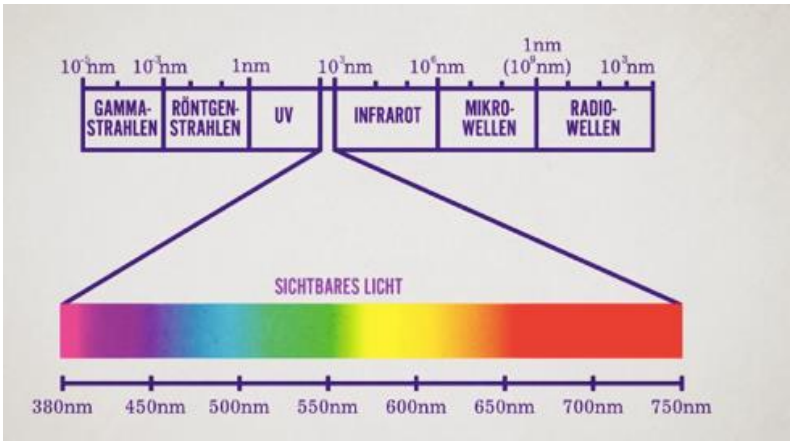
Differentiation/elaboration

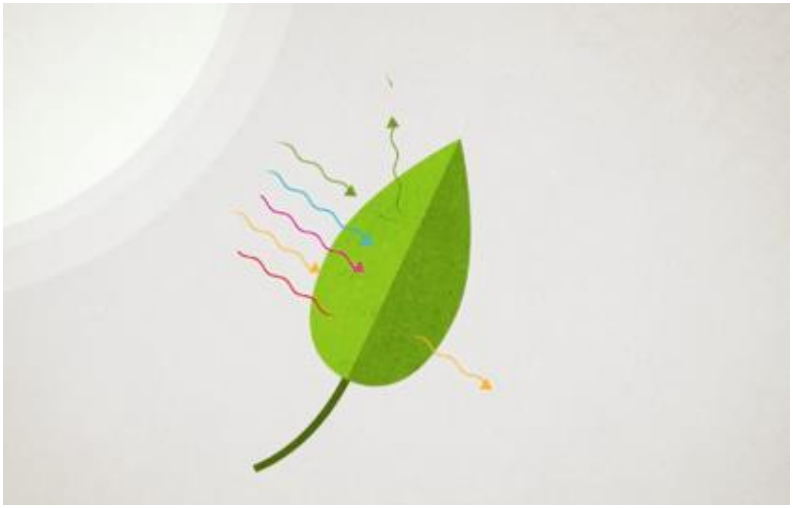
1) **Draw** and **label** a chloroplast using your textbook.

2) **Clarify** why leaves appear to be green. / **Clarify** the light absorption spectrum of chlorophyll.
   Use the following pictures for this:

