

Standards Analysis  
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For this assignment I chose to look at the NGSS, Standards for Technical Literacy, and the PLTW Biomedical Science core ideas. In my state we use NGSS in our science classes and I teach Biomedical Science as well.

I will begin with a discussion of the PLTW standards that I teach in all three of my courses. What is so unique about these courses is that they are based on problems. Students are never truly “lectured” but they learn by discovery and research. The entire first course for students is based on a patient who has died and all throughout the year they discover more about her medical history as they try to determine her cause of death. Each unit is presented as a problem or a “development” in the patient’s medical file. Throughout the course students are asked to engineer medical advancements such as a new diabetes device that’s geared towards helping a diabetic lead a more normal life. Students absolutely love this type of learning, They are true problem solvers and engineers. They have told me that they feel like medical detectives as they progress through the course. Students truly learn and absorb so much knowledge all because they are the ones doing the problem solving.

The NGSS are Kentucky’s choice of science standards. However, unlike PLTW’s method of intertwining the engineering practices into the curriculum, they seem to be add ons. I am struggling with this too. The NGSS are almost attached to the standards as an afterthought, and I’ll be honest, were not even touched upon in my Biology classes. My middle school teacher loves them and they seem to be all that he

wants to teach. I do believe that they need to be intertwined with the content standards in the way that PLTW has done. I don't feel I have had enough training as how to do this yet. I don't think NGSS intended for them to be taught exclusively by themselves!

The Standards for Technological Literacy are new to me, but as I read through them, I truly like the thought process! From my understanding, they are preparing students for an increasingly technological world. While our ancestors thought of tractors and farm implements as technology (as they are!), times are changing dramatically. An introductory paragraph really struck a resonance with me. It says that "technological studies can play a role in students' learning of other subjects. It reinforces and compliments the material that students learn in other classes." Instead of engineering and technology practices being taught as something else crammed into the already tight curriculum that teachers must teach, it compliments their subject matter. As an experienced educator I believe this needs to be communicated to all educators. When the standards are pushed down to the teachers, we are already overwhelmed and then we think "well, there are more things I have to teach!" However, if we had training on how to integrate these technology and engineering standards, it could be a wonderful intertwining!

Until I began teaching PLTW BioMedical science three years ago, I never understood how the integration of engineering and problem solving practices into a curriculum worked. I now understand that when these ideas and problem solving skills are enmeshed into the curriculum, it truly allows the student to "learn by doing!" I absolutely love seeing the skills and content that my students master because of the

PLTW curriculum design. Teaching is exciting again! I cannot wait to get into my classroom every day to see my students interact with very technologically advanced medical and scientific equipment as they solve problems and engineer bionic arms, diabetic devices, etc. If all educators could just experience this in their classrooms, they would understand how the engineering design problem solving process works seamlessly. Students become independent thinkers, critical thinkers, and learn to cooperate with others.

## Bibliography

Next Generation Science Standards <http://www.nextgenscience.org/overview-dci>

ITEEA Standards for Technological Literacy

<https://www.iteea.org/File.aspx?id=67767&v=691d2353>

PLTW BioMedical Science

<https://www.pltw.org/principles-of-biomedical-science-standards-alignment>