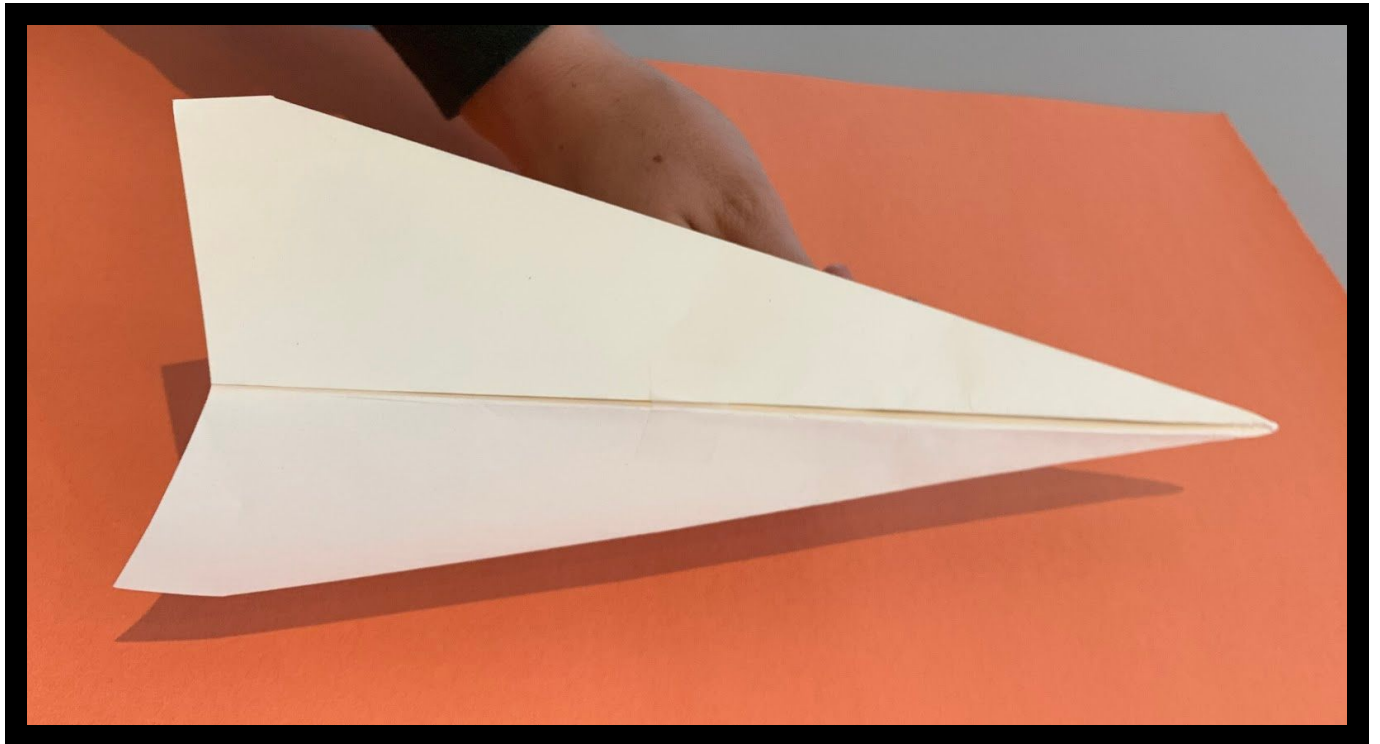


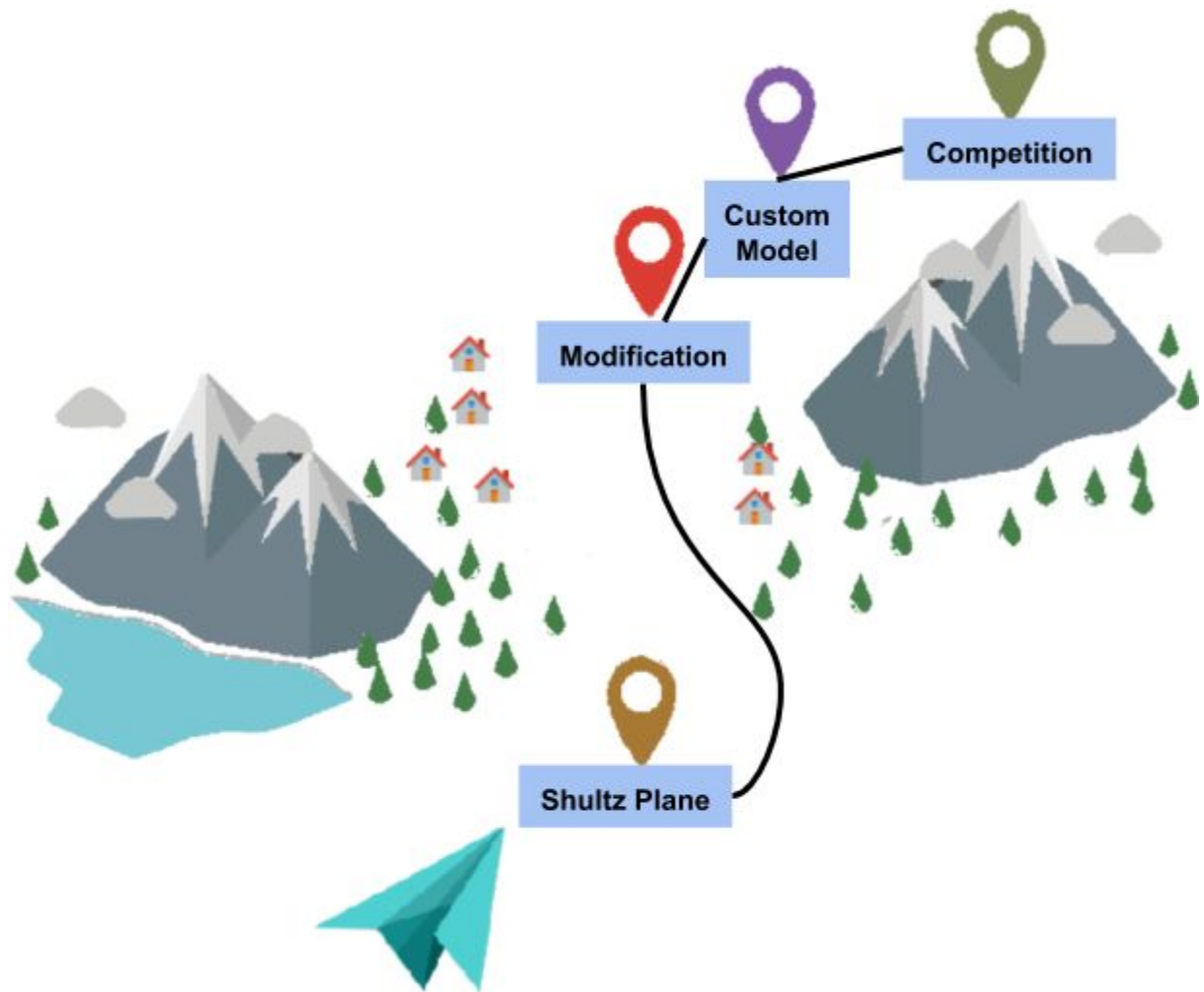


## Planes!

Time Estimate: 45-60 min



Tags: Mechanical, Wind, Energy  
Flight Map

