**Measuring Kelp and Analyzing on Tuva Labs**

Using data we collected from measuring the area of kelp blades, students can use Tuva Labs to analyze the data, comparing kelp growth throughout the season and/or from site to site. We used the blade area to measure the difference between two planting strategies on the aquaculture site. Students used that data to see if there were measurable differences between the two sections of kelp line, one with a single strand of kelp seedline and the other with two strands of kelp seedline. See separate activity about building box plots on Tuva Lab.

Measuring Kelp

*For the students, I had created tables on Google Sheets which the students accessed through Google Classroom. It calculated the area which reduced the errors in the data (it didn’t prevent them, however)*.

*Note to teachers: During a previous data collection activity, we realized that the kelp blade was easily represented by two triangles which shared a base length that was the average width of the blade. Students noticed that the two triangles could be added together after each area was determined. However, a student then noticed that we could just as well find (the length) X (the width) of the entire blade with the same result which simplified things*

**Student directions:**

* Carefully measure your kelp and record your findings on the data tables. It is of absolute importance that you measure and enter the data accurately, using metric units (centimeters). If you don’t, then we can’t make a claim for our research validity.
* Use the calipers to measure the stipe diameter. Record this measurement in the table.
* Measure the blade width at the mid-point of the blade, and the blade length (from tip to the point at which the stipe connects to the blade). Record these measurements in the table.
* Multiply the blade width by the blade length, and enter this blade area value into the table.

**Get measuring, scientists!**

| Kelp Sample | Stipe Diameter (cm) | Blade Width (cm) | Blade Length (cm) | Blade Area (cm^2) |
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