  - **Light intensity**
  - **Carbon dioxide concentration**

Temperature :-

sufficient temperature → sufficient kinetic energy

enzyme ↓ speeds up a reaction.

↓

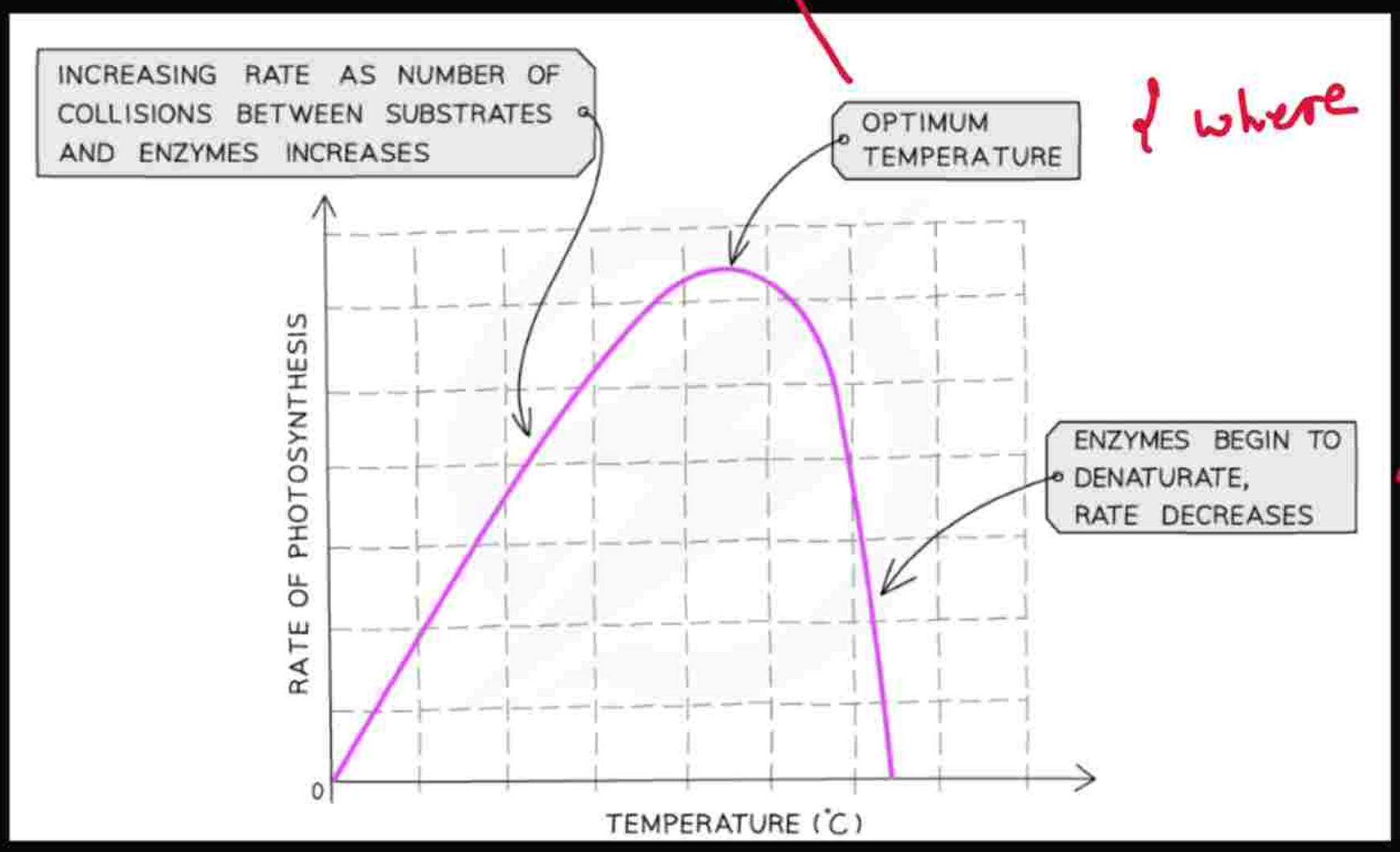
reactants can collide and change into product

at higher temperature → enzymes denature

↓

rate can decrease.

