

My Story



Barbara Nelson

The New Science Standards

In 2018, new science standards were adopted.

These standards are based more on the ability of students to think about science rather than memorizing scientific facts



New Science ISAT Questions

New science ISAT questions are aligned with the standards and also require students to design experiments or interpret the results of experiments.



IDAHO
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Science Assessments

This page will provide you with resources and system links for the interim and summative science ISATs.

Students are Expecting Instant Gratification

We live in an on-demand society

Advertisements and video games are aimed at instant gratification

Our society is prosperous and can provide what we want. How can we combine this with what we need?



Classes on Project Based Learning

Classes were offered to help teachers learn to teach to the new standards. In this class, it was not called project based learning, but I fell in love with the idea of teaching with projects. Projects based learning allows differentiation, collaborative learning, and relevance.



Switching Schools

It is hard to experiment in a traditional high school.

Spent a year at a charter, where I received a lot of PD on project based learning

Moved to Hillcrest High School



Teaching Astronomy



I had never taught astronomy before

Only a few standards

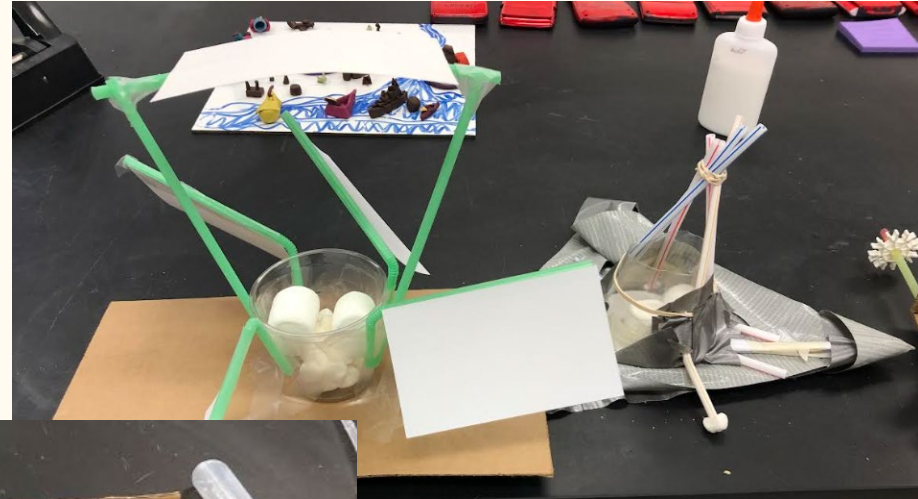
I was expected to keep students in pods

I created the first unit using engineering design standards

Students Loved the Design Projects

Students were going home and asking their parents to help them

When they came to class, they hurried to do their bellwork so they could work on their projects



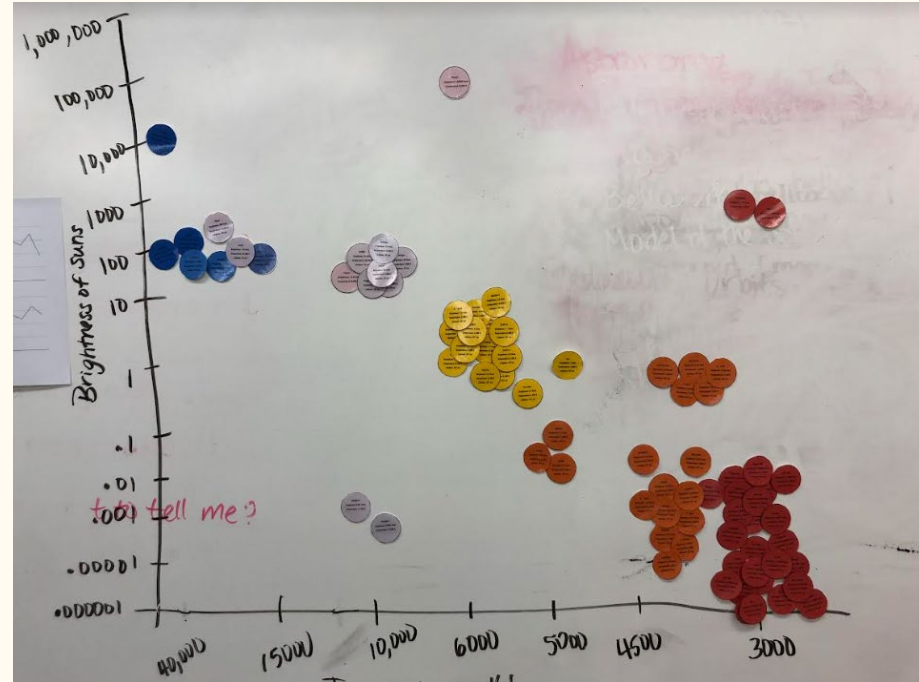
Projects Helped With Differentiation

The project on the right was created by a student on an IEP who was in my class to develop social skills. He was able to work with the other students and explain to me where the constellations were on his project.

