Martha Oquist

Stem Leadership Seminar

Project Proposal

2/6/2021

For my project proposal I am wanting to focus on lower elementary (grades K-2) and center PD around how teachers can effectively incorporate STEM throughout their entire day. The title of the PD would be: “The Impact of STEM education. Strategies to implement STEM fluidly within your classroom.” This is something that I myself have been focused on implementing within my own classroom for the past couple of years. Going through the endeavor program and really starting to understand what STEM education was, helped me to also the benefits and impact it could have on my students. I started focusing on how I could use STEM throughout other content areas rather than just during one specific time. Through this I gained an even deeper appreciation of STEM education. While also noticing how my students were flourishing academically. I want to be able to share my experiences and knowledge with my colleagues in a effort to not only help them gain a better understanding of STEM education but create a climate for students in our school to immerse in.

I am hoping to start by presenting my PD to the other six Kindergarten teachers within my building. I think by starting with my own team, working through the PD and gathering input/feedback from them is a great place to start. If all goes well, then from there I would like to

approach my principal about presenting the PD with our entire staff. Looking at a timeline, I am thinking of doing six one-hour sessions. Each one focusing on a different area of STEM education. Starting with, “What does STEM education look like in an early elementary classroom?” Then using some of my course work from endeavor as well as other research to look at mathematics in STEM, technology in STEM, engineering in STEM, art in STEM, and science in STEM. Finally, I am wanting to end the PD with a session on NASA and all the resources that come with it. This is not something we currently use within my school. However, it’s such a great resource that I would like to spend going over not only what the resource is but also having teachers play around with it and sharing out their findings, or ideas on how they can use NASA resources to help integrate STEM within their own classroom.

Centering a PD around how to implement STEM throughout other content areas, there are a lot of standards that will be covered or discussed. I plan on focusing on the NGSS K-2 standards since that is the target audience and grade levels of my PD. For example, when going over engineering in STEM and how it applies to daily instruction, the biggest standard we would focus on would be: K-2-ETS1-2 Engineering Design- Develop a simple sketch, drawing, or physical model to demonstrate how the shape of an object effects it’s function as needed to solve a given problem. Using this standard to share and discuss how it can apply to not only engineering concepts, but literary, mathematical and scientific concepts as well.

In order to gather data and gain understanding of the effectiveness of my PD I am wanting to compile a few different faucets. Before I begin the PD, I would like to start with a Google survey gathering information about what my six colleagues know and understand about STEM education. This survey will not only help to show growth (hopefully) on the topic at hand from beginning to end, but also help to drive my PD as we go. When we end the PD, I would like to

send out the exact same survey and compare results from beginning to end to determine teacher knowledge and growth in the area of each question. The rest of my data collection would be informal. I plan on observing/ filming teacher interactions, collaborations and discussions throughout the PD sessions. I find that some of the best learning comes from people working and collaborating together. Just from observing their conversations, it will help me to gather information about teacher's previous knowledge and well as knowledge they acquire from the PD and each other.

As for a follow up with the six teachers I plan to present this to.... I will have a slight advantage considering they're on my team. I plan on following up during our weekly collaboration time, as well as hoping to work together during our planning time in order to start planning lessons based up the things we discuss and take away from the PD. I am hoping that by presenting this PD it not only helps to inform and teach my colleagues, but also helps me to grow and an educator in STEM.

References:

Next Generation Science Standards. (2021) Read the Standards, Grades K-2. https://www.nextgenscience.org/search-standards?keys=&tid%5B%5D=98