

**I. Strengthening your STEM/Science instruction using the 5E Lesson Plan**

II. The NASA Endeavor courses that I have participated in used the 5E model for the writing of lesson plans. Through these courses, I have embraced the 5E model and use it in my classroom. The 5E allows for student inquiry and active learning. I believe that the teachers at my school will find it more exciting for their STEM/science curriculum. Our school will be hosting a community celebration at the end of May to commemorate the school's 25<sup>th</sup> anniversary. The celebration will include a showcase of student work from all content areas. My goal is to provide teachers with an opportunity to create or start creating a well-developed STEM or science lesson that incorporates the 5E lesson plan that they will be able to use with their students and showcase student work.

III. During this workshop I will be working with the participants in the writing of lesson plans using the 5E model. In the engagement phase I will introduce the use of phenomenon and how the right phenomenon will lead to questioning by students. The explore phase is where teachers will be provided with the NASA and JPL resource sites to find activities for their students that will allow the students to explore the topic. I will use one of the technology sites that was shared during the "Coding and Robotics" course to introduce the explain part of the lesson plan. In the elaborate phase teachers will again use the resources from NASA and JPL to find other activities that their students would use to apply the knowledge they have attained. Teachers will use "think, pair, share" to discuss the many ways to evaluate their students learning.

IV. My goal is to have at least 12 teachers attend. I will invite all staff of Lancaster Elementary School to attend. I am hoping to have all K-5 teachers attend: K (2 teachers), 1<sup>st</sup> (2 teachers), 2<sup>nd</sup>(2 teachers), 3<sup>rd</sup>(2 teachers), 4<sup>th</sup>(2 teachers), 5<sup>th</sup>(3 teachers), Middle School (3 math, 2.5 science, 2.5 social studies, 2 language arts), and Unified Arts(1 music, 1 PE, 1 art, 1 media). We have approximately 400 students at LES.

V. The 5E lesson plan will provide teachers with an alternative to the more traditional lesson plan of where the teacher leads the lesson. Students are more active and independent learners in the 5E lesson. Students use inquiry, critical skills, and collaboration in a 5E lesson. Many of the teachers in our district have had critical skills training and the 5E lesson plan works well with the teacher being more of a "coach" who guides the students.

The NGSS and Common Core standards will depend on the grade level of the participants and the topic that they choose. I will provide teachers with copies of their NGSS and Common Core state standards for their grade level.

**VI.** I intend to carry out the professional development during two of our staff meetings/early release days in the month of March. Each time will run for 30-45 minutes and teachers will be asked to bring their classroom laptops so that they will be able to access resource sites that are provided.

**VII. Pre-survey questions to include:**

How comfortable are you in teaching science and STEM curriculum?

Do you create your own science lesson plans? If yes, what form do you use? If no, where do you find your lessons?

How often do you use inquiry in your classroom?

Have you ever used any resources from NASA or JPL?

**Post- survey questions to include:**

What is something you will take away from this workshop?

How likely are you to use the 5E method when writing another lesson/unit?

Do you feel you need more support in using the 5E lesson planning? If yes, in what area?

What impact do you see using the 5E lesson plan will have on student learning and classroom instruction?

**VIII.** It is my hope that my fellow educators will become comfortable and find the importance of using the 5E lesson plan when teaching science/STEM curriculum. I would like to see teachers use the 5E more and experience how student knowledge and engagement increases.

**IX.** Like the Endeavor program, I want to provide the teachers with resources that they are able to use. I want to set up a shared Google folder that will contain resources, sites, etc. that the teachers will have access to and also they will be able to add the resources that they have used and found.

**X.** It is my hope to use a couple of different data collection methods. I will use the formative assessment “3, 2, 1” 3 things I learned today, 2 things I

found interesting, and 1 question I still have at the end of the professional development. I will then follow up a few days later with a Google Survey that would focus more on the specific topics that I covered.