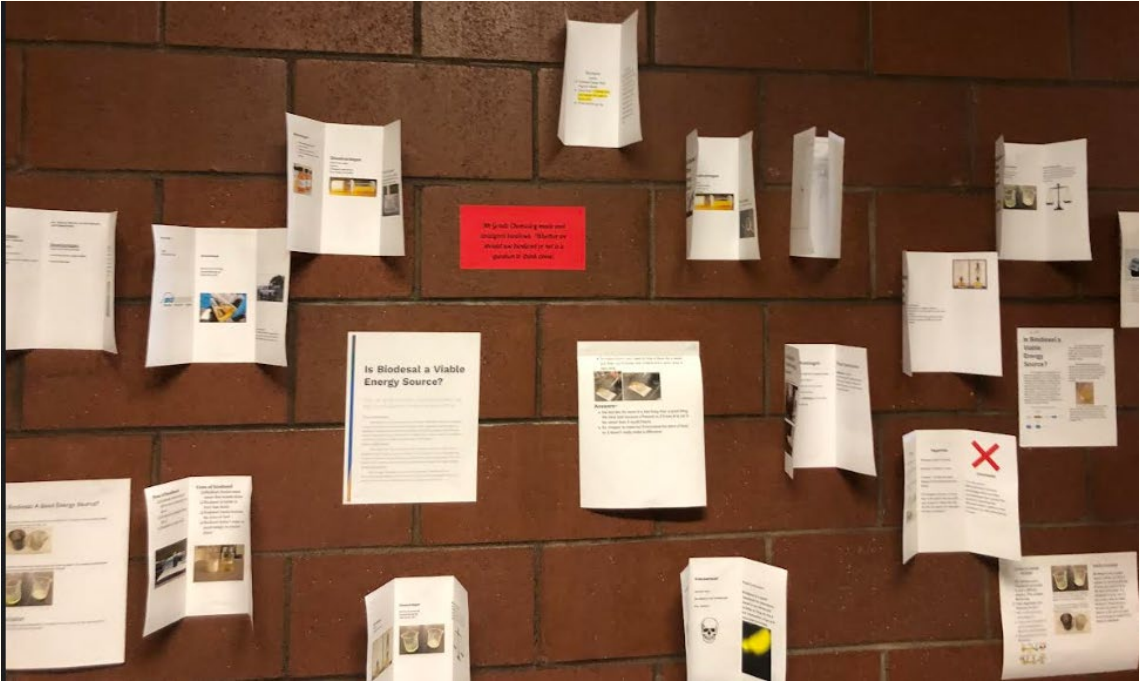


More Differentiation

We created two of these HR diagrams. Each class member was responsible for graphing 8 - 10 stars on the graph. I was able to help students who struggled with graphing and students could readily tell if they were close.



Making Biodiesel



General Chemistry

Here are some projects learning about the periodic table.



Radioactivity

In this project, students took a stand on whether radioactivity is good or bad and defended their position in an advertisement.



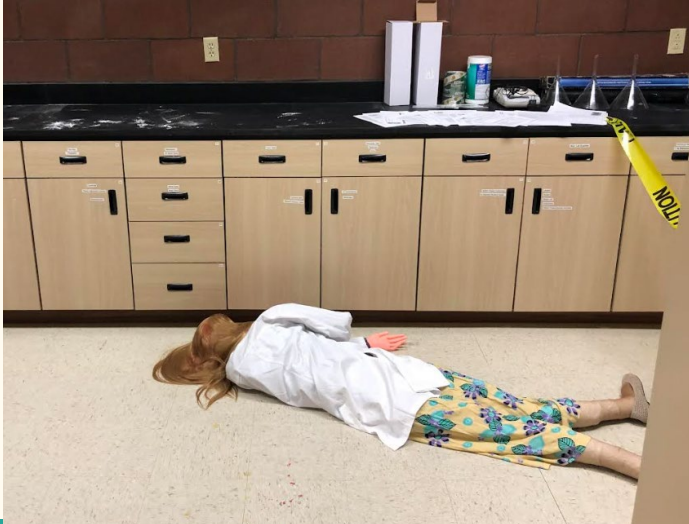
Winning Money

This is a student on an IEP.



DC Chemistry

Students complete here forensic analysis of drug samples to determine who has killed Avery.



