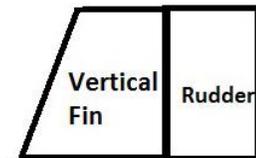
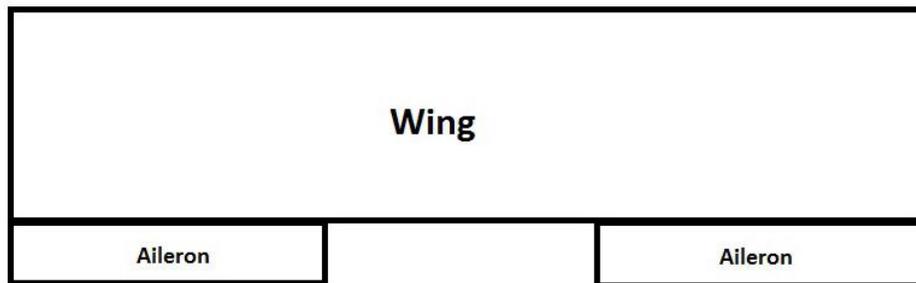




## Establishing a Left Turn

Most rubber powered enthusiasts set their airplanes to turn to the left during flight. This keeps the airplane near you when you are outside or within the confines of the space if you are flying indoors. There are several ways to control a left turn, using the control surfaces of your airplane. You have 4 control surfaces at your disposal: 2 ailerons, rudder and elevator.



On your Alpha this are marked with slits in the foam. Make sure the surface is free and bend it up or down with your fingers. The bend will be the hinge line of the control surface.

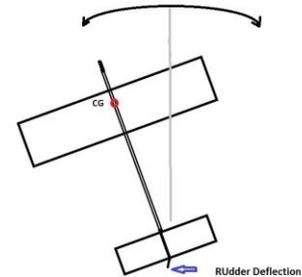
The lift of the plane is reduced as it flies in a circle, the smaller the circle the greater the reduction in lift.

*Maintaining altitude in a turn the vertical component of the lift must be equal to the weight of the airplane. The amount of lift required will be the vector resultant of the vertical and horizontal components. In physics the horizontal component is known as the "centripetal force". The confusing part is that centripetal*

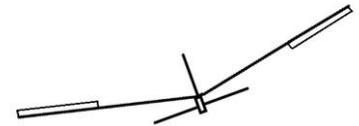
force points towards the inside of the circle. Centrifugal force is the force directed in the opposite direction, but this has been called a “false force”.

When you fly your Alpha you want to fly in a circle as large as you can make it with the space available. When you are outside, obviously, that is not an issue, but if you are flying indoors, try to trim your Alpha to use the available space.

The Rudder controls Yaw. Yaw is movement from side to side of the centerline of your airplane.

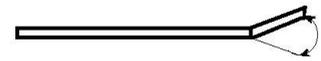


The Ailerons control Roll. This is the movement around the centerline of the airplane.



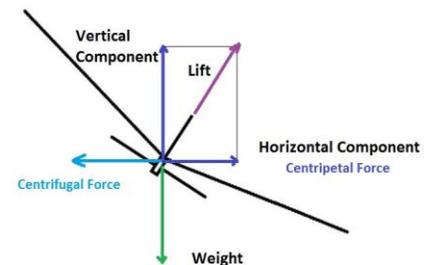
The Elevator controls Pitch. This is the movement up and down from the centerline of the airplane.

To make your plane turn left, you can adjust these control surfaces. If you have the center of gravity right on your airplane, it would be best not to use this surface to create your left turn. The reason is this is one of the controls you used to set your center of gravity and if you move it too much, you may have to re-adjust the CG.



Another factor affecting your control is the Dihedral of the wing. Notice that the wings of your Alpha are not in the same plane (not flat). Dihedral is the angle between the two wings. Dihedral will affect how your plane turns.

With these facts, do some experimenting to get your airplane to make a nice left turn. Keep records of what you do and record your success.



Make only one change at a time (have only one variable in your experiment). Do some test flights and record your results. Then go back to where you started and try something else. After some flights you will know what works best (you will have gathered empirical, verifiable data). Good records are important.