highest rate of photosynthesis



& where enzymes can work at high efficiency

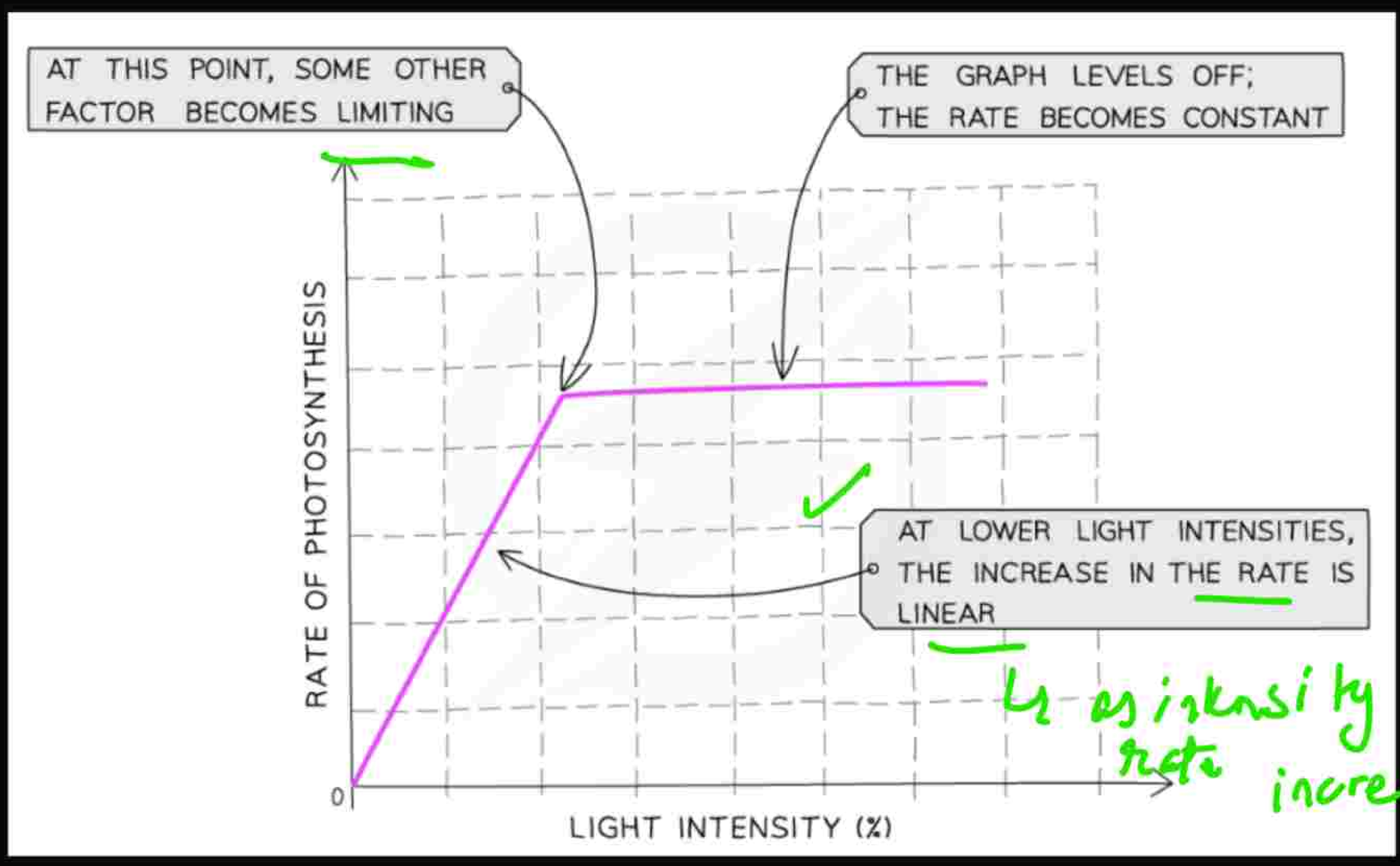
& they lose their capacity to work)

