

DreamIT update - March/April

In IB Biology, the final forays into experimental design and data analysis were undertaken. At the time, we were covering material related to Human Physiology. Using the Vernier data loggers as a guide for what kind of measurements could be taken along with the content that was being covered in class, students were asked to design two experiments.

After students had the opportunity to write their own experimental designs, students undertook experiments of a prescribed plan. This was done due to limited access to data logging equipment and time constraints.

In the first experiment, students breathed into a spirometer to measure lung volume. Then, students ran down and up the two flights of stairs. Lung volume was measured again at the conclusion of the exercise. Students used the compiled class data from four trials to determine the statistical relationships.

In the second experiment, students measured their grip strengths using a dynamometer. They were instructed to go through a wrist exercise activity involving a ruler. As before, studentd compiled and analyzes the data for statistical relationships.

In both cases, students were fulfilling responsibilities for the IB program, to write Designs, DCPs (Data Collection and Processing), and Conclusion and Evaluation (CE) sections.

In Chemistry, students have been exploring chemical phenomena and making conclusions based on their observations. This semester, they explored the properties of given elements and categorized observations of malleability, conductivity, reactivity, and luster. This allowed them to understand properties of metals, nonmetals, and metalloids.

Students learned to understand characteristics of a chemical reaction by reacting and then observing results from a series of reactions and then noting key commonalities. Students explored chemical reaction types by rotating through a series of stations that had students predict the products through critical observations of the results of a reaction. Then, they completed handouts that had them combine their observations with practice of skills related to balancing and formula writing.

Currently, we are exploring how to build an activity series of metals by using an analogy of three versions of me (on paper) with my wife as the counter-ion (I have attached the activity below this document on my website). Essentially, this activity allows them to realize that through proper experimental design, students can determine the reactivity of a series of metals. Students will design their own experiment with this analogy with metal and their metal nitrates.

