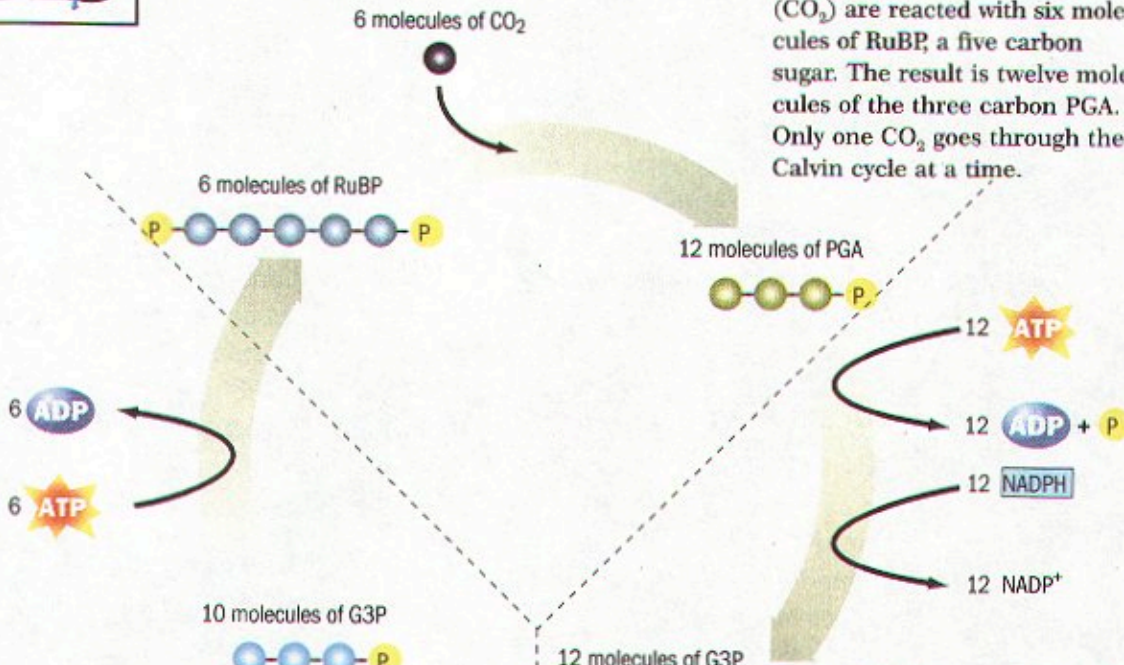




# Calvin Cycle

## 1 Carbon fixation

For each glucose molecule, six molecules of carbon dioxide ( $\text{CO}_2$ ) are reacted with six molecules of RuBP, a five carbon sugar. The result is twelve molecules of the three carbon PGA. Only one  $\text{CO}_2$  goes through the Calvin cycle at a time.



## 3 Restocking RuBP

The other ten G3P molecules are recycled back to RuBP. This requires the energy from six ATP molecules from the light dependent reactions. RuBP is used in the next turn of the Calvin cycle.

## 2 Production of G3P

Each molecule of PGA is converted to G3P, using energy from ATP and hydrogens from NADPH. ATP and NADPH were formed in the light dependent reactions. Two G3P molecules can be combined to form glucose in other cellular processes.