Light Intensity :-

generally :-

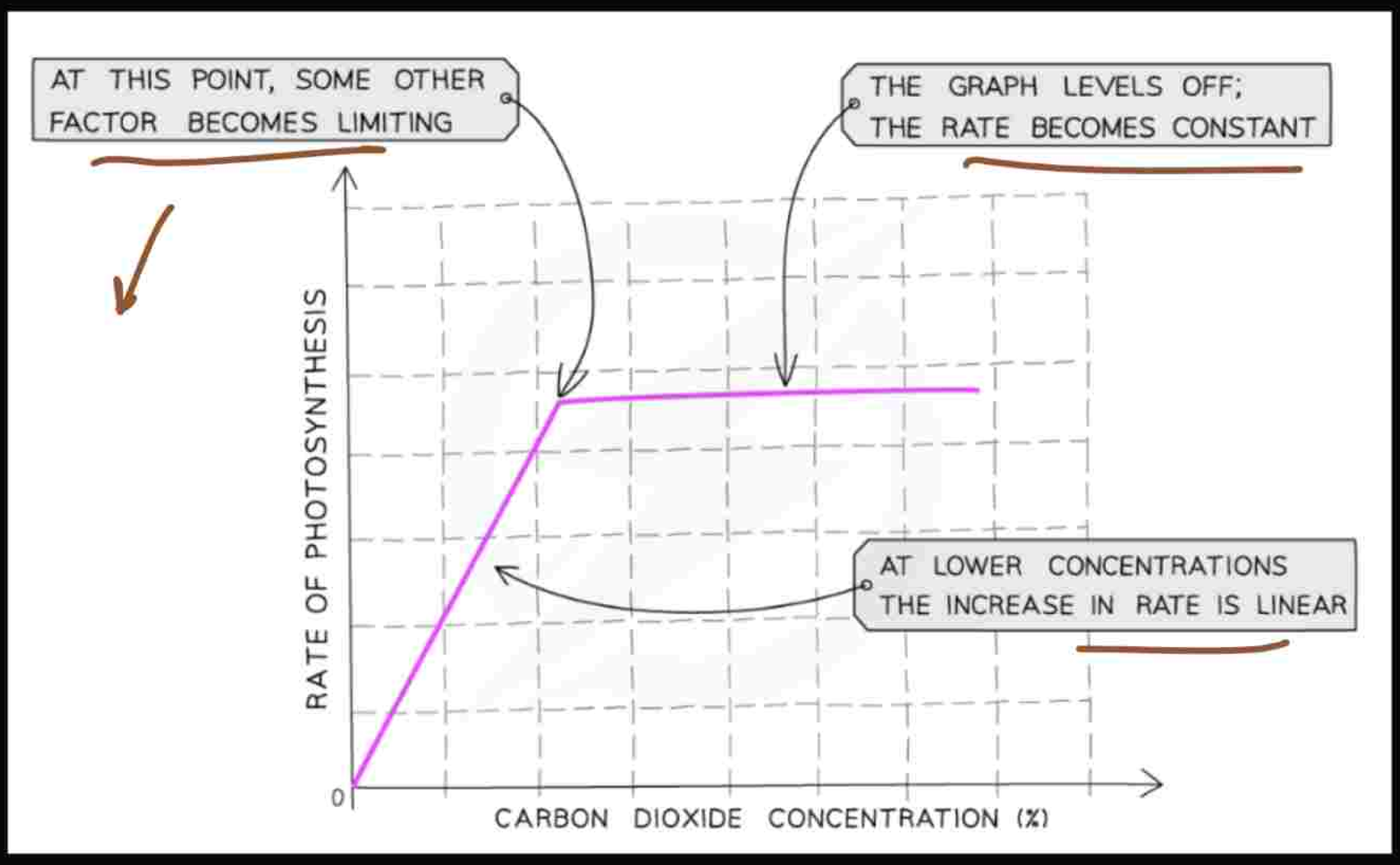
more sunlight ⟶ rates gonna be faster.
(light intensity)

But after sometime rate become independent of light intensity.



Concentration of Carbon dioxide :-

CO_2 (raw material) ⟶ more CO_2 more the rate of photosynthesis.



Other factors mean :-

we increased CO_2 ↑ rate should ↑ but g stopped giving it sunlight.

Now rate won't increase.

(limiting)

Chlorophyll (present in chloroplast)

↓

green pigment that absorbs sunlight.

