- Takes place in the chloroplasts
- ATP and hydrogen are used as forms of chemical energy to convert carbon dioxide and water into useful organic molecules for the plant
- Glucose is an organic molecule made out of 6 inorganic carbon dioxide molecules
  - The conversion of an inorganic form of any element to an organic form is known as *fixation*

 $6CO_2 + 6H_2O \Rightarrow C_6H_{12}O_6 + 6O_2$ 

## Rate of photosynthesis

- > Photosynthesis is the reverse reaction of cell respiration
- A plant has a fairly consistent and low rate of cell respiration at any given time, day and night
- ➤ Low need of ATP
- > The photosynthetic rate is highly dependent on many environmental factors
- The glucose and some of the oxygen produced in photosynthesis is used by the plant itself
- When no light is available, the plant must rely on product a glucose and take in oxygen through the stomata from the store
- Measuring the oxygen product by or carbon dioxide intake is a direct measurement of photosyntle intake
- Decadalso keep track of the charge in biomass of experimental plants
  - Indirect reflection of photosynthetic rate, as biomass can be affected by other factors

## Environmental limiting factors

- > Rate of photosynthesis will increase, as the light intensity increases
  - Until enzymes start working at maximum rate
- > Rate of photosynthesis will increase, as the temperature increases
  - Until enzymes and proteins become denatured
- > Rate of photosynthesis will increase, as carbon dioxide increases
  - Rate reaches a plateau unless light and temperature also increase
- > Light and temperature are limiting factors