Course Advanced Manufacturing
Section: Aerospace Engineering

James Rumsey Technical Institute

Paper Airplane Design & Flight Test

What You Will Do

Design, build, and test different paper airplane models to understand how design affects flight distance and performance.

Materials You Will Need

- Printer paper (at least 5 sheets)
- Paper clips (optional)
- Measuring tape or ruler
- Pencil and recording sheet
- Open space (hallway, yard, or large room)

Prototyping

A prototype is a model built for testing. You want to test your design before manufacturing a product. This is especially important in Aerospace Engineering where designs are very complex. Building, testing, evaluating, and improving are important steps in the prototyping process.

Step 1: Build Your First Plane

1. Fold a basic paper airplane (any design you know).
2. Label it Model A.

Step 2: Create Variations

1. Make at least 2–3 new designs by changing one thing at a time:
   - Wing size (larger or smaller)
   - Wing shape (wide vs. narrow)
   - Add paper clips (weight)
   - Adjust nose shape
2. Label each new plane (Model B, C, D).

Step 3: Make Predictions

- Before testing, predict:
  - Which plane will fly the farthest?
  - Which will stay in the air the longest?

Step 4: Test Flights

1. Throw each plane 3 times from the same spot using the same throwing motion.
2. Measure the distance for each flight.
3. Record the measurement in the data table on the next page.
4. Calculate the average distance for each model.

Step 5: Analyze Results

1. Compare results and identify which design performed best.
2. Observe flight patterns (straight, curved, fast drop, long glide).

Data Table

Model	Trial 1	Trial 2	Trial 3	Average Distance
A				
B				
C				

Describe the flight patterns of each model.
(straight, curved, fast drop, long glide)

A _____

B _____

C _____