Project Scramble (Grades 5-12)

**Subject Area:** Solar Eclipses

**Grades:** 5-12

**Student Learning Objectives:**

“I will learn about solar eclipses.”

“I will understand the balloon eclipse project, as well as the importance of protecting the payloads it carries.”

“I will think critically to solve a real-world problem through engineering.”

**Teacher Modeling/ Demonstration:**

Explain solar eclipses and how they occur. Tell students about the upcoming eclipses, as well as the rarity of eclipses. Explain the ballooning projects, going into detail about possible payloads. Explain the importance of protecting payloads as they fall to the ground. Use this to merge into the activity.

**Educator Development Resources:**

[What Is an Eclipse? | NASA](https://www.nasa.gov/audience/forstudents/5-8/features/nasa-knows/what-is-an-eclipse-58)

[Nationwide Eclipse Ballooning Project (NEBP) | Science Mission Directorate (nasa.gov)](https://science.nasa.gov/science-activation-team/nationwide-eclipse-ballooning-project)

[Eclipse Balloons to Study Effect of Mars-Like Environment on Life (nasa.gov)](https://www.jpl.nasa.gov/news/eclipse-balloons-to-study-effect-of-mars-like-environment-on-life)

[Eclipse Payloads Explained - YouTube](https://www.youtube.com/watch?v=Sc8LaPBhGDY)

**Materials:**

-String

-Masking Tape

-Plastic Bags: Free/donated

-Popsicle Sticks

-Straws

-Index Cards

-Eggs

**Activity: Project Scramble**

1. Instructor explains the importance of protecting our payloads.

2.Instructor presents the challenge to the students and explains the rules (ex. How many materials can they use? And What height will their structure be dropped from?)

3. Instructor splits the class into pairs (12-13 pairs for a class of 25).

3. Pass out materials and let students begin designing

4. Be available to help with designs and facilitate egg drops when designs are completed