Currently, she is analyzing samples confiscated from suspected drug users.



1. Dion Sides

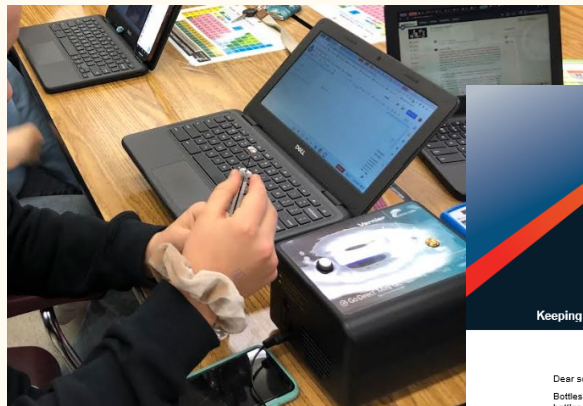
Where were you last night? "Man, I don't know. I hung around at Ford's for a while. I went home with this chick I met and I stayed at her house until this morning some time"

When police searched his apartment, they found a gray sweatshirt with some kind of stains on it. Dion said he didn't know how the stains were made. "Maybe they's ketchup or something." There was an iron crowbar found in the trunk of his car. That sample - I dunno how it got there? Maybe the chick. . .



DC Chemistry

Students analyze samples of moonshine and from a garden still to determine whether the garden still produced the illegal product.



Keeping you safe!

Dear scientist,

Bottles of counterfeit vodka have recently been seized from a shop in Idaho Falls, Idaho. The seized bottles were labelled as Smirnoff vodka and Glen's vodka but tests have shown that they do not contain vodka as defined by the Spirit Drinks Regulations 2008. The bottles contain contaminants that indicate that they have been produced in a local distillation apparatus. Production and distribution of such products is a serious offence.

We recently had a tip off as to the origin of the counterfeit vodka. Investigations revealed an illegal distillery in a small shed located in the back garden of a private house in the downtown area. The house owner claims to be producing only small quantities of vodka via the fermentation of potato starch for personal consumption.

We have supplied you with a sample of vodka from the back garden shed distillery (labelled Sample A) and a sample of the seized counterfeit vodka (labelled sample B). In both cases the water has been removed by freeze drying leaving only the residual alcohol and other contaminants. We would like you to extract the alcohol from both samples and carry out tests to confirm the identity of the type of alcohol present in each. Vodka produced via commercial fermentation will contain only ethanol, whereas we believe the counterfeit vodka will contain contaminants matching the garden shed distillery.

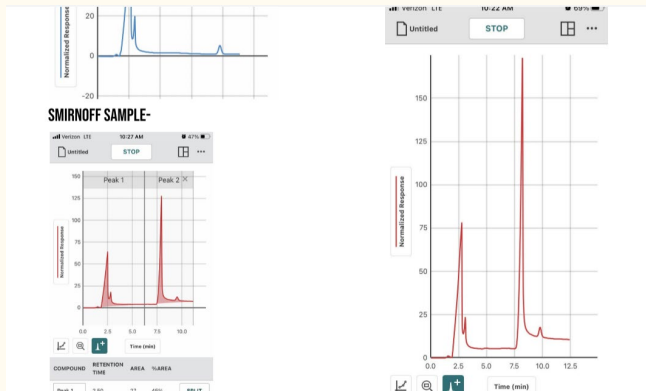
The results of your findings will be presented in court as evidence in the prosecution of the owner of the shed distillery. Please therefore provide evidence for the court supporting your conclusions.

Many thanks,

Barbara Nelson

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CONTACT A REPRESENTATIVE TODAY:
2800 Owen Street, Ammon, ID 83406 USA (208) 525-4429
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Top Students



International Science Fair



Chemistry Olympiad

Effect of Project Based Learning

DC Chemistry has increased from 15 to 96 students in three years.

General Chemistry has increased from 60 to 90 students in three years.

We are seeing similar effects throughout our science department:

- Botany has gone from two to four sections

- AP Physics has seen student number increase at the same time as the average score increases.

Where am I Going Now?

Each summer and whenever I have a spare minute, I pick the projects that I feel are the weakest and strive to improve them.

A good PBL project has an authentic audience and requires all of the teaching from the unit be applied in the final project. I am not there yet, but someday . . .

A Caveat When Teaching an Academic Class

There are some concepts that can not be covered sufficiently with projects. I deal with this using daily bellwork that is similar to a Saxon review. The first few minutes of each class is spent covering concepts that need to be reviewed in individual bellwork. This is where I differentiate content knowledge.