I would like to have a construction math class in our district so that students could relate and apply actual math skills to everyday life and possibly gain interest in a future career. In doing this, I would also be able to tie most of the geometry standards to this class at a basic level.

In this class, I would be able to bring in engineering concepts to building/construction along with the math standards. I would also be able to utilize science standards with some of the material as well. For example, in one of my units we would talk about the roofing system for a house. I would mandate that our students do a full material take off and cost estimate for installing a roof system in northern Kentucky versus a roof in south Florida. I would have the same roof lines and require that both have to be a shingle roof. Students would have to research the weather patterns in both areas for the past 15 years and determine what material would be needed to have the best and most efficient roof for that area. To connect to science, students would use a NASA site to look up the weather patterns and records for both areas. From the engineering stand point, students would look at the slight differences in shingle types such as the nail strip on some shingles with a thicker tar strip to ensure a better seal for high winds. Students would look at the valleys of the roof and the eves in order to determine how to utilize ice and water shield underlayment to ensure that ice does not cause damage to the decking of the roof. With science and engineering being in the planning component of the lesson, we would then tie into a geometry standards with the concept of scale. Students would have to look at a 3d model and blue prints to determine the amount of material that is needed so that they could build an accurate cost estimate. They would also look at the area and perimeter of the roof.

Along with this lesson, I would also incorporate a hands-on portion of the construction class as well as offer a professional development session for fellow teachers. In each of these instances I would have a model set up and we would put on a roof. I would have a sheet of plywood built on a stand so that we could put the underlayment on the plywood and then apply the shingles correctly just as you would when installing a roofing system. In this lab, we would discuss the first unit of geometry including points, lines, and planes. We would discuss how each of these intersect and what is formed at their intersections. We would also be able to see hands on how line segment addition would be applied, which is something that when not hands on students really seem to struggle understanding.