As a 7th grade Science teacher I am somewhat familiar with the Next Generation Science Standards (NGSS) and the corresponding engineering standards. I say "somewhat" familiar, because I still have much to learn even after working with these standards for two years. The analysis of standards of which I am not familiar seemed like a difficult task when I first read through this assignment. Now that I have taken some time to look at the Common Core Standards for Math I appreciate the need to be aware of these standards and how they relate to what I teach. It has also been interesting to see how the technology standards used in our school district (ISTE) are also aligned to the science and engineering practices.

The Missouri Learning Standards for engineering, which come directly from the NGSS, want students in the middle school grade band to be able to: define criteria and constraints of a design problem, evaluate design solutions to determine which design meets the criteria and constraints of a problem, analyze data from design solutions to identify the best characteristics, combine them and develop a new solution better than the first one, and develop a model to test and collect data for iterative testing and modification of an object, tool, or process to reach the best design possible. (MLS, dese.mo.gov) The science standards that I use for 7th grade are chock-full of modeling, analyzing, and using data to make sense of the natural world. Examples include using physics principles to design a solution that minimizes the force of an object when it collides with another object, and then evaluate the solution. In 7th grade we also develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. We will analyze and interpret data to determine scale properties of objects in the solar system. These are just a few of the many science standards that relate to the engineering design and problem solving.

The math standards (CCSS) that I was able to find that relate to problem solving and

engineering design include; students solve problems about scale drawings by relating corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. I can build upon the concept of scale drawings when teaching the scale properties of objects in space. Seventh grade math students will also begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences. (CCSS, commoncorestandards.org) The development of the understanding of data sets and drawing inferences from data in the math classroom will be helpful in the science classroom as students use authentic and student-derived data to interpret charts and graphs representing science phenomena.

The technology standards that are used in our district are the ISTE standards. The two that relate to problem solving and engineering design are; Innovative Designer and Computational Thinker. The Innovative Designer technology standard says that students will use a variety of technologies within a design process to identify and solve problems by creating new, useful and imaginative solutions. The Computation Thinker tech standard says that students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions. (ISTE Standards for Students, iste.org) Both fit perfectly with the science, engineering and math standards, as students solve problems, develop, and test solutions.

As I said before, this task seemed daunting at first, but now I appreciate the time I've taken to see the connections that I have discovered between the STEM standards. While there is much

more to discover, this has given me an appreciation of the inter-connectedness of the standards. As a science teacher, I have seen engineering design, even at its most basic level, give my students an eagerness to learn and discover of which I have not seen.