↓

more chloroplast more rate of photosynthesis

The number of chloroplasts (or amount of chlorophyll they contain) can be affected by:

- Diseases (such as tobacco mosaic virus)
- Lack of nutrients (such as magnesium)
- Loss of leaves (fewer leaves means fewer chloroplasts)

Extra tips :-

directly proportional {IMP}

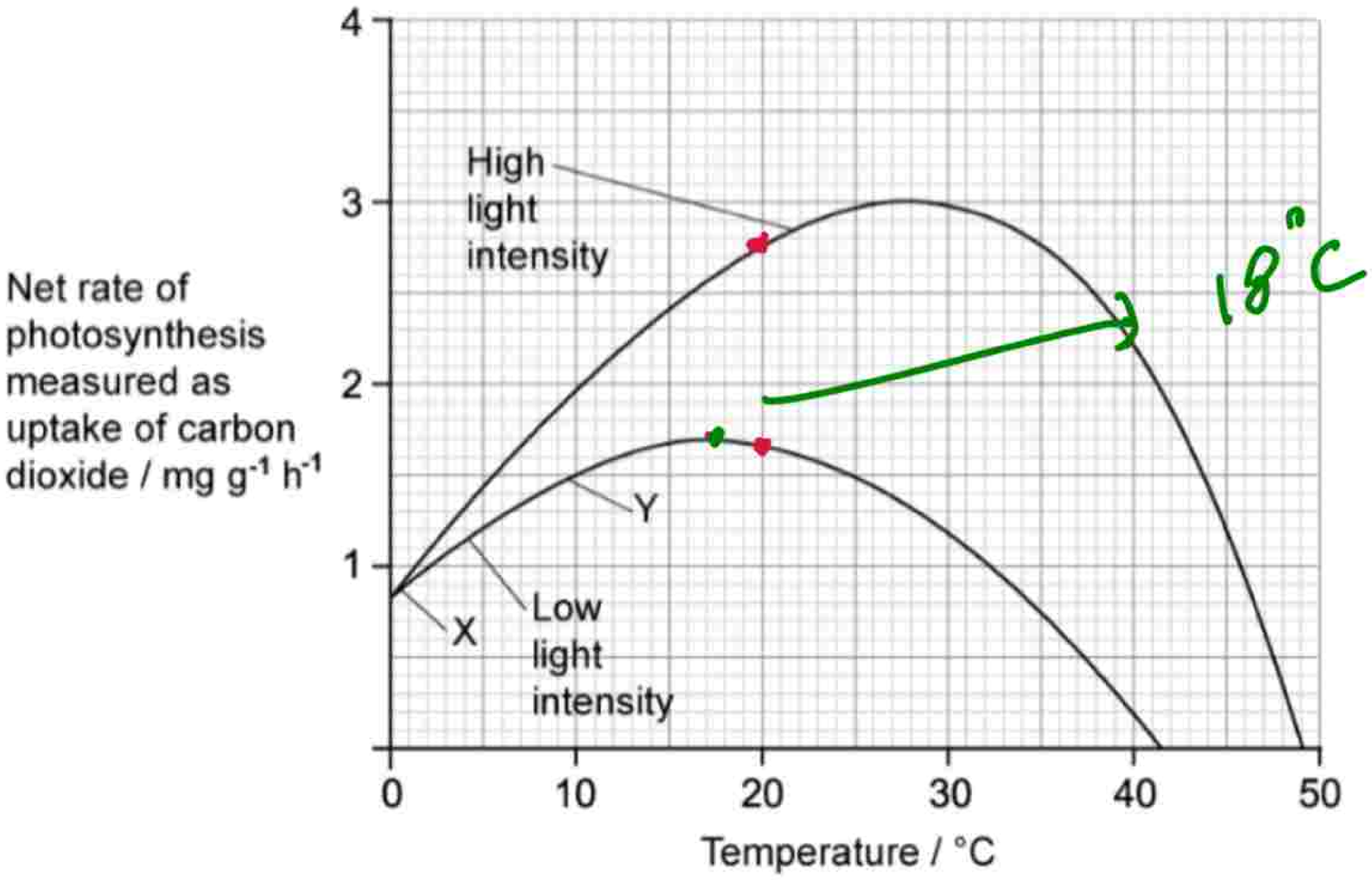
if one side of equation increases other gonna increase automatically.

hard work ∝ success.

inversely proportional .

good health ∝ $\frac{1}{\text{cheese burst}}$.

Figure. 1 shows the effect of several different factors on the growth of strawberry plants in a greenhouse.



18°C is optimum temperature.

Figure. 1

Describe and explain how temperature and light intensity affected the rate of photosynthesis up until 20°C.

⇒ rate increase with increase in temp. until optimum temp is reached.

⇒ at low intensity photosynthesis is lower and at high intensity photosynthesis is higher.

Identify the limiting factor(s) between point **X** and **Y** in Fig. 1.

temperature & light intensity.

Explain why light intensity is no longer limiting the rate of photosynthesis at temperatures higher than 30°C.

enzymes get denatured at high temperature