In this folder you will find a 4-day lesson on chloroplasts. On Day 1, students will draw conclusions from 4 pieces of evidence in order to gain an initial idea of the function of chloroplasts in plant cells. After reading each piece of evidence, students will also have to answer questions either individually, in pairs, or in groups. On Day 2, they will generate an initial model of the function of chloroplasts in pairs and explain their models in groups. On Day 3, students will be able to read and answer questions about two new pieces of evidence; they will evaluate them to help refine the initial model. On the final day, students will work in pairs to produce a final model for the function of chloroplasts. They will individually give full descriptions of their model.

**Materials for the teacher**

Teacher guide. Filename: *PRACCIS Chloroplast Teacher Packet*. The first item to look at is the teacher’s guide. This gives you a complete understanding of the lesson and how to implement it.

**Materials for the students**

Student packet. Filename: *PRACCIS Chloroplast Student Packet*. The student packet includes some information needed for the lesson as well as questions for students to answer individually and in pairs or groups.

Additional Handouts. There are 3 additional handout associated with this lesson.

Filename: *PRACCIS Chloroplast Evidence Summary Sheet*. This is a one-page summary of all the evidence for the students to have in front of them at selected points in the lesson.

Filename: *PRACCIS Evidence 1 Elodea under a microscope steps*. This is a one-page document with the basic procedures of how to conduct an experiment with elodea, in which students view Elodea cells through a microscope and observe the chloroplasts inside the plant cells. There are 2 links with detailed instructions.

Filename: *PRACCIS Evidence 2 & 5 handouts.* This is a two-page document that includes Evidence 2 and Evidence 5.

Student powerpoint slideshow. There are 3 different powerpoint documents associated with this lesson.

Filename: *PRACCIS Chloroplast Evidence 3 Simulation.* This contains the third piece of evidence for students to look at. It is an interactive powerpoint simulation in which students can click on various organisms and find out the amount of chloroplasts within cells of that organism.

Filename: *PRACCIS Chloroplast Evidence 4 Simulation.* This document is the fourth piece of evidence. It is a powerpoint that simulates a study that scientists conducted to study starch in plants.

Filename: *PRACCIS Chloroplast Evidence 6 Simulation.* This is an interactive powerpoint for students to understand the methods and results of an experiment about whether chloroplasts use or produce carbon dioxide and oxygen.

\*We recommend reading the teacher’s guide first and then familiarizing yourself with the rest of the materials.