

## Reflections & Questions - Howell

### **Reflections**

The breakdown / mini lesson was helpful because I got to see it and do it. It helped me understand NGSS even more.

The CREPE (component, relationship, explanation, prediction, energy) framework of the model helps students solve and approach any new situation / phenomenon.

I need to be more deliberate about grouping students with tasks and directly teaching skills.

I need more mini lessons with good phenomena.

This really rejuvenated me! The idea of mini lessons on the crosscutting concepts is fantastic and much needed in class.

Liked the discussion of teaching the cross cutting skills and the importance of teaching / modeling expectations for blue inquiry processes.

I feel like I had a good understanding of the importance of taking time to spend on the initial “cards” because it will pay off so kids have a deeper understanding.

I liked the idea of the mini lesson using a non-scientific example. It makes it more concrete.

This is one of the first “new” methods I’ve seen where the method doesn’t compromise the content knowledge.

### **Questions**

How do you incorporate grades for our letter grade school?

We talked about this today. I find the single point [rubrics](#) and [feature analysis charts](#) to be useful.

How do you incorporate and base knowledge into the assessments?

Summative performance assessments should include all three dimensions of the standard. However formative assessments can be two or even one-dimensional. Just make sure that they are applying this knowledge to make sense of new phenomena.

Where do I find the time to get this rolling in the correct way? Planning for it the first time will be new.

I would start by adding some simple phenomena to your class. Use some of the techniques we used during the workshop (like the t-chart, silent looping video, whiteboard models). When storylining each day should include a phenomena, a SEP and a CCC. Use the [Learning Performance Generator](#) to develop learning targets for each day.

Where can we get those red and green shapes?

I made them in my garage. Sorry about that. Using a raw and hard-boiled egg works just as well. You can use the [mini-lessons](#) to identify other manipulatives.

How to implement daily “smaller” phenomenon examples to support the larger phenomenon?

The summary table can be a great way to track smaller phenomena. Don’t overthink this. They are short and are labs, case studies, demonstrations that have been used in the past. Just don’t tell them the answers.

How long do you spend on each main phenomenon? How many objectives does a phenomenon generally cover?

A typical storyline is 6-8 weeks and covers 3-4 performance expectations (e.g. HS-PS1-1). It should have one anchoring phenomena or problem and maybe 4-6 supporting phenomena. Using storyline resources while starting is fine:

- [Illinois Storyline Working Group](#) - Working group of educators writing curriculum and giving PD
- [Inquiry Hub Biology](#) - A 3-Dimensional high school biology curriculum
- [Inquiry Hub Chemistry](#) - A 3-Dimensional high school chemistry curriculum
- [New Visions](#) - NYSSLS-Aligned, Full-Course Materials for High School Science - New York version of NGSS
- [Next Generation Science Storylines](#) - strongly aligned NGSS materials in classrooms
- [OpenSciEd](#) - High-quality, open-source, full-course science instructional material

I spent nine weeks covering volcanoes, but from the core to the crust. Is that too long?

I'm not sure what standards you are covering so it is hard to tell. Kids love volcanoes! 😊 If you are covering 3-4 PE's that would seem appropriate.

How could I take this and apply it to Anatomy, since naming / memorization is a big component of that class? That's tough. Most schools repeat the following performance expectations for each of the different body systems. However I would try to make connections between systems as you cover each. You can use case studies to make it more relevant to students.

- [HS-LS1-1: Genes, Proteins, and Tissues](#)
- [HS-LS1-2: Interacting Body Systems](#)
- [HS-LS1-3: Feedback Mechanisms and Homeostasis](#)

How would you incorporate your inquiry cycle with a station lab set-up?

Investigations should be used to test all the student models. You could have them develop conceptual models and then each station can be used to test individual ideas. For example with the magnet falling through the copper pipe we could have four stations to test different ideas (e.g. current in pipe, different diameter of pipe, different material of pipe, different number of magnets, etc.)