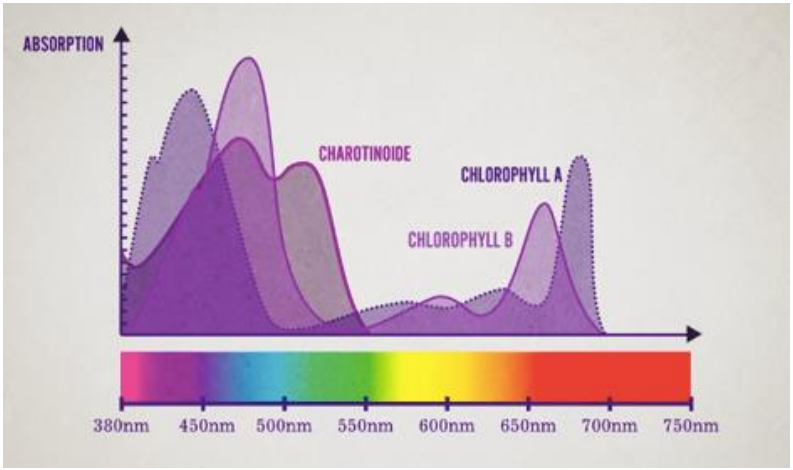
Picture 2



Picture 3



Picture 4



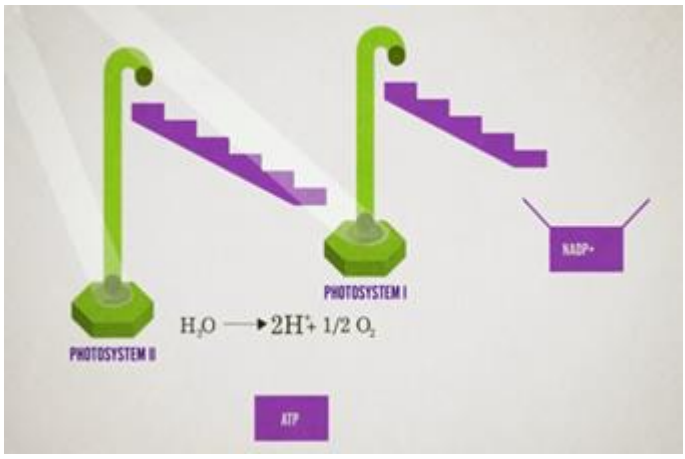
Picture source for pictures 2 to 4: http://www.mediatheque.lindau-nobel.org/videos/35250/2015-mini-lecture-photosythese

3) The total equation of photosynthesis results from a light-dependent and a light-independent separate reaction. The light reaction takes place in the thylakoid membrane. The first step is **photolysis**: $H_2O \rightarrow ½\ O_2 + 2H^+ + 2e^-$.
Describe the process in your own words and **name** the condition under which the photolysis can only take place.

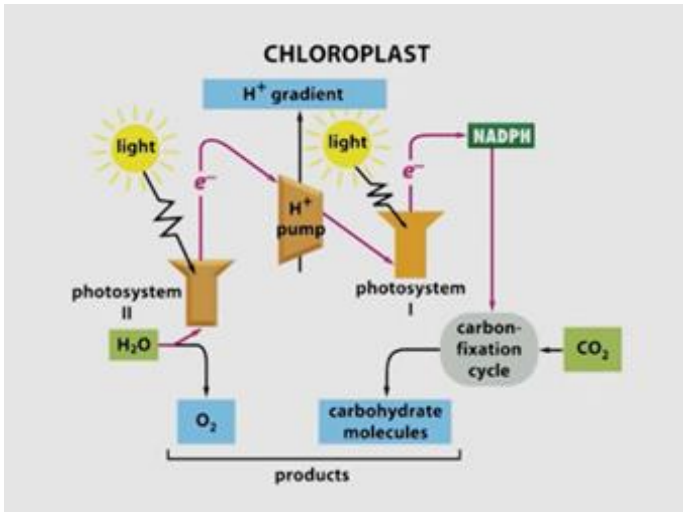
4) Both German biophysicist Dr Johann Deisenhofer and Nobel laureate for chemistry Professor Dr Dr Hartmut Michel address the biochemical processes of photosynthesis more closely.
Watch the following videos and then **explain** the processes of the light reaction. Use pictures 5 and 6 for this.

- Dr Johann Deisenhofer: http://www.mediatheque.lindau-nobel.org/videos/36143/lecture-photosynthetic-light-reactions
- Prof Dr Dr Hartmut Michel: http://www.mediatheque.lindau-nobel.org/videos/31326/photosynthesis-biomass-biofuels-conversion-efficiencies-and-consequences-2012 (min. 5:30 - 13:00)

Picture 5



Picture 6



Picture source for picture 5: http://www.mediatheque.lindau-nobel.org/videos/35250/2015-mini-lecture-photosythese
Picture source for picture 6: http://www.mediatheque.lindau-nobel.org/videos/36143/lecture-photosynthetic-light-reactions

