

**Paper Airplane Challenge** Co-Developed with the **UC Provost Office** Team

Students will learn about measurement outside of the classroom and how to problem solve.

**Grade Range:** 4<sup>th</sup>-8<sup>th</sup>

**Time:** 45-60 minutes

**Materials:**

- Paper Airplane Handouts
- 8 ½ x 11" Paper (provide different types)
- Rulers, measuring tape and/or yard sticks
- Paper clips, tape and glue (optional)
- Pencils, markers, and/or crayons

**Instructions:**

STEM Challenges are terrific ways to learn about science, technology, engineering and math, all while building the skill to make connections through problem solving. Paper airplane construction is a popular STEM activity amongst youth and adults. Just one sheet of paper can lead to a whole lot of fun and learning. All you have to know is how to fold and you can have a simple plane in a matter of minutes!

Engage your class in a paper airplane contest by challenging each student to design an aircraft that can fly the furthest distance in the class. Begin this activity by explaining the challenge and showing how to make a paper plane (share handout 1). Give each student 15 minutes to build their plane- allow them to build . Each student should have access to paper, paper clips, tape, writing utensils and glue. While they are making their airplanes, identify a spot in the room where the students can test their creations and lie measuring tape on the floor. Before starting the contest, have each student write their name on their airplane and complete handout 2 as this will be useful during the discussion part of the activity. Once everyone is ready, one by one, allow each student to fly their airplanes. Round out this activity with a large group discussion to unpack learnings, such as ‘why did some planes fly further than others’, ‘how did design play a role’, etc.

**Discussion Questions:**

- What did you learn?
- Whose plane went farther than five feet? Farther than 10 feet? The farthest of all? Why do you think “insert student’s name” went the furthest?
- Did certain designs go farther than others? Why?

**Extension:** Add an additional layer of learning by having the students also measure their flight time. Create a classroom chart and have the students analyze.

# Handout 1: Paper Airplane Instructions



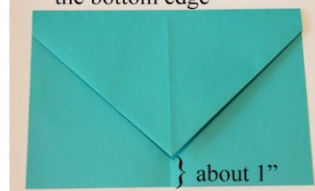
Fold in half lengthwise



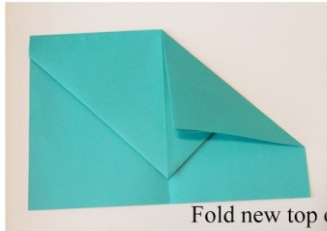
fold down top corners to center line



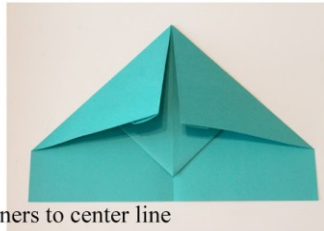
Fold down an inch from the bottom edge



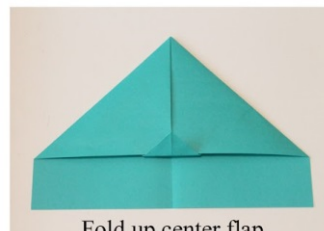
} about 1"



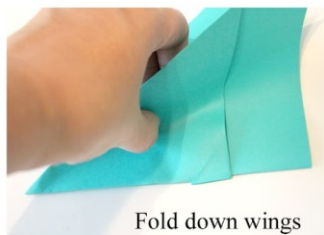
Fold new top corners to center line



Fold up center flap



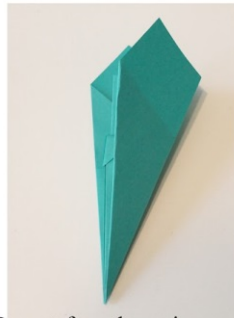
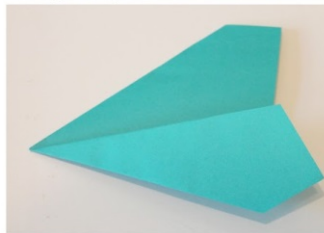
Fold over center line so triangle flap shows



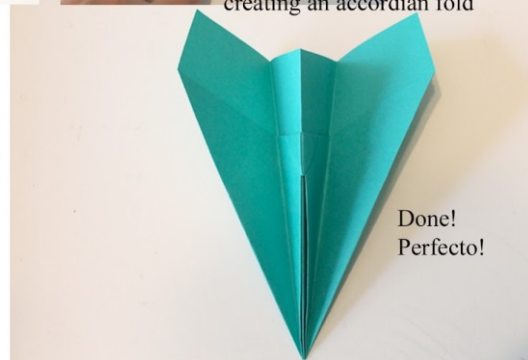
Fold down wings



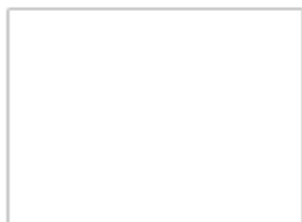
creating an accordion fold



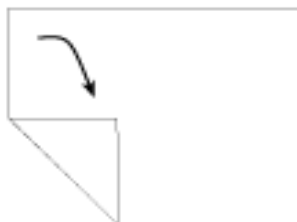
Repeat for other wing



Done!  
Perfecto!



