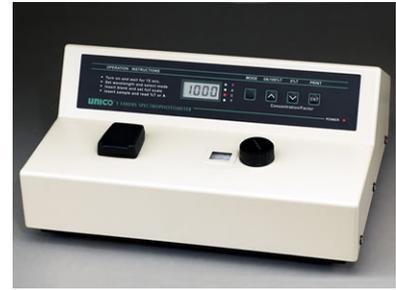


Day #2- Introduction to Spectrophotometry

What is *spectrophotometry*? **Spectrophotometry** is a measurement of the reflection or transmission of light when it is shined onto any kind of material. A **spectrophotometer** is the instrument that can measure this reflectance or transmission of light at certain wavelengths. The light that we see (*called “visible light”*) is comprised of many different colors of light, that all have different wavelengths. The reason objects in the environment are colored is dependent upon how much they absorb and reflect the different colors of light.



Oceanographers use the properties of light to **measure phytoplankton in the ocean**, because they are too small to see easily with the naked eye. Phytoplankton are tiny “plants” in the ocean that photosynthesize just like land plants. In order to do photosynthesis, land plants and phytoplankton need a special molecule, or pigment called **chlorophyll a**. Pigments give plants their color, and plants and phytoplankton that contain chlorophyll appear green because **chlorophyll reflects the wavelengths of green light**. Since all phytoplankton contain chlorophyll, *oceanographers can measure the amount of chlorophyll present in seawater to get an idea of the amount of phytoplankton that are in seawater.*

Now you try!

Materials:

- * One plastic cuvette
- * Pure filtered seawater
- * Flask with your growing phytoplankton sample
- * Beaker for waste (any size)

Procedures:

1. Make sure the wavelength on the spectrophotometer **reads 540** and it is on the **green filter**.
2. Pipette 1 mL of the pure filtered seawater (*seawater with no phytoplankton in it*) into the cuvette.

Time (Day)	% Transmittance
1	
2	
3	
4	
5	
6	
7	

3. Place the cuvette into the spectrophotometer and **turn the dial on the right until it reads “100” on the screen for 100% absorbance.** Now the samples you read will be relative to this 100% transmission value.
4. Take the cuvette out and set it aside.
5. Pipette 1 mL of the phytoplankton culture into another cuvette, and read it in the spectrophotometer. **Record the % transmittance** in the table below for the appropriate day. *Repeat steps 1-4 each day of the experiment.*