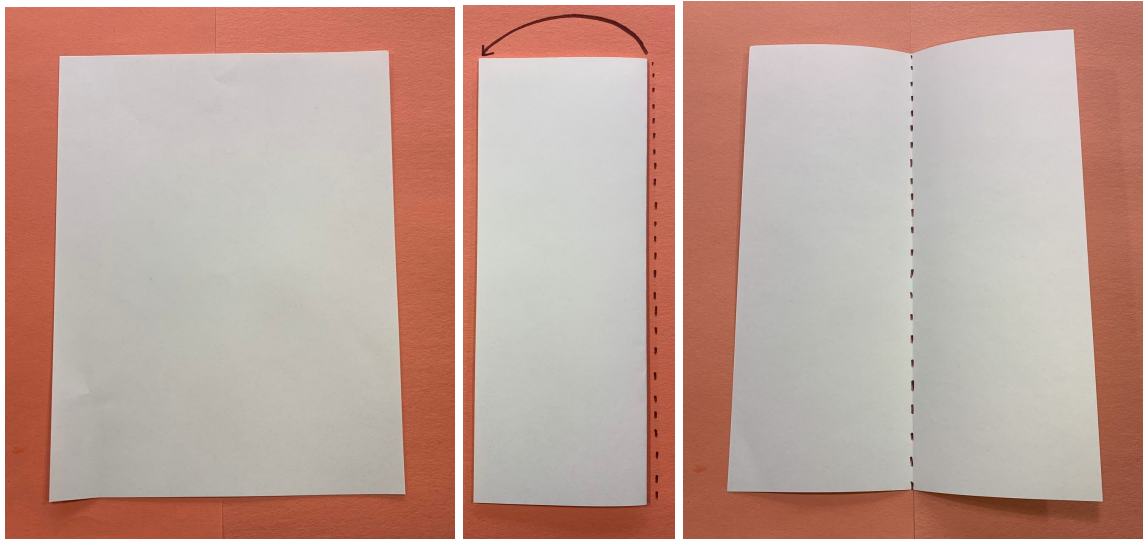


## Materials:

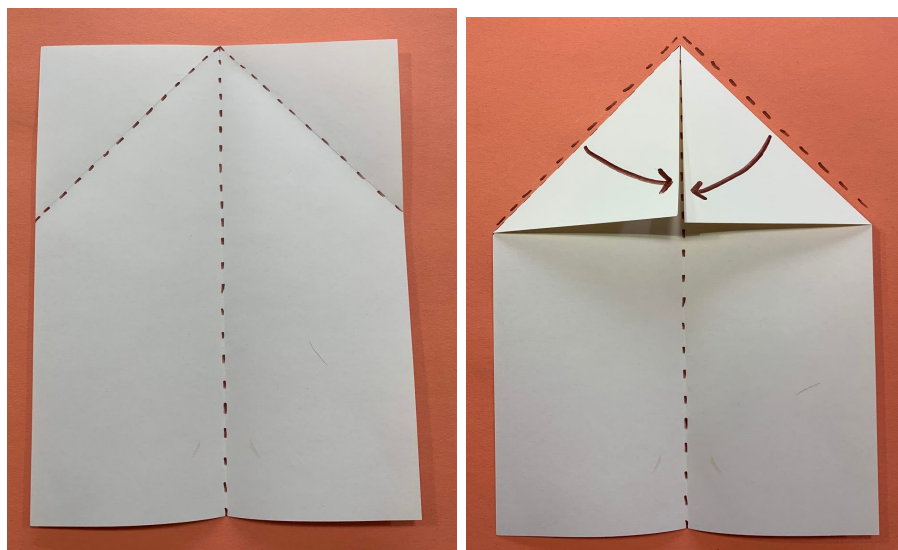
- PAPER!!!
- Paperclips (optional for modifications)

