



the stars  
challenge

Science, Creativity, and  
Experimental Design  
Fall 2019



Science and creativity are linked when it comes to designing experiments. It is no surprise to me that many of my most successful students (who are now adults) were also remarkably creative in the classroom, field and laboratory.

My hope is that when you reflect back upon this experience, you not only recall the friends and fun times, but also the design and purposes of the lessons that Ms. Babbin, Dr. Ellsworth, Kelly and I shared with you:

- the need to first truly understand a problem or a question,
- to define exactly what should be measured in attempting to answer that question,
- to propose answers and to hypothesize in an educated manner,
- to design a test that isolates a variable you suspect is directly related to your study,
- to collect data in a meaningful way,
- to analyze information & look for patterns within the data sets you gather,
- to deduce valid conclusions and share your findings with others

Truly a lot to have mastered in less than ten weeks, but skills that will serve you well in addressing whatever questions or challenges you encounter in the years to come. I look forward to telling future students about your success. :-)

Thanks for being so much fun.

~ Mr. Roche ~



Our first evening - introductions and physical challenges that led to quantitative measurements.



Almost everyone!



Sundown came quicker on the second evening we met! Remember how we decided to compare the frisbees performance to identify which was "best"?



Our first plunge into using data logging software. Who would have guessed that a laser pointer could help us measure the speed of a bat swing?



Planting Wisconsin Fast Plants, testing out pressure sensors, and working with blood pressure/heart rate sensors. The data can be analyzed with Excel and Vernier software on the laptops.



More challenges from Dr. Ellsworth!





Arduino! Do you remember how to make a fan with a motor? (and then code it to operate as planned?)



Liver enzymes sure do a lot of work. Although the liver smoothies may have smelled a bit bad, our results with the acids and varying temperatures were amazing!



Red cabbage juice is a natural indicator. Look at those color changes when acids and bases are added!





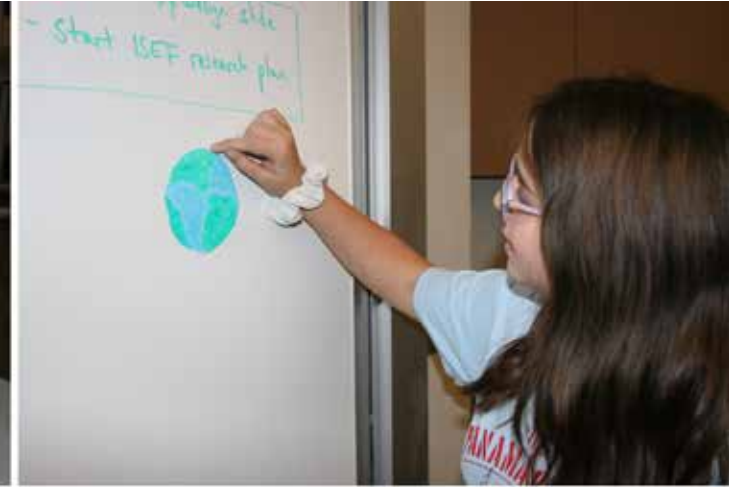
The bouncing slime recipe worked at home! What happened in the lab???



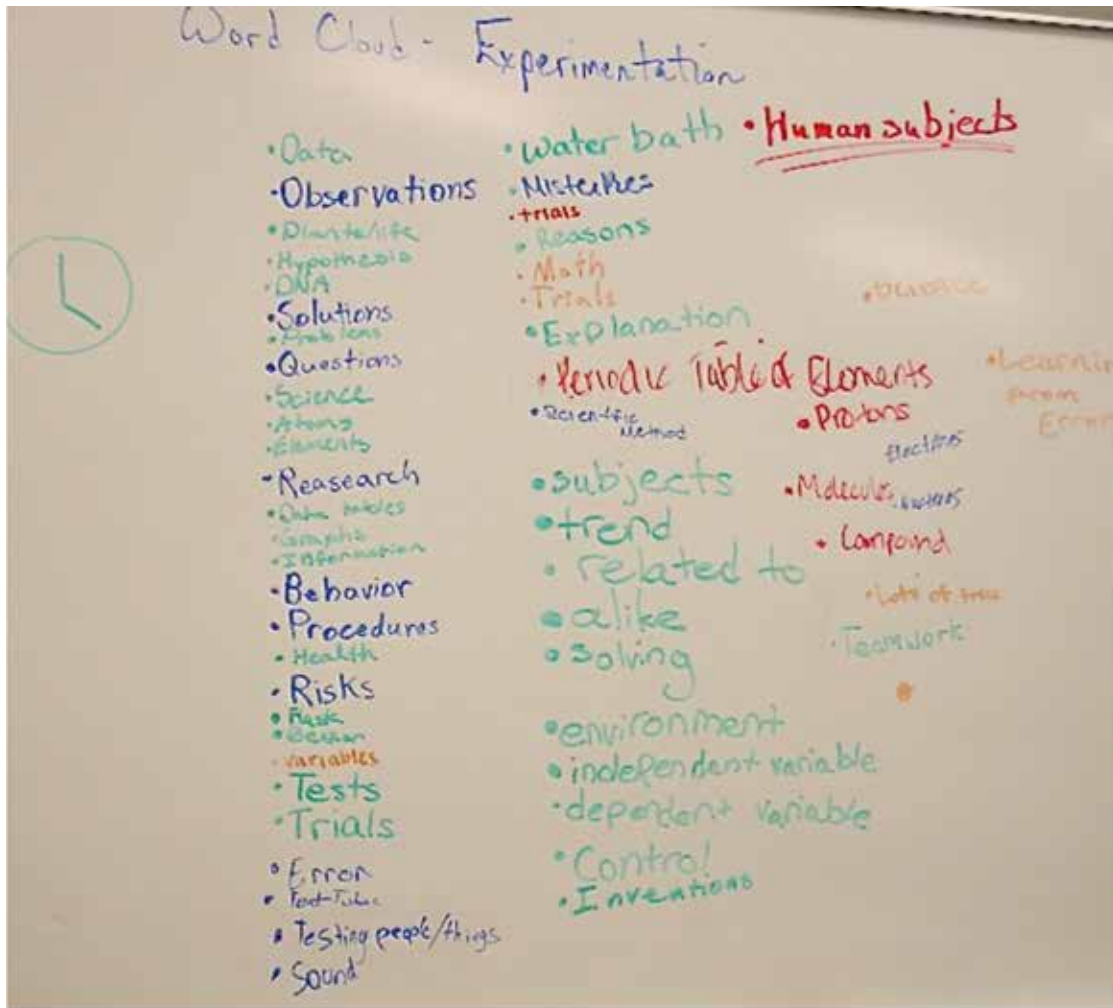
Fine motor skills?



Building "Meccano" models can be fun (and frustrating) for data collection. Perhaps Hannah's hypothesis re: performance while sitting or standing is better tested with traditional jigsaw puzzle challenges?







Creativity and Word Cloud challenges while waiting for Quin to Google Hangout with us from NYC

