

## 1. **Inclusive Playground Design and Implementation**

### 2. **Option 1-: Implement a Professional Development Experience**

I chose to implement Professional Development on Inclusive Playground design for various reasons. STEM teachers are often involved in promoting creativity and problem-solving. Implementing a Professional Development Experience on inclusive playgrounds for fellow STEM teachers goes beyond mere playground design. It's about aligning the principles of inclusivity with STEM education's core objectives, enhancing the curriculum, and fostering a culture of empathy, innovation, and social responsibility. It is a multidimensional approach that can enrich the teaching methodology and equip educators to create more engaging and relevant learning experiences for their students.

It can spark innovative ideas in classroom projects, teaching students to consider inclusivity and accessibility in their designs. STEM education often emphasizes the importance of using skills for the greater good. By focusing on inclusive playgrounds, STEM teachers can illustrate the social responsibility inherent in design and technology, helping students see the broader impacts of their work.

3. **Audience:** My proposed audience for this project would be the two STEM/Computer Science department educators in grade bands 2-5. The number of students these educators teach may vary, but approximately 200 students per educator.

### 4. **STEM integration:**

**Science:** Lessons from NASA's rover landing on Mars highlight engineering challenges and solutions that can be analogous to playground design.

#### ***NASA INTEGRATION***

NASA's "Teachable Moments" provides a variety of lessons that cover a range of subjects and frequently include hands-on activities. A notable example is the lesson about landing NASA's Perseverance Rover on Mars, which can be utilized within this unit. (*NASA's Perseverance Rover Lands on Mars - Teachable Moments*. (n.d.). NASA/JPL Edu. Retrieved February 18, 2022) <https://www.jpl.nasa.gov/edu/news/2021/1/8/take-part-in-a-worldwide-teachable-moment-as-nasas-perseverance-rover-lands-on-mars/>

***Terrain and Accessibility:*** The Perseverance Rover was designed and built to navigate Mars's rough and diverse terrain. During the lesson, students

can learn about the challenges NASA's engineers face while designing the rover to traverse different landscapes, including rocky plains and cliffs. This can spark meaningful discussions about terrain and accessibility in the context of designing their inclusive playground. Students can explore questions like, "How can we design our playground to be accessible to all users, despite the terrain? How can we ensure everyone, including those with physical disabilities, can navigate and enjoy the playground?"

**Engineering Design Process:** The development and construction of the Perseverance Rover is an excellent example of the engineering design process in action. Students can learn how engineers identified a problem (exploring and collecting samples from Mars), brainstormed solutions, designed and built a rover, and then tested and improved it until they had a successful design. This process closely mirrors what students will be doing in their playground project. Students must identify needs (an inclusive playground), brainstorm solutions, create designs, and revise them based on feedback and testing.

**Technology:** Digital tools (TinkerCAD) can simulate designs, gather community feedback, and demonstrate how specific equipment works.

**Math:** Measurement, scaling, spatial reasoning, budgeting, and cost calculations are integral to the design process.

**5. Educator Outcomes and Expectations:** I hope to see them integrate real-world applications into their teaching, making abstract STEM concepts tangible and relevant to students. Teachers should be able to facilitate collaborative and problem-solving skill development. There's an expectation for educators to foster inclusivity, both in the content of the playground designs and in classroom participation.

#### **6. Teacher Project Follow-up:**

- I'll set up periodic check-ins to understand the progress of their projects.
- I would provide supplementary resources and support based on feedback received.
- Surveys or feedback forms will be distributed to gather insights on what went well and areas of improvement for future project iterations.