## Part 1: Folding the Schultz plane!

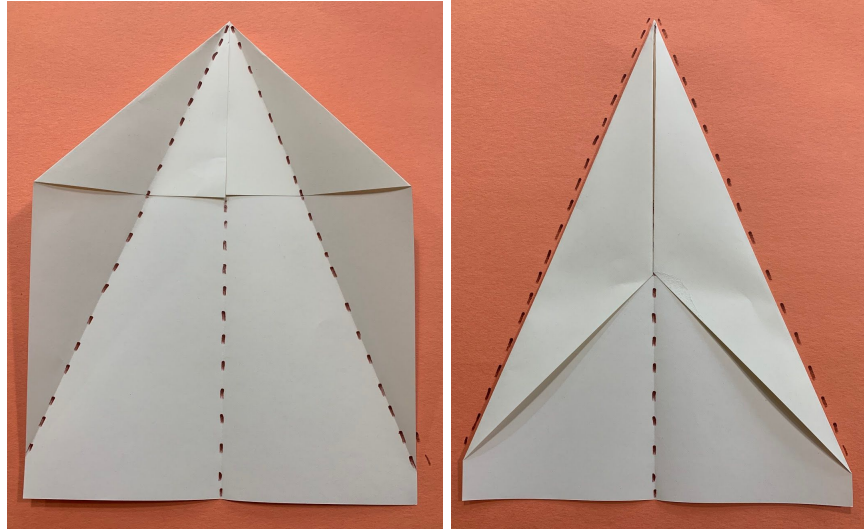
1. Fold your piece of paper in half lengthwise, as shown by the picture. Open the paper back up.



