

SEEKING BEYOND

✦ **Grade Level: K-6**

✦ **Focus Area: Science, Engineering, History**

✦ **Time: 30-45 Minutes**

ACTIVITY INTRODUCTION

Experience the legacy of the Space Shuttle program through a hands-on paper airplane space mission, exploring aerodynamics and engineering principles while connecting the past with creative challenges of the future.

BACKGROUND INFORMATION

The Space Shuttle program, a revolutionary chapter in space exploration, showcased reusable technology and versatility in human spaceflight. This program's legacy continues to inspire future missions and advancements. The hands-on paper airplane activity connects the Space Shuttle's design principles with aerodynamics, offering a practical way to explore aerospace engineering concepts.

STUDENT REAL-LIFE CONNECTIONS

1. Can you think of any ways in which aerospace engineering concepts used in designing the Space Shuttle relate to creating paper airplanes?
2. What connections can you make between the principles of aerodynamics learned during this activity and the challenges faced by aerospace engineers?
3. How do the skills you used to design and modify your paper airplane align with the creative problem-solving required for space missions?

ACTIVITY OBJECTIVES

- ✦ Understand the significance of the Space Shuttle program in space exploration history.
- ✦ Identify the basic principles of aerodynamics and design in aerospace engineering.
- ✦ Reflect on the connections between space missions and engineering principles.

MATERIALS:

- ✦ Paper (8.5 x 11 inches) (1 per child)
- ✦ Markers or colored pencils
- ✦ Tape (optional, for modifications) (1)
- ✦ Open space for flight testing

ACTIVITY DIRECTIONS

1. Introduce the history and legacy of the Space Shuttle program, emphasizing its contributions to space exploration and reusable technology.
2. Explain the basic principles of aerodynamics, such as lift and drag, that are essential in designing both space vehicles and paper airplanes.
3. To learn more about aerodynamics you can visit this website: <https://www.nasa.gov/audience/forstudents/k-4/stories/nasa-knows/what-is-aerodynamics-k4.html>
4. Guide participants in designing their own paper airplanes. They can use markers to decorate and personalize their designs. If you need help creating your paper airplane you can visit the link below: [How to Make the World's Best Paper Airplane](#)
5. Head to an open area and have participants test their paper airplanes. Encourage them to observe the flight patterns, distance traveled, and any modifications needed for improved performance.
6. Introduce a space-themed challenge, such as "Can your paper airplane safely transport a mini astronaut (a small toy) to a designated landing zone?"
7. Gather participants to discuss their airplane designs, the challenges faced during flight testing, and the modifications they made. Relate their experiences to real-life engineering challenges faced by aerospace engineers.

RESOURCES



Anderberg, Jeremy. (2022, January 19). How to Make the World's Best Paper Airplanes. Art of Manliness. <https://www.artofmanliness.com/skills/how-to/how-to-make-the-worlds-best-paper-airplanes/>



NASA. (2011, June 4). What Is Aerodynamics? NASA. <https://www.nasa.gov/audience/forstudents/k-4/stories/nasa-knows/what-is-aerodynamics-k4.html>