

# Chloroplast tour guide



**ASSIGN  
BUSTER**

Tour guide script! Hello, my name is Seth and this is Mason. We will be your tour guides on this wonderful trip of the chloroplast. Once we pass the cell membrane we will see a couple little green nuggets, these are known as chloroplasts. It's what makes these plants autotrophs or organisms that create their own energy. They have no specific location and are usually spread throughout the cell's cytoplasm. Alright we are going to pass into this chloroplast here. Once we pass through the outer membrane there is going to be a space between the outer and inner membrane.

After we pass through this we will be into the chloroplast. Once inside the chloroplast we will stop by Grana Towers a great hotel complex, which will serve us with free desserts sweetened by the plants sugar itself, isn't glucose great?! (After Meal at the Grana Towers) Let us proceed with the tour. Now if you look left you'll see a huge stack of what looks like discs. This is a granum or a stack of thylakoids. Now look around and notice the natural lighting. All of this light comes from the sun and helps convert carbon dioxide and water into glucose and oxygen.

Plants are made green from a pigment called chlorophyll, which absorbs sunlight. This granum absorbs the sunlight inside the chloroplast. And starts what is called the light reaction. Which from the name you could probably tell uses light to fuel the reaction. That's photosynthesis! As you can see here as we enter the granum. There is a light reaction now occurring. If you look closely to can see these little pigments, as I mentioned before, called chlorophyll. The energy from the sunlight allows water that is also absorbed to split creating oxygen, which is then released into to the atmosphere.

This energy is also carried through a system of electrons creating an energy compound called NADPH. But that's not all; ATP which is the main energy storing compound in any plant cell is also produced during this part of photosynthesis. That was great now wasn't it? Most of the tourist don't get to witness a light reaction! You all are very lucky! Now I hope you all are some night owls because we're going to need to stay up late to witness the Calvin Cycle; the part of photosynthesis that occurs once night comes.

Now, for the time being let us return to Grana Towers and we will continue with our tour in a couple of hours. Oh, I almost forgot, Grana Towers will also be providing you with complementary salads for dinner! Yum! (Calvin Cycle) Ok now I know its late but you are about to witness the Calvin Cycle! The part of photosynthesis that occurs during the night. The place where this cycle occurs is in the stroma which is all the spaces in between all of the granum. Since there is no light to use for energy the Calvin Cycle relies on ATP and NADPH to fuel its process.

The Calvin Cycle process results in sugars. You know like the ones we had for dessert this morning! Anyway, it creates these sugars by using carbon dioxide which it converts into a 3-carbon molecule then goes through a system of other reactions to form PGAL; this compound allows the plant to make the sugars. I hate to say this! But now it's time for us to say our goodbyes I really enjoyed your company and I wish you will comeback to once again enjoy this wonderful organelle! Well, Goodbye!