

I. What does it mean to be a teacher leader?

A teacher leader knows the importance of guiding teachers to resources that make implementation of their curriculum easier, more engaging for their students, while recognizing the difficulty of making these types of changes. The leader should anticipate barriers to implementation from their own experiences encountered during completion of this master's program and support teachers with guidance and examples of successes and failures.

II. What concepts from your time in the Endeavor program do you feel are most important to share with your colleagues?

As a math teacher, I benefited from the resources that applied directly to my subject. While many of the science topics were very engaging, I found it difficult to find a way to tie in the many of the science topics to my own curriculum in a meaningful way. Once I was introduced to the numerous math resources during the Math Connections in the STEM Classroom course, I was able to find great activities to help engage my students in both math and the other STEM subjects.

III. What STEM related-resources do you feel will be useful for your colleagues?

I plan to introduce math teachers to many of the resources from the Math Connections course. As math curriculum becomes more STEM focused, with a problem-based approach and group activities, I plan to focus on how to implement data from real-world situations to better align with problem-solving lessons. I will focus on the use of data in the classroom, and the many resources we have been given for lesson plans. Specifically, I plan to introduce the following:

- My NASA Data: <https://myasadata.larc.nasa.gov/>
- The Globe Program: <https://www.globe.gov/>
- Data Nuggets: <http://datanuggets.org/search-current-data-nuggets/skills-and-concepts/>
- JPL Lesson Plans for Teachers: <https://www.jpl.nasa.gov/edu/teach/>
- STEM Lessons from the Space Station: <https://www.nasa.gov/audience/foreducators/stem-on-station/mathematics.html>
- Space Math @ NASA: <https://spacemath.gsfc.nasa.gov/SpaceMath.html>

IV. What is the title of your STEM professional development?

Incorporating STEM Resources Into Math Curriculum in a 1:1 Classroom

V. Why did you select the topic?

I have found it difficult to make mathematics curriculum more STEM friendly without this master's program. I tried for many years on my own to find suitable resources but struggled to find success due to lack of time for research, planning, implementation and time for reflection to understand what worked best in the classroom. After completing this program I have been able to skip the time needed for finding

resources and lesson planning and can proceed to implementation. I want to share this with other teachers who want to improve their curriculum but are pressed for time.

VI. How does your PD integrate NASA assets and/or content from the Endeavor courses?

Please see part III.

VII. Who is your proposed audience? Which teachers will you serve with your PD and activities? What grades, subjects, and how many students do they teach?

I will present to volunteers from the math department at my school, as well as former colleagues who teach math. Most are high school math teachers and a few are middle school math teachers. Each teacher has a student load of at least 50 students. I anticipate that I will have 4-5 attendees.

VIII. What STEM concepts or learning goals will you and your materials address which can potentially replace other classroom activities? (List NGSS and CCSS or your state standards.)

I plan to address a few specific CCSS standards when showing how I can supplement activities for a specific lesson (not identified yet), but also plan to address the standards for mathematical practice (<http://www.corestandards.org/Math/Practice/>).

IX. How long will your session be? How will you recruit your audience? Where will you advertise your PD session?

I anticipate that my session will be 1 hour. I will ask specific teachers to volunteer to attend and explain that the PD will provide them with more resources for the math classroom. I will advertise to the math department at my school.

X. To demonstrate that teachers have learned something new, you will generate a pre- and post-survey. What, in general, will your pre-survey and post-survey ask?

The pre-survey will ask about barriers to implementing new resources outside of a given curriculum, and ask for feedback on hesitation to engage in PD. The post-survey will ask the comfort level of participants in implementation of one item and then follow up with a request for feedback on how the implementation went or how the participant plans to implement the activity or lesson in the future.

XI. What outcomes or expectations do you hope to see for your educators?

I hope that participants will find the information helpful and useful and can provide differentiation and higher engagement in their courses. I am hesitant to say that teachers will be able to implement the

information right away, but knowing where to find the resources may encourage them to try a lesson or activity when they are able.

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

I plan to follow up via a Google survey and via informal conversation through in-person meetings and email after the post-survey.

XIII. What data collection methods (e.g. surveys, interviews) will you use to analyze the PD's success?

I will use both surveys and interviews after the surveys to gauge the success of the PD.