**Rounds 4.12.16 – Blueprints for Bridge Design**

**8th General Science with Edward Chen, UPCS**

**Background:** Last week, the class finished their carbon cycle. The end of this unit described how humans have a significant role in affecting that cycle. In another example of how people can alter their environment, we are taking on a bridge building project to get a better appreciation of the skill and thought involved in creating these great structures. I plan to help students see how blueprints play a significant role in determining success in engineering. The blueprints themselves will determine whether or not they can start building their bridge. It has to show multiple views of the bridge, provide a materials list and include a procedure. The bridge will have to be built with 100 popsicle sticks and span one foot. Another part of the challenge will be if it can carry a 5lb load. Once they have a plan that has been approved, they can begin building. If it turns out that they need more materials, they will be allowed more, so long as a revised blueprint is given.

**Learning goals**: Students will learn how to utilize a blueprint to design their project. They will be working in groups to come up with a bridge design that meets specifications. Part of the learning process will involve redesigning the bridge if it turns out that their first draft doesn’t work.

**Massachusetts Framework Middle School 6-8:**

**Rounds Focus:** The main goal is to provide the students time to design their bridges and offer some help in creating effective plans. I am looking for teamwork in groups that show constructive dialogues and detailed drawings that are accurate and look symmetrical. I will provide some examples of blueprints that I would approve to start.

**Rounds Questions:**

Is there evidence in the blueprints that students are using measurements? Do they show multiple views and have labels?

Do the drawings themselves show similar designs to arch, beam, and suspension bridges that they have seen or have prior knowledge of?

Do students talk about the plan or procedure to build the actual bridge, specifically do they talk about the materials required, and what type of bridge inspired their design?

Do students show awareness of the constraints on materials and consideration of the challenge goals (1 foot distance, 100 stick limit, blueprint requirement)?