STEM PD Final Summary

I need to preface this summary by saying I let the ball drop on this course this year. Over the summer my boss promoted me into the position of STEM coordinator. I am the middle school science teacher, STEM coordinator and science specialist for the school. I now work as an administrator and full time teacher so I am trying to balance three full time jobs and this class. I understand if I will have to redo this course but I was able to teach a PD and I feel very confident as a STEM leader.

I work at the School of St. Elizabeth in Bernardsville, NJ. We were just named one of two catholic schools as Future Ready. It was a huge undertaking and honor to receive. We are a pre-k 3 to 8 school servicing a middle class to wealthy community. We have about 230 students in the school who all experience STEM throughout the day. In our diocese (district) we are the only catholic school teaching stem weekly and have a makerspace. The concept of STEM is very new and not well understood by the diocese so we are on our own when it comes to STEM. When I started working at this school at the beginning of last year, we didn't have a STEM program and the ngss standards were not integrated. Now we are fully ngss and moving to PBL and performance based learning and assessment. We now partner with the community for authentic learning projects and our students apply their knowledge across the curriculum.

Due to our strides in science, math and STEM, our principal found it necessary to hire a new staff that will support this progress and come with knowledge of the best practices. We are trying to fight the stereotype of catholic schools being less and out of date compared to public school due to the fact we work in an affluent area were many catholic schools are closing and losing students to public schools. This year we have seven new full time staff out of the 13 full time teachers we have in the school. It is a huge change and adjustment. That was why it was extremely important for me to give a pd on STEM to ensure we were all on the same page for the common goal. I started off the year by giving a PD on NGSS. It explored the intricacies of the standards and how they will make a lasting impact on the students. The teachers learned how to read the standards and how to create lessons for the performance expectations. In this pd I also stressed the need to incorporate technology into your lessons.

For this professional development I set out to establish a STEM culture in our school. I want to make every student a maker! I teach a STREAM (Science, Technology, Religion, Engineering, Art, and Math) special class once a week to grades kindergarten through 5th grade and my middle school science class is STEM integrated, but I wanted to make sure it didn't just stay in my classroom. I want students to problem solve and evaluate their world in every classroom and hour while they are in our school. I wanted to instill the passion into my teachers so that they could spread it to all the students. I acknowledge that our students come from wealth and privilege and will have the access and opportunity to make great change for our society they just need to believe in their ability to problem solve and create change for the better.
To meet my lofty goals I wanted to make this STEM PD accessible by all my coworkers. I wanted to make STEM digestible and easy to incorporate. So I started off by saying what stem

isn't… crafts. My biggest pet peeve is when people call a craft a stem project. I shared the definition of STEM and its importance. After explaining the "what" I covered the how. I wanted to make it easy so I made it into three easy steps. 1. Start with a problem. I gave many examples of problems the students can solve. 2. Engineering design process. Help the students follow the procedure they all have already learned in my STREAM class. Organize the lesson the same way. Share the problem, constraints, and let them go. 3. Make sure the students log the work in an engineering design notebook. Document your work and learning. It made the concept of STEM lesson seem easy. After sharing the three steps I gave many examples we have already completed at our school to show that students are already capable of doing it. Then the teachers were encouraged to talk in small groups and post some possible STEM lesson ideas on our PD padlet. Padlet is a virtual post-it board where you can post ideas and everyone else invited to that board can see and make comments. I wanted to give the teachers a place to share ideas and brainstorm together. I also provided the teachers a STEM resource guide with resources that I gained from this class and some of my other endeavors. This is where I highlighted the nasa resources and shared the example of my 7th graders moon rover projects. I demonstrated how to use the nasa resources and how easy they are to use.

After the professional development I asked my coworkers to complete a google survey linked here.
(https://docs.google.com/forms/d/e/1FAIpQLScx3nQdYpb5AJIgJRqUMSyifr8tEkoikNPXwqOPuXNc0SVsvw/viewform?usp=sf_link)
Unfortunately, most didn't take the time to complete it. Here are the results.
(https://docs.google.com/spreadsheets/d/10vnEGXyLkKpsqBlCTcaQkWdsXZKtvIlmtLZ8fGzfIZE/edit?usp=sharing)
This is the slide deck I used.
(https://docs.google.com/presentation/d/1aANxh93ePCQkcZ7n-WYXh8Kd9SyyfW3kMW1M3i-9O20/edit?usp=sharing) I had Peardeck running on it so the teachers had to give responses throughout the presentation.

Since the professional development I have met with each teacher to consult them on how to make sure their implementing ngss and STEM into their classrooms. I am a constant resource for the teachers in our school. As the middle school science teacher I have worked with the other middle school subject teachers to build a graduation requirement capstone project. Where the 8th graders picked their own problem and researched and designed a solution. This is a year long project that the students demonstrate their knowledge acquired at our school on a subject their care about. They are required to keep a detailed engineering design notebook for the project. I am proud to say that everyday our student demonstrated their grit and determination to solve problems and be Star STEM students and future STEM leaders.