Pinto STEM Leadership Proposal
Fall 2020
STEM Leadership Seminar

Title - Red Rover, Red Rover: Integrating the Mars Landing into your instruction with NASA resources

Few things can capture the imagination of students and adults like space travel. The world is captivated by Mars and our exploration of it. The Red Planet offers an endless array of opportunities to learn about our own planet and our humanity. The Mars landing in February 2021 will be a big event in the media and around the world. Educators and homeschool parents need to be prepared to capitalize on their student's interest in the landing to incorporate the multitude of learning experiences this rare and spectacular opportunity presents.

As an educator, I have worked closely with several NASA programs such as the Liftoff Summer Institute, SEES Summer Internship Program, ANGLeS challenge and ROADS on Mars challenge so I feel qualified to lead a professional development program that informs and connects fellow educators with NASA resources on education related to the Mars landing. As a Space Foundation teacher liaison I have access to excellent space education resources that other teachers may be unaware of and will be able to incorporate into their instruction.

I plan to incorporate and showcase the following Endeavor resources into the PD:

- NASA at home
- Resources from Coding, Robotics and 1:1 Devices
- Resources from The E in STEM
- JPL activities and resources
- Space Foundation Resources
- NASA for Educators resources
- NASA On the Moon and Design Kids videos and challenges
- Blue Origin Club for the Future
- Future Engineers STEM resources.
- Space Foundation STEM Lesson plans featuring Snoopy
- https://marsed.mars.asu.edu/curiosity_classroom_activities

My proposed audience will be formal and informal educators who are interested in learning more about the Mars landing and STEM education programs that relate to the February 2021 landing. I am part of a large community of educators on my social media platforms so I plan to 'advertise' my PD on social media sites such as the Space Foundation teacher liaison group Facebook page, several middle school science groups on Instagram and Facebook that I am a part of, and on my personal page for my numerous educator friends. I foresee formal educators for all grade levels K-12 as possible attendees as well as homeschool parents of all ages. I will attempt to integrate activities and resources for educators of multiple grade levels.
If worse comes to worse, I will beg some of my close teacher friends to attend.

NGSS Core Question: ETS1: Engineering Design
What Is a Design for? What are the criteria and constraints of a successful solution?

NGSS ETS1.A: Defining & Delimiting an Engineering Problem
What Is the Process for Developing Potential Design Solutions?

NGSS ETS1.B: Developing Possible Solutions How can the various proposed design solutions be compared and improved?

NGSS ETS1.C: Optimizing the Design Solution
Many other standards will be able to be addressed but the PD will focus on how educators can use the Mars landing to teach engineering design process and problem solving.

The PD will be held via Zoom using Nearpod. Nearpod will allow me to complete both pre and post surveys during the session and allow for the session to be completely interactive. I plan to hold the PD session at 7pm - 8pm CST on Thursday November 5. I obviously will have to do a lot of trimming on my list of resources to fit the PD into the 1 hour time frame and include hands-on activities like making a quick rover or rocket. Teachers will log in via zoom and then be directed to an interactive Nearpod presentation.

My focus for this PD is to help educators know what resources NASA has that can be used in their classrooms during the excitement generated by the Mars landing. Therefore, my pre-survey questions will focus on ideas such as how familiar teachers are with NASA resources, how comfortable they feel integrating these resources into their instruction. The post survey questions will circle back to these questions to see if the educators have gained in their knowledge and comfort level at using NASA resources and other questions they may have about using space exploitation in their classrooms for future possible PD topics.

My goal for this PD is to help educators capitalize on the Mars landing opportunity. Students will be engaged and interested because of the nature of the event. Teachers can generate excitement for NASA, space exploration, the engineering design process and problem solving through this unique opportunity. I want to help create a simple, easy, format for teachers to quickly and simply include the landing in their STEM classrooms. I will know the PD has been a success if teachers can pick our one or two quick and easy lessons/activities for their students as an access point for their instruction into space exploration.

I will follow up with teachers via email and social media. I also intend to post activities to social media as the launch gets closer as a reminder to teachers of easy ways to leverage the landing for maximum engagement.