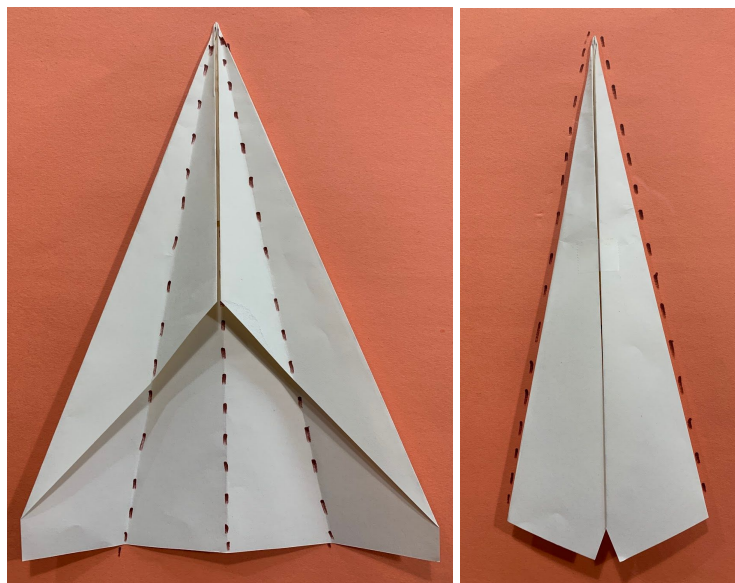
2. Fold in the top corners of your paper so they meet along the centerfold you just created. This will form a triangle at the top of the paper.



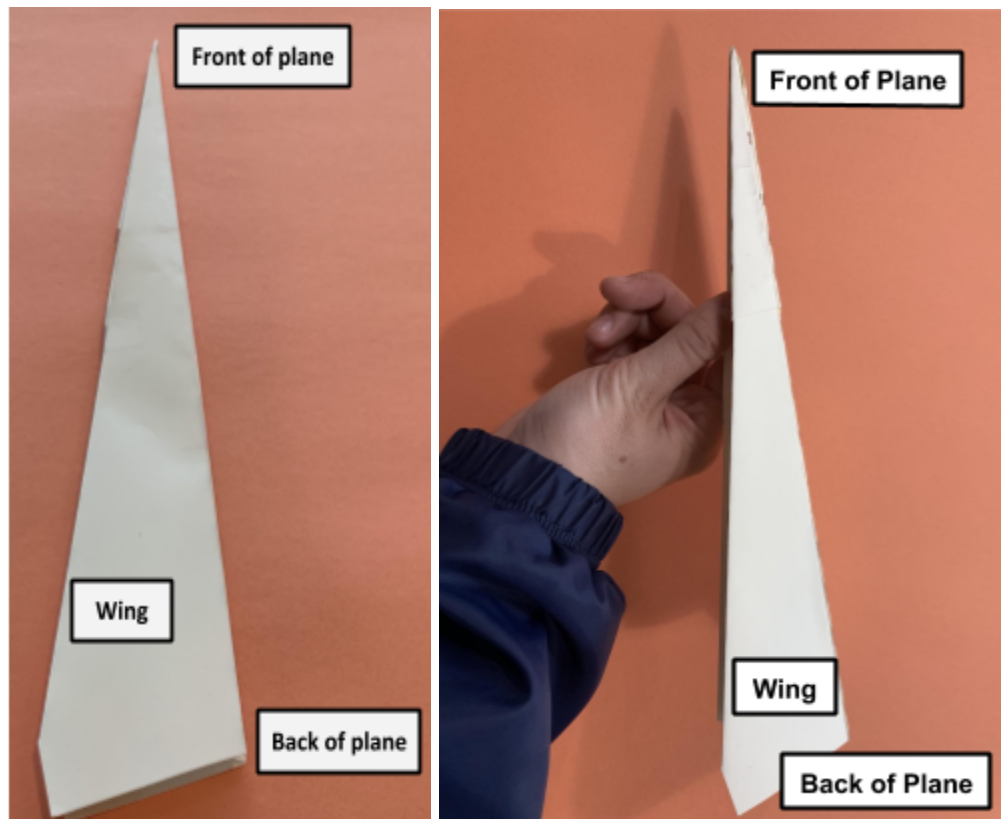
**3. Fold in the outer edges of the triangle to meet along your centerfold. This forms a more narrow triangle.**



