[SUN] This is the sun**.** The sun emits light.

On a very small scale light is made out of photons.

[PHOTON] Photons are tiny packages of light energy. The energy is inversely proportional to the photon's wavelength.

[PLANTS] Photons are used by plants for energy. We studied photosynthesis in six different plants.

[CELL] Plants are built from plant cells. Each cell has several mitochondria and chloroplasts, a cell wall, a nucleus and a vacuole.

Light is processed in the chloroplasts.

[CHLOROPLAST] Chloroplasts contain chlorophyll a, chlorophyll b and carotenoids. These pigments are responsible for absorbing light of different wavelengths.

[THYLAKOIDS] Depending on the energy of the photon a pigment in the thylakoids gets excited.

[THYLAKOID MEMBRANE] The pigments are embedded in the thylakoid membrane, along with photosystem II (PSII) and photosystem I (PSI). PSII's special chlorophyll absorbs best at 680 nm and PSI's special chlorophyll absorbs best at 700 nm.

We focussed on PSI. PSI receives the electrons from PSII and excites them again. PSI can process redder light than PSII

[PSI] PSI consists of a core complex containing the reaction center, and four light harvesting complexes (Lhca's). Light is harvested in the Lhca's.

[EET(MANIM)] Light is first absorbed by a carotenoid, which excites an electron to a higher energy state. This state is unstable, so it decays. This can happen in multiple ways. Chlorophylls have the option of fluorescence, where the electron drops back down to the ground state. Another option for both carotenoids and chlorophylls is energy transfer to another pigment. The energy transfer between pigments acts as a funnel to the core of PSI.

[ET(MANIM] The reaction center lies in the core of PSI. An electron needs to go from chlorophyll a to the reaction center. This is called energy trapping. The S1-state of the reaction center lies higher than the S1 of chlorophyll a. Due to this, the plant's trapping time should be fast to compete with the option of fluorescence. In the reaction center the energy is used for charge separation. In this way, light energy is converted to chemical energy.