

Name:

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Forces In Flight

Air moves around an airplane that is in motion. As the air moves, it acts on the plane with certain pushes and pulls, or forces. The study of how air pushes and pulls on objects is called aerodynamics. The four forces involved in flight are **WEIGHT**, **LIFT**, **THRUST**, and **DRAG**. Each of these forces acts in a different direction.

Weight is a force caused by gravity as it pulls down on an airplane or other object. Gravity is the force that pulls objects down toward Earth. An objects weight depends on it mass.

Lift is the force that pushes up on an airplane or a bird. Lift happens when a flow of air is turned. Several things are involved in creating lift. The shape and angle of the wing, the speed of the plane, and the speed of the air around the plane all affect lift.

Thrust is the force that moves an airplane forward. An airplane's engines spin a propeller at a high speed. A propeller is a device made of blades that spin around a shaft to produce thrust. As the propeller spins, it pushes air back. As a reaction to this force, there is a force in the opposite direction-a push forward on the airplane.

Drag is the force that slows down a flying object. Drag is caused by friction between the air and the surface of the airplane.

Lift and weight act in opposite directions. Thrust and drag act in opposite directions. When the amounts of life and thrust are greater than the amounts of weight and drag, a plane flies.



