

Topic 3: Glossary

ailerons	control surfaces found on the trailing edge of the wings of the airplane. These work in opposition to each other (one goes up and the other goes down) to help create roll in the airplane.
airspeed	the speed of an aircraft relative to the air around it; velocity of a flying machine
altitude	the height of an object, like an airplane, above sea level or above the Earth's surface
basket	the container that hangs below a hot air balloon and transports people
buoyancy	the tendency of a body to float or rise when placed in a fluid; if an object is less dense than an equal volume of fluid surrounding it, that object will float
burner	the source of heat for increasing the temperature of the air in a hot air balloon
camber	the curved shape of a wing that creates lift
cockpit	the area of the airplane in which the pilot and other officers sit. The airplane is controlled from the cockpit.
control surfaces	the rudder, ailerons, and elevator that work together to provide directional control for the airplane by altering the airflow around the surfaces of the airplane
dihedral angle	the upward angle of the wings that is formed where the wings connect to the fuselage
dirigible	a lighter-than-air craft (LTA) constructed with a lightweight rigid frame
drag	a force that opposes the force of thrust, thus keeping the airplane from moving easily; the resistance air puts on a flying object
elevator	the control surface found on the horizontal stabilizer of the airplane. Movement of the hinged elevator causes the airplane to pitch up or down.
empennage	the parts of an airplane located at the tail end. The empennage includes the horizontal stabilizer, the vertical stabilizer, and elevators.
envelope	the balloon, which holds hot air in a hot air balloon
equilibrium	when all the forces of nature are in balance
expand	to enlarge
fin	the vertical surface of an airplane's tail
flaps	the inner sections found on the trailing edge of the wings. The flaps are lowered to help increase lift on takeoff and increase drag upon landing.

flight simulation	a tool of aeronautics in which a flight simulator on the ground is used to create an environment where a pilot sees, hears, and feels like he or she is in a real aircraft. Flight simulation is used to investigate how an aircraft responds to a pilot's movements of the controls.
fuselage	the main portion (body) of the airplane to which the wings are attached
ground speed	the speed an airplane travels in relationship to the Earth
horizontal stabilizer	this is the horizontal portion of the tail section of the airplane. On the horizontal stabilizer, you will find the elevators.
instruments	tools used to observe, measure, and control. For example, pilots use instruments to measure and observe the altitude, speed, and direction of an aircraft.
jet engine	an engine that works by creating a high velocity jet of air to propel the engine forward
landing gear	the portion of an airplane that supports the airplane while on the ground or other landing surfaces; the undercarriage. The landing gear may be wheels, pontoons, or skis.
lift	the force that counteracts gravity. Lift is needed in order to get an airplane off the ground.
model	a simpler, smaller, or less expensive version of a final design
pitch	movement around the lateral axis, moving the nose of the airplane up and down
propeller	this is the spinning structure that is attached to the front of a single-engine airplane. It is attached to the drive shaft of the engine. When it spins, it causes a movement of air that helps move the airplane. It is the main means of propulsion for an airplane.
propulsion	moving an object
prototype	an original model on which something is patterned; prototypes are tested in wind tunnels
regimes of flight	a way of placing aircraft into different categories based on their speeds: subsonic, transonic, supersonic, hypersonic
relative wind	the wind speed and direction relative to an airplane's speed and direction
rocket	any device propelled by the ejection of matter
roll	movement around the longitudinal axis, moving the wings up and down; fuselage rotation
rudder	a hinged control surface on the vertical stabilizer affecting the yaw of the airplane
speed of sound	the speed at which sound travels; a speed threshold for airplanes; approximately 760 miles per hour (1,220 km/h) at sea level

stability	the ability of the airplane to control movement (pitch, roll, and yaw) in order to maintain altitude despite air turbulence.
stabilizer	the horizontal surface of the airplane's tail
stall	a breakdown of the airflow over a wing, which suddenly reduces lift. When an airplane stalls, it will usually drop suddenly. Pilots know how to recover from a stall and smooth out the airflow over the wings to produce more lift again.
streamline	the design of an object that reduces drag
takeoff	the process of using the thrust of the engines to accelerate an airplane down a runway until enough lift is generated so that the aircraft begins to fly
thrust	the force that opposes the force of drag. Thrust helps move the object forward or in the direction of the thrusting force.
turbine engines	jet engines that contain a fan-like part called a turbine. Turbine blades are turned by air flowing past them unlike propellers that have energy of their own.
turbulence	airflow that is not smooth and steady. When an airplane flies through turbulent air, it can unexpectedly rise, drop, roll, pitch, or yaw very abruptly
velocity	the speed at which a flying machine travels through the air; the speed of motion; airspeed
vertical stabilizer	the vertical portion of the tail of the airplane. The rudder is attached here.
weight	the force of gravity. It acts in a downward direction, towards the centre of Earth.
wings	the two or more sections that extend from both sides of the fuselage of the airplane. The ailerons and flaps are attached to the wings.
X-29	an experimental supersonic jet that has forward sweep-wings. It is capable of going over one and one-half times the speed of sound.
yaw	movement around the vertical axis, moving the nose of the airplane left or right; used to maintain or change direction