Modifying Design for Flight

Part I

Use the template to fold a paper airplane with regular printer paper. Throw the airplane five times, measuring the distance in centimeters. Finally, find the average distance this plane flies.

Part II

Decide with your partner what single change you will make to your airplane. Will you use a different material to make the plane? A different size or shape of paper? Modify the way it is folded? Add weight to part of the plane? Something else?

What change did you make to the plane?

_____

_____

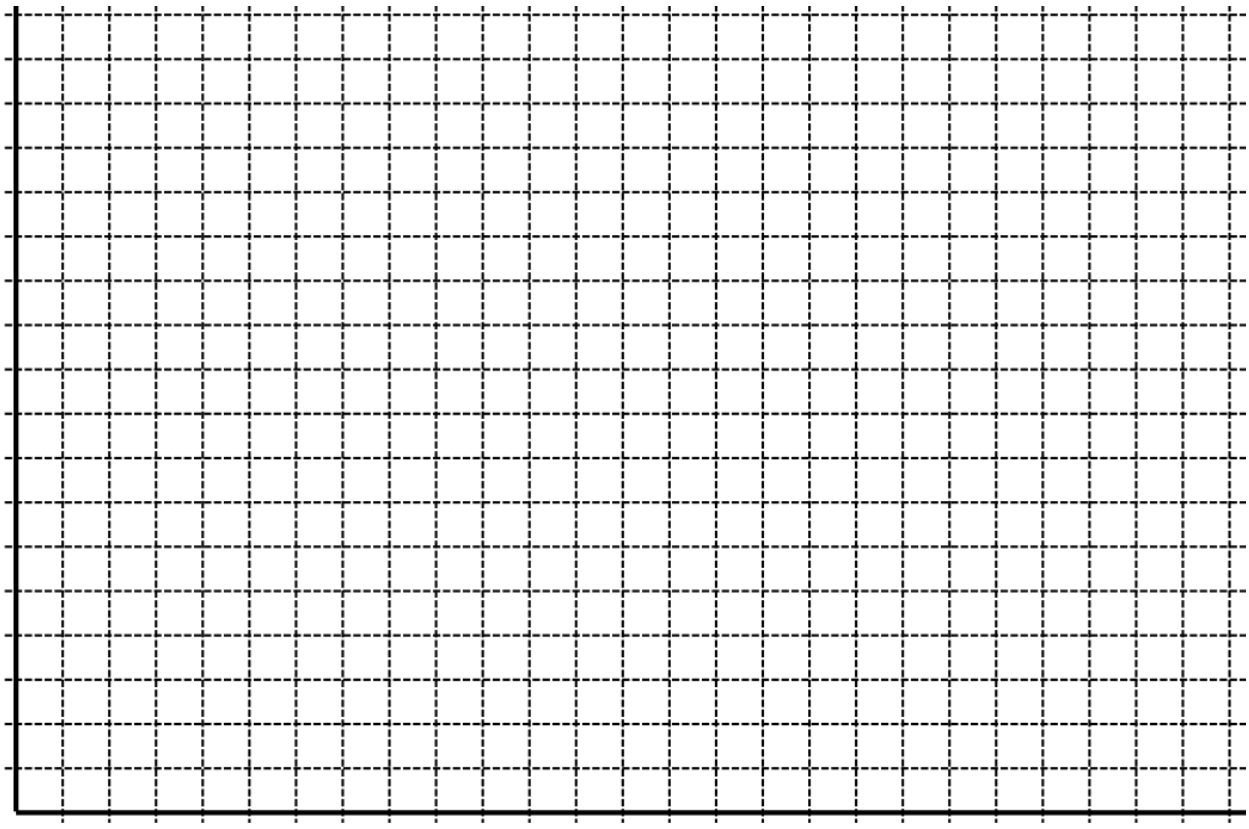
As in Part I, measure the flight of your modified plane five times, and find the average.

Trial #	Flight distance of original plane	Flight distance of modified plane
1		
2		
3		
4		
5		
average		

Part III

Now, using your data from the table above, construct a bar graph that shows your results.

- Label the x-axis with your manipulated variable, and the y-axis with the responding variable.
- Make note of the range of your data above—How high do the numbers on your graph need to go?
- Determine the appropriate scale to use—How many centimeters will each square on your graph represent? 1 cm? 2 cm? 5 cm? more?



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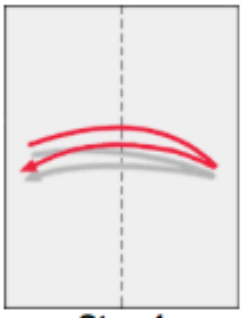
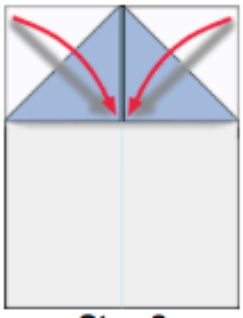
Basic Dart

Folding Instructions



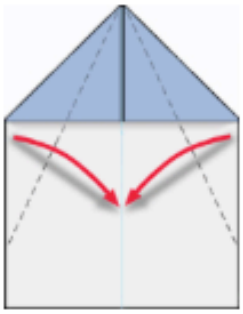
Step 1



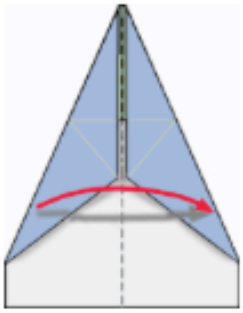
Step 2

Step 1.
Use a sheet of 81/2-by-11 inch paper. Fold the paper in half lengthwise and run thumbnail along the fold to crease it sharply. Now, unfold the paper.

Step 2
Fold down the top corners as indicated by the arrows.



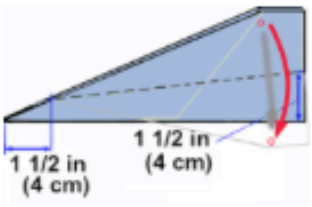
Step 3



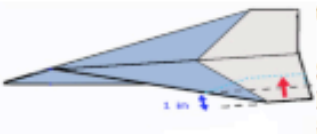
Step 4

Step 3
Fold the two edges toward the center line, as indicated.

Step 4.
Make a valley fold in half.
Turn the plane 90 degrees as shown in figure of Step 5.



Step 5



Step 6

Step 5
Create a wing crease that begins at the nose as shown.

Step 6.
Form 3-dimensional shape as shown in figure. The Basic Dart is complete.
Bend up the tailing edge of the wings for lift if it has a tendency to nose-dive.