Step 1



Step 2



Step 3



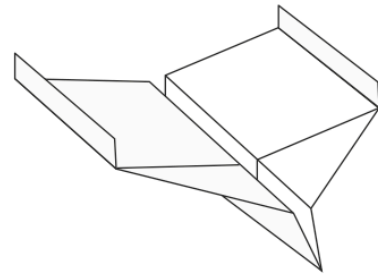
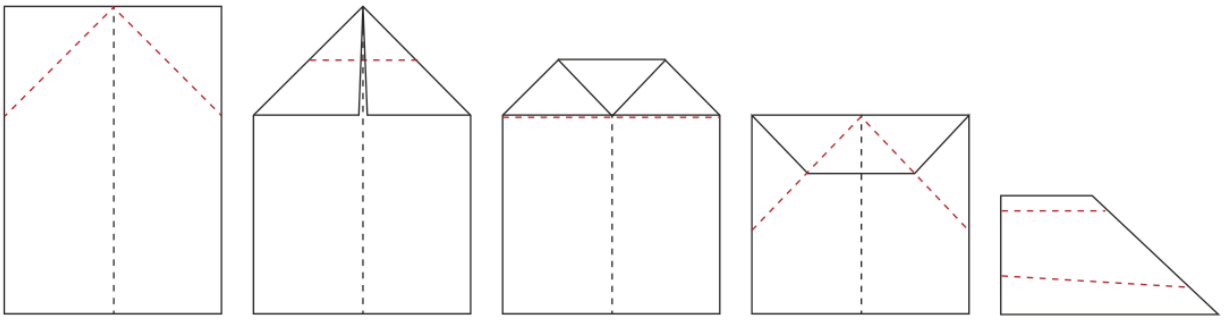
Step 4



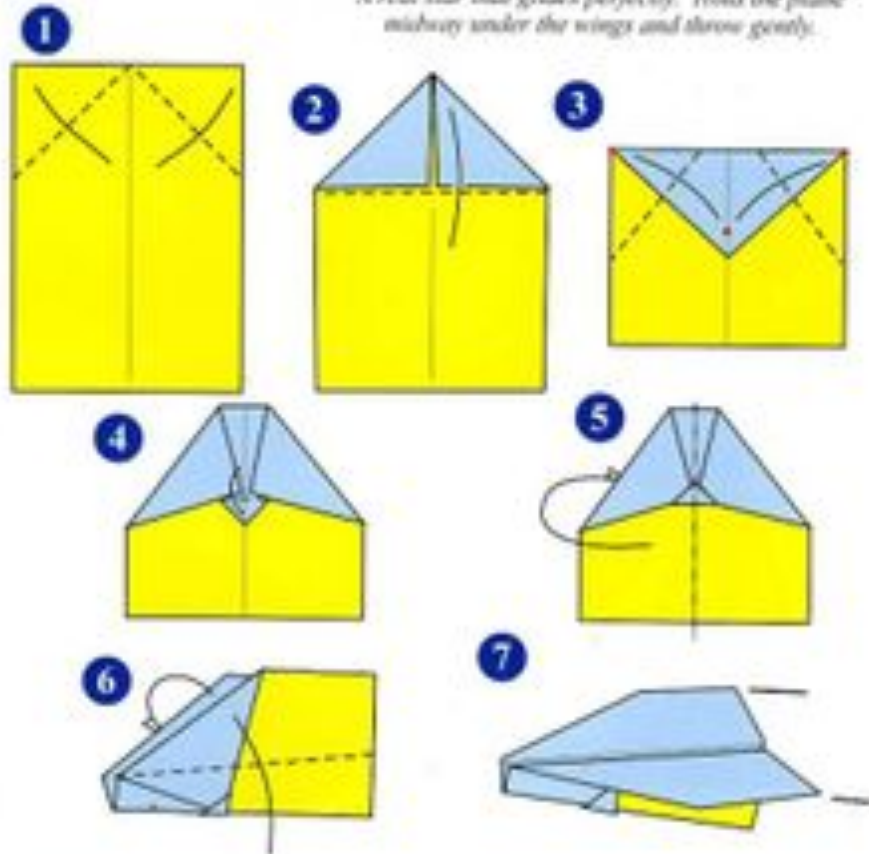
Step 5



The finished plane



*A real star that glides perfectly. Hold the plane midway under the wings and throw gently.*



# Handout 2: Paper Airplane Blueprint

Complete the Paper Airplane Blueprint below.

1. Sketch out your airplane.
2. What is the length of your airplane (inches & feet)?
3. What is the width of the tail (inches & feet)?
4. What is the depth at the tail (inches & feet)?
5. What is the perimeter of the wing surfaces (inches & feet)? HINT:  
The perimeter is the distance around the wings.
6. What special features about your airplane will help you land closest to the target?