5.1 Design your own experiment

You, as a young scientist, are being asked to try to show whether sunlight is necessary for photosynthesis. One way to test this is to begin with a plant, water, and carbon dioxide, and look for either the uptake of building blocks (CO_2 or H_2O) or the release of products of photosynthesis (O_2 or Sugar). You, like scientists, must monitor a change in at least one of the inputs or outputs to monitor the occurrence of photosynthesis.

Design an experiment to investigate the role of light in plant photosynthesis. Hint: Use the introduction to the activity and your results from the lesson you just completed during the live class session to help you.

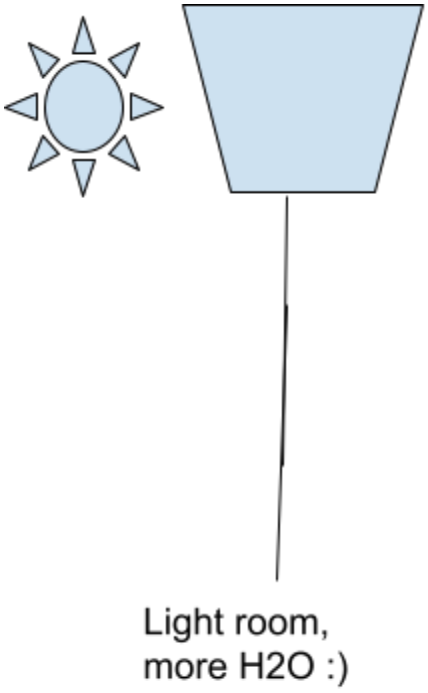
When designing your experiment, think about the following questions:

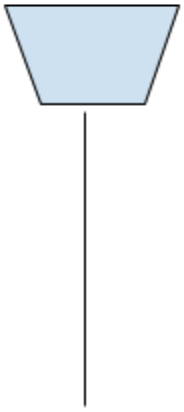
- *What is the purpose of your experiment?*
- *What variable are you testing?*
- *What variables will you keep the same?*
- *What is your hypothesis?*
- *How many trials will you conduct?*
- *Will you collect qualitative* (descriptive) *and/or quantitative* (numerical) *data? How will these data help you make a conclusion?*
- *How will you record these data?*

Here are are two videos that you can watch if you need support

- Photosynthesis and Elodea
- Elodea Photosynthesis Lab

1. What is your hypothesis?





2. What are the variables you are testing and what variables will you keep the same?

3. What kind of data will you collect? How often will you collect it?

4. What do you predict your results would be?

I predict that the plant in water will turn soggy and the plant without water will stay the same.

Follow-up

1. Why do plants photosynthesize?

2. Why do plants produce food? What do they need food for?

3. Are plants considered an autotroph or a heterotroph? Highlight the correct answer

4. Explain your proposed experimental results in terms of this word equation.

5. What effect does sunlight have on photosynthesis in a producer?