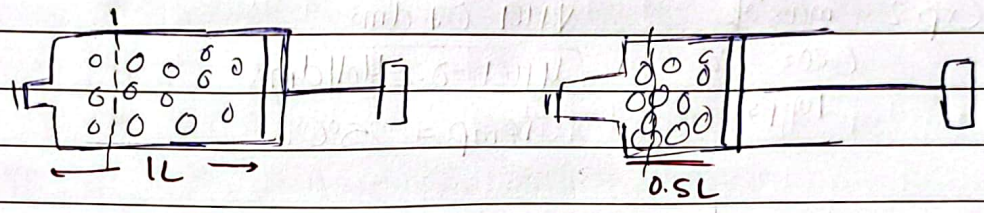
④ pressure : only affect the gas "

- Explain how the pressure affect the rate of reaction :-
As the pressure increases by reducing the volume.
so more particles per unit volume, so more effective collisions per unit time
so faster rate of reaction.



$\frac{10 \text{ particles}}{1L} = 10$ $\frac{10 \text{ particles}}{0.5L} = 20$

⑤ light: "only for photochemical reaction"
§§
reaction that need light to occur.
eg: photosynthesis

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

* photographic films
⇒ films coated with AgCl or AgBr

$$AgCl \xrightarrow{\text{light}} Ag(s) + Cl_2$$
$$AgBr \xrightarrow{\text{light}} Ag(s) + Br_2$$

⑥ Catalyst:
chemical substance that speeds up the reaction without being used up.
How? it provides an alternative way
with lower Ea
so more particles will have energy equal to or more Ea
so more effective collisions per unit time.
so faster rate of rxn.