**4. Fold in the outer edges of the narrow triangle to meet along the centerfold.**



5. Fold your paper in half along the centerfold. And grip your plane by the centerfold, leaving the wings free.



6. Adjust your wings too look like the picture and hold it as shown.



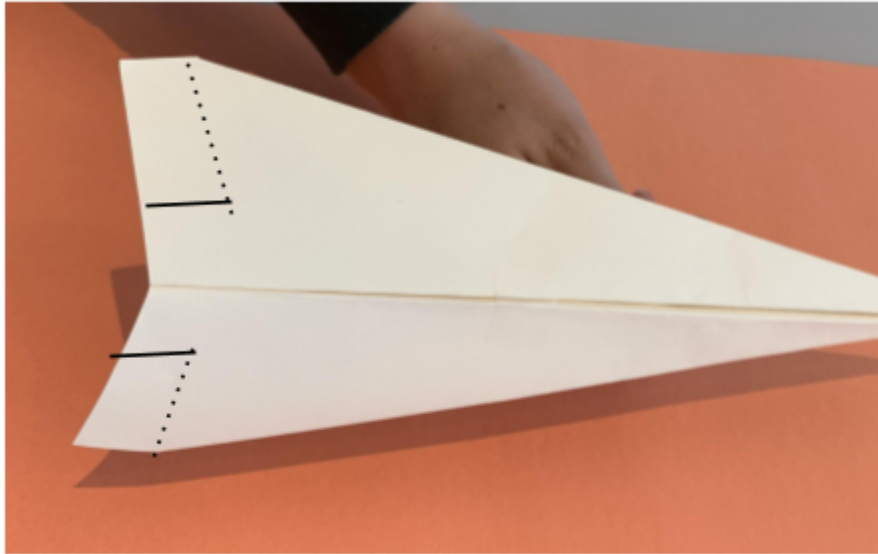
**7. Your plane is ready to fly! Find an area with some space, relax your hand, and throw your plane in a straight line.**

## **Part 2: Modify the plane!**

**There are different ways you can modify your plane to make it faster or change direction**

- 1. Add paper clips to the front of the plane or on the wings to increase the thrust of your plane. Thrust is the forward propulsion of your plane that will make it go faster.**
- 2. Cut on the solid lines and fold the flaps on the dotted shown by the picture to create lift and drag on your plane. Lift causes you plane to go higher. Drag causes your plane to go lower.**





- a. What happens when you turn the wing flaps up? The plane should go down.
- b. What happens when you turn the flaps down? The plane should go up
- c. What happens when one slot is turned up and the other is turned down? The plane should turn.

### **Part 3: Customize a plane!**

1. After testing your plane and making your modifications, create a unique plane that is different from the one you just created.

**2.Name your plane and add any decorations to make it your own!**

**Part 4: Race your plane!**

**1. The students will be broken up into groups of 5 or 6 in order to race their planes.**

**2.Once a winner is found for each group of children, there will be a final round to determine the one winner.**