F L I G H T : Glossary/Terms

Adverse yaw
The tendency of an airplane to yaw in the direction opposite to the tail

Aerodynamics
A section of physics dealing with fluids (both liquids and gasses)

Aeronautical engineer
A scientist who applies the principles of flight to develop new airplanes and space vehicles

Airfoil
The cross-section of a wing

Aspect ratio
The span (length) of a wing divided by its chord (the distance from front to back of the wing)

Bank
The tilt of an airplane when taking a curve

Beaufort Scale
Rating system to estimate wind speed

Bernoulli's Principle, as applied to Flight
The pressure on a wing exerted by a fluid (such as air) decreases as the velocity of the fluid increases

Biplane
Airplane with two wings, one wing above the other

Camber
The curvature of a wing

Canard glider
The configuration of the Wright Brothers' glider, which featured a small wing ahead of a large wing; Canard is the French work for duck, a nickname used because of the similarity of the profile of the plane to the flying profile of the bird

Center of gravity
The point at which a plane will balance

Center of lift
The concentration of all individual forces that are spread over the top and bottom surface of the wing

Chord
Width, or distance from front to back of a wing

Constant velocity
Moving at a steady speed and direction

Control surface
Any movable part of a plane such as an elevator, aileron, or rudder

Dihedral angle
The upward angle of the wings that is formed where the wings connect to the fuselage

Drag
A restraining force parallel to the direction of movement; acts against the force of thrust

Elevator
A movable, horizontal surface that pivots up and down to control pitch

Fin
Another word for the vertical portion of the tail, also called the vertical stabilizer

Flaps
Movable parts of the trailing edge of a wing that are used to increase lift (and drag) at slower air speeds. When a plane lands, the flaps are extended to increase lift and drag, to fly at a slower speed. Flaps increase lift by changing the shape of the airfoil.

Force
A push or a pull in a certain direction

Forces of flight
Thrust, drag, lift, and weight

Gravity
An attractive force between all objects. We feel the pull of gravity toward the center of our planet. We experience gravity as weight. An airplane must generate enough lift to counteract its own weight.

Horizontal stabilizer
The horizontal part of the tail to which the elevator is attached

Kinetic energy
The energy of a moving object

Law of Action and Reaction
For every action force there is an equal and opposite reaction force; also known as the Newton's Third Law

Leading edge
The front edge of the wing

Lift
A force that pushes perpendicular to the direction of movement; acts against the force of weight in level flight

Monoplane
Airplane with one wing

Newton's Third Law
For every action force there is an equal and opposite reaction force; also known as the Law of Action and Reaction

Pitch
The motion of a plane as its nose moves up or down

Potential energy
The stored energy of an object

Power
The amount of work done in a specific period of time; power = work/time

Roll
The tilting motion of a plane when one wing rises or falls in relation to the other

Rudder
A movable, vertical surface that pivots back and forth to control yaw

Speed
The distance an object moves in a specific amount of time without regard to the direction of motion; speed = distance / time

Stabilizer
A surface that helps to provide longitudinal stability for an aircraft, stability in pitch

Stall
The condition of an aircraft when excessive angle of attack causes the disruption of airflow and is accompanied by loss of lift

Streamline
Curved shape designed to minimize resistance to motion through air

Three-axis control
Simultaneously controlling an airplane's pitch, roll, and yaw

Thrust
A force that pushes or pulls an aircraft through the air; acts against the force of drag
Trailing edge
The back edge of the wing

Turbulence
Airflow that is not smooth and steady

Velocity
The speed of a object in a specific direction

Vertical fin / stabilizer
The vertical part of the tail to which the rudder is attached

Vortex
A whirling mass of air that increases drag on a flying surface

Warp
A twist or curve that developed in something flat or straight

Weight
A force that pulls an aircraft toward the ground; acts against the force of lift in level flight

Wind tunnel
A long passage through which a known velocity of air is blown

Wing
A surface that produces lift

Wing area
The surface area of one side of the wing

Wing-warping
A way of twisting the wings to control roll

Work
The distance an object moves multiplied by the force on the object; work = force x distance

Yaw
The twisting motion of a plane as its nose turns left or right