

BIRD FLIGHT

Flight assists birds while feeding, breeding, avoiding predators and in some species migrating.

The fundamentals of bird flight are similar to those of aircraft. Lift force is produced by the action of air flow on the wing, which is an airfoil. Wing action produces lower pressure just above the wing and higher pressure below.

When gliding, birds obtain both a vertical and a forward force from their wings. This happens because the lift force is generated at right angles to the air flow, which in gliding comes from slightly below the horizontal (because the bird is descending). The lift force, therefore, has a forward component that counteracts drag.

When a bird flaps, as opposed to gliding, its wings continue to develop lift, but the lift is rotated forward to provide thrust, which counteracts drag and increases speed, this has the effect of also increasing lift to counteract weight, allowing height maintenance or to climb. Flapping has two stages: the down-stroke, which provides the majority of the thrust, and the up-stroke, which can also provide some thrust. On each up-stroke the wing is slightly folded inwards to reduce upward resistance. The angle of attack is changed between the up-stroke and the down-stroke of the wings. During the down-stroke the angle of attack is increased, and decreased during the up-stroke.

Apart from weight, there are three major drag forces that impede a bird's flight: frictional drag (caused by air friction on the body surfaces), form drag (due to frontal area of the bird, also known as pressure drag), and lift-induced drag (caused by the wingtip vortices). These forces are reduced when a bird streamlines its body and wings.

R.V.C. with help from Wikipedia

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BIRD KEEPING IN AUSTRALIA