What is the chemical equation for photosynthesis?

Photosynthesis :6CO2 + 6H2O + light energy 🡪 C6H12O6 + 6O2

Where do things occur in the chloroplast? Draw it out

Calvin cycle=stroma

Light-dependent reactions=thylakoids 

What are the light-dependent reactions? How do they work? What do they do? Draw diagram



Light strikes chlorophyll on photosystem 2. Water is split (where oxygen is produced in photosynthesis). Electrons become excited (increase in potential energy) and then travel down an electron transport chain. It is this electron transport chain that produces ATP. These electrons travel to photosystem 1

Light strikes photosystem 1. Electrons that have just moved down the chain are re-excited. They move down a second electron transport chain and produce NADPH from NADP+. \*\*Reduce NADPH here.

What are the light-independent reactions? What do they do? What is produced?

What are other types of photosynthesis?

Calvin Cycle: OK. I am going to lay this out by the steps. You don't need to know every intermediate.

Fixation phase

1. 3 Ribulose bisphosphate (5 carbons) reacts with 3 CO2 via rubisco to form 3 6-carbon intermediates.
2. These 3 6-carbon intermediates break and reform into 6 3-carbon intermediates (don’t need to know name). We are at 18 carbons now.

Reduction phase:

1. 6 ATP come in and add a phosphate to each of the 6 3-carbon intermediates.
2. Then 6 NADPH are oxidized (they reduce the intermediates).
3. We now have 6 G3P

Regeneration

1. spit out one G3P. (3 carbons)
2. 5 G3Ps left (15 carbons)
3. rearrange into 3 5-carbon intermediates. (have a phosphate on one end)
4. 3 ATP come in and add a phosphate onto the other end
5. we have now regenerated RuBP.