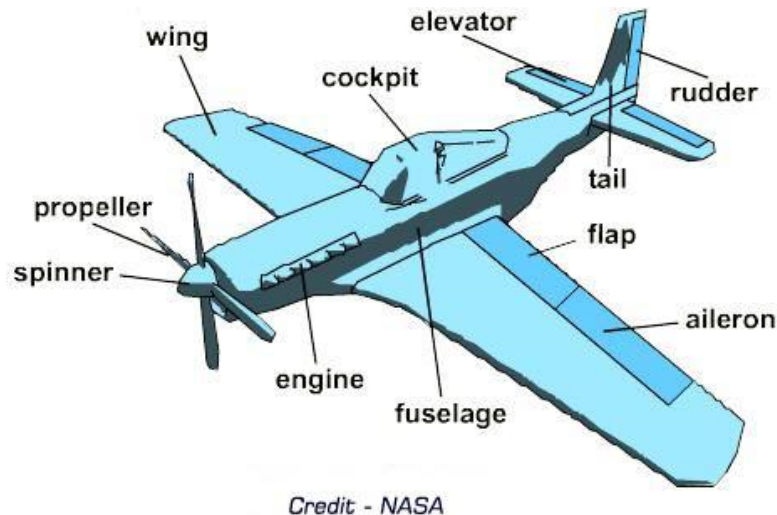


## Parts of a Plane



**Ailerons** - These are the small surfaces located at the ends of the wings. If they are angled in opposite directions to each other (ie. the left aileron is lowered and the right aileron is raised), the plane will roll in the direction of the aileron.

**Elevator** - The elevator can be controlled in an up and down motion. When angled up, the nose of the plane rises and when the elevator is lowered, the nose drops.

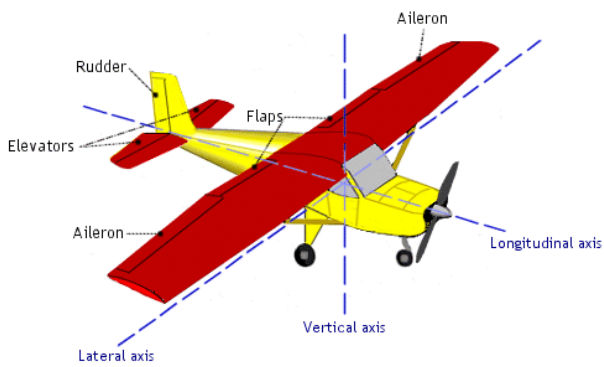
**Flaps** - Flaps are surfaces on the wings which can be raised or lowered to create additional lift or drag. They are used mainly during landing and takeoff.

**Fuselage** - The fuselage is the main body of the airplane. It can be used to carry cargo or passengers.

**Propeller** - The propeller creates the forward thrust to increase lift.

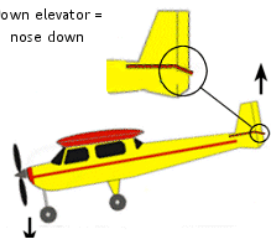
**Rudder** - The rudder is a flap which can be moved right or left. The nose of the plane will move in the direction of the turned rudder.

