

Come Fly With Me



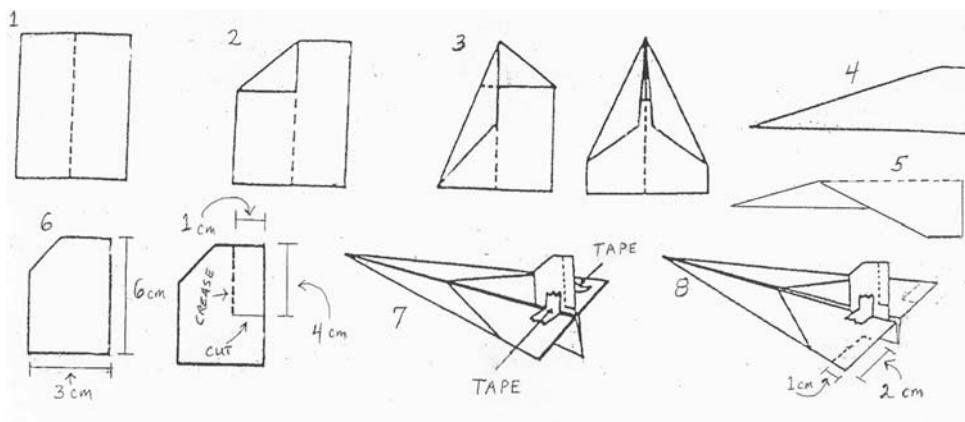
QUESTION: What variables affect the flight of a paper airplane?

MATERIALS:

- index card
- metric ruler
- paper (8.5 X 11)
- scissors
- transparent tape

PROCEDURE:

1. Fold a sheet of paper in half lengthwise (fig. 1)
2. Fold the corners A and B to the center of the crease as shown (fig. 2).
3. Fold corners C and D to the center of the crease (fig. 3).
4. Fold the plane in half to make it look like the one in fig. 4.
5. Now fold the wings down (fig. 5).
6. Use the index card to make a 6 cm X 3 cm rudder for the plane. Use the scissors to make a snip in the rudder, then make a crease along the rudder's length as shown in fig 6.
7. Use transparent tape to attach the rudder between the wings (fig. 7).
8. Use scissors to make a 2 cm X 1 cm flap on each wing as shown in fig. 8.
9. Make each of the following design modifications and record the effect of each on the flight of the plane. Record the results in Data Table #1. Rudder straight, flaps down; rudder right, flaps straight; rudder straight, flaps up; rudder left, flaps straight.
10. Make the necessary modifications so that your plane performs each of the following tasks. Record the results in Data Table #2.
 - A turn to the right
 - A nose dive
 - A turn to the left
 - A steep climb
11. Modify your plane to fly as far as possible. Perform three trials. Record the results in Data Table #3.



PS – Activity #4

DATA:

Data Table #1

VARIABLE	EFFECT ON FLIGHT
Rudder straight, flaps down	
Rudder straight, flaps up	
Rudder right, flaps straight	
Rudder left, flaps straight	

Data Table #2

PERFORMANCE TASK	SUCCESSFUL	UNSUCCESSFUL
Turn to the right		
Turn to the left		
Nose dive		
Steep climb		

Data Table #3

TRIAL	DISTANCE (M)
Trial #1	
Trial #2	
Trial #3	
Average distance	

QUESTIONS:

1. What causes the plane to turn left? To turn right?
2. What causes the plane to nose dive?
3. What causes the plane to climb?
4. What force/s enable/s the paper airplane to fly?
5. Suppose a twin-engine plane lost its right engine. What adjustments would the pilot need to make to maintain a level and straight flight?
6. What problems might the pilot of a small plane experience if he tried to fly his plane around the moon?