

Proposal

1. What is the title of your mini STEM professional development?

STEMfinity and beyond

2. Why did you select the topic?

I have been teaching Math at a credit recovery school which is career-based as well, where we mostly get students who have not been successful in traditional schools due to learning disabilities or behavior issues. We need to be creative to engage them, not just in class but also keep their interest in school. We started robotics (club) to keep them engaged and interested and help with their shaky attendance. I also attended a PD along with some of my students to learn CAD, 3D printing and additive manufacturing to provide them with some 21st century skills. In order to bring STEM into my lessons on regular basis and not just as a club, I decided to equip myself with NASA Endeavor STEM Certification, which I accidentally hopped upon just at the right time.

Incidentally, at the same time our franchise (7 schools in Ohio) received a STEM grant from Ohio Department of Education, for 3 years. The owners of our school, board of education and our principal is very inclined to implement STEM education as much as possible. It's new for everyone and as I am doing my certification just in time, I would like to help my colleagues and school incorporate STEM teaching in all subject areas curriculum and be a pioneer in the field among our franchise.

I chose the topic as there are so many resources, activities and ways to incorporate STEM lesson plans in every subject area, which teachers can do as cross-curricular while following the standards. NASA provides plenty of helpful resources and hands-on ideas that we can incorporate in our classes.

3. Who is your proposed audience?

The 4 subject area teachers, IS and ESL teachers at our school. Each teacher serves as a department, as we are a small school with about 100 students.

Which teachers will you serve with your PD and activities?

I'll be doing it myself as it's not a big group. But, later on I may be doing the same with our sister school in Columbus, OH, with my colleagues or all the 7 schools in the franchise. For now, I am not sure when will that happen.

What grades, subjects, and how many students do they teach?

9-12, all courses in their subject areas, about 35-45 students, Intervention Specialist (15) and ESL (10)

4. What "general" science or mathematics concepts or learning goals will you and your materials address which can potentially replace other classroom activities?

My materials won't be replacing any Math or Science concepts, they will only be enriching them so students feel more interested in learning them rather than struggling and hating these classes.

These materials or resources will allow us to help students see the connection with what they learn at school and its application.

5. How and where do you intend to carry out your PD? How long will the session be? When will it be held? Will teachers have access to computers?

I will be doing the PD at my school as a session where I will share what I learned during the NASA Endeavor STEM certification- creating STEM lesson plan, resources from NASA that I used (like, NASA's FoilSim for my project), app made using MIT App Inventor, Scratch project, how to use PADLET for student feedback. I will talk about, using some of my Endeavor classmates work, how STEM can be used in Social Studies and English classes as well. I will be presenting using PowerPoint and a projector.

It will take about 2- 3 hours. I am planning on doing it in October. Teachers will have computers.

6. What outcomes or expectation do you hope to see for your educators?

I am hoping that we all be able to create cross-curricular STEM lesson plans and projects on regular basis to keep our students engaged and interested in coming to school and learning. I would like us to come up with PBLs as a school-wide learning opportunity on regular basis. That will help students see connections across the subject areas.

7. How will you follow up with the teachers in attendance?

The teachers are my colleagues, so follow up is not a problem and we may do it as a school-wide PBL.