**Wing** - The wings permit lift to occur. This allows the plane to fly.

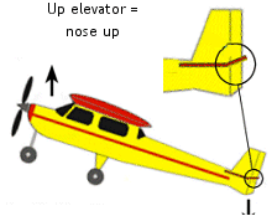


**Elevators**

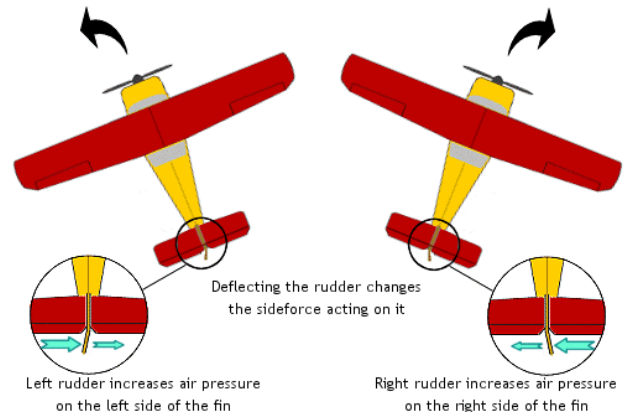
Down elevator = nose down



Up elevator = nose up

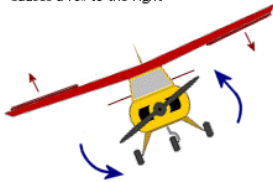


**Rudder**

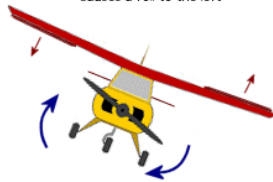


**Ailerons**

Left aileron down, right one up causes a roll to the right

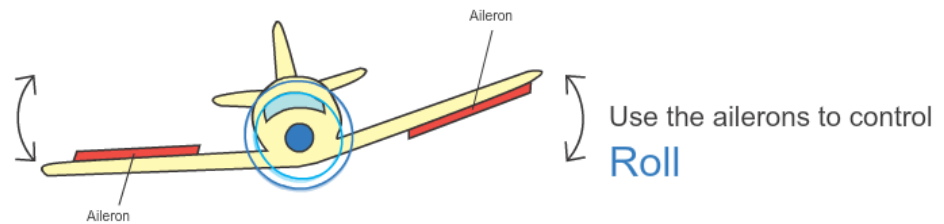


Left aileron up, right one down causes a roll to the left

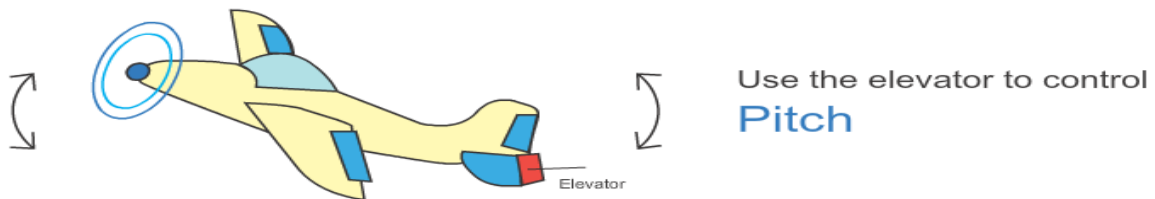




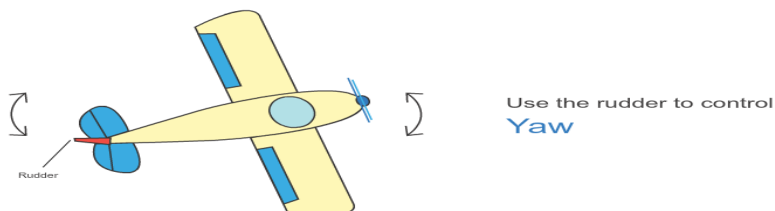
Turning the control column moves the ailerons and make the plane roll.



Pulling back and forward on the control column, make the plane pitch (point its nose up or down), so it climbs or dives.



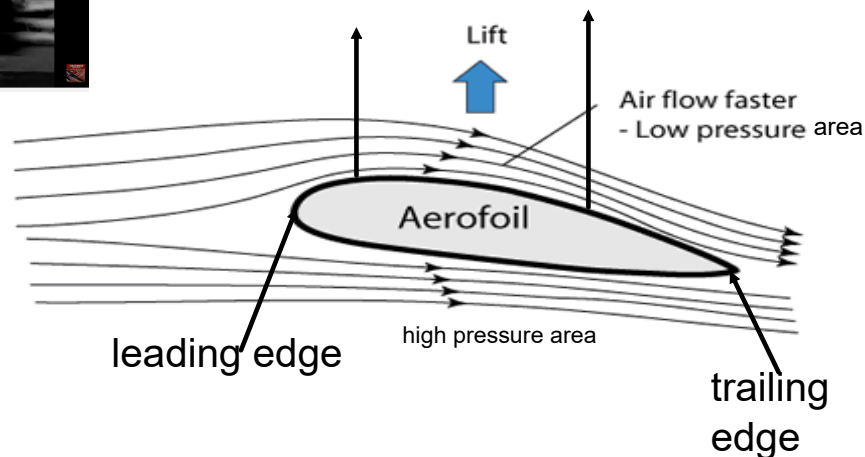
The rudder, worked by foot pedals, yaw or swivel (move right or left).



<http://howthingsfly.si.edu/flight-dynamics/roll-pitch-and-yaw>

- 🌐 When given pictures on a test you must be able to tell what each pane is doing and why?

## The Wing of a Plane



### Definition

**Airfoil** - a streamlined shape with a curved top, a rounded leading edge, and a sharp trailing edge.

When the airplane moves forward the air moves backwards remember over its wing.

- 1) When air hits the front of the wing (Leading edge) it splits up. Some goes on top and some goes under the wing.
- 2) The air flowing over the curved top of the wing has further to go than the air going under the flat bottom of the wing.
- 3) For the two streams of air to reach the back of the wing (trailing edge) at the same time, the top stream must travel faster than the bottom. (It has further to go)
- 4) This fast moving air creates a low pressure area on top of the wing and a high pressure area on the bottom of the wing. (Bernoulli's Law)
- 5) Since objects tend to go from high pressure to low pressure, lift is created, which is how birds and planes stay in the air. (Note that for the wing to have lift, it must be moving forward through the air)

## Video for Bernoulli's Principle

