

air aerodynamics & flight **vocabulary**

TERM	DEFINITION	PICTURE OR CONNECTION
Aerodynamics	The science of moving through the air.	
Air	An invisible mixture of gases, which make up earths atmosphere – it consists mainly of nitrogen and oxygen.	
Airfoil	An object shaped/designed to obtain maximum lift when moving through the air (wing, rudder).	
Air pressure	The force exerted on the surface of objects by the weight of air particles – air pressure acts from all directions and increases with increased concentration of air molecules.	
Atmosphere	The mass of air, which surrounds the earth.	
Barbules	Projections on barbs that link with those above and below them to keeping all barbs connected, making a solid feather surface. Preening is the act of rubbing preen gland oil on feathers with the beak and zipping up the barbules again.	
Bernoulli's principle	When the speed of a fluid is low (water or air), the pressure is high. When the speed of a fluid is high the pressure is low. The faster that air moves across a surface, the lower the air pressure.	

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Buoyancy	The ability of an object to float or rise when placed in a fluid.	
Burning	A rapid form of oxidation in which substances combine with oxygen to form one or more oxides and plenty of heat and light, also called combustion.	
Compression	The squeezing of the particles of a gas or porous body into a smaller space.	
Contour feathers	The larger feathers that cover the body of birds and their wings. Contour feathers include flight feathers.	
Control Surfaces	Small surfaces that can be moved to alter airflow and change an airplane's altitude.	
Down	Short fluffy feathers that lie underneath contour feathers and these feathers trap air and act as an insulator helping birds stay warm.	
Drag	Resistance or frictions that acts to slow down an object when it moves through a gas or a liquid.	
Expand	To take up more room.	
Fluid	A way to describe any substance that flows or forms around another object.	
Friction	The force that resists motion of one body over or through another.	

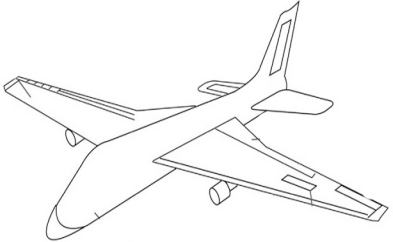
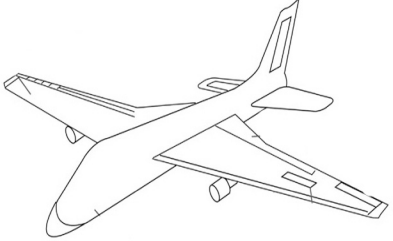
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Glider	An aircraft that flies without an engine - its pilot tries to find updrafts of air to gain height and extend the flight.	
Gravity	A force of attraction that every mass in the universe exerts on other masses. This force increases with increase in mass of an object.	
Hovercraft	A machine that floats on a cushion of compressed air.	
Jet engine	An engine that generates a powerful thrust in a chamber where the explosion of the burning fuel pushes on the airplane in a forward direction but escapes out the back.	
Keratin	A tough flexible protein that makes up fingernails and other parts of animals including the shaft of feathers	
Kinetic energy	Energy of motion. The faster an object moves the more kinetic energy it has.	
Lift	Upward force, which acts against the force of gravity – reducing air pressure on the topside of an airfoil, produces lift.	
Mass	The amount of matter in an object.	
Pectoral muscles	Muscles of the chest.	

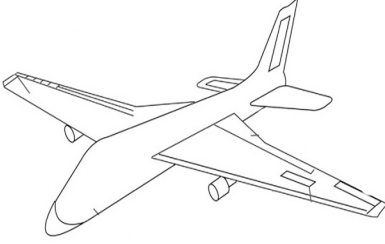
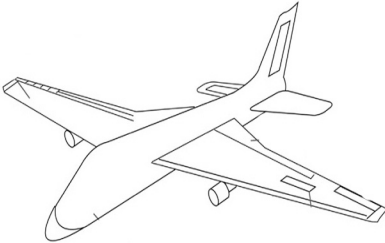
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Propeller	Curved blade that, when spun around quickly, forces an aircraft forward – a propeller is a twisted airfoil.	
Oxidation	Occurs when a substance combines with oxygen.	
Resistance	Drag or friction that acts to slow down an object as it moves through a gas or liquid.	
Rusting	A slow chemical reaction between iron and oxygen to form rust or iron oxide.	
Streamlining	The shaping of an object so that a gas or liquid will move easily around it.	
Stability	The ability of an airplane to control pitch, roll and yaw in order to maintain altitude after a disturbance.	
Thrust	The force that causes an object to move forward.	
Vacuum	Where there is no air pressure.	
Weight	The force with which gravity pulls on an object – technically it should be expressed in Newtons but is often measured in units of mass such as grams or kilograms.	
Roll	Rotation of the fuselage.	

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Pitch	Up or down attitude of the nose of the plane.	
Yaw	Left or right attitude of the nose of a plane.	
Aircraft	Any weight-carrying structure designed to navigate through the air which can be supported either by its own buoyancy or by the action of the air against its surfaces.	
Spacecraft	A vehicle designed for travel or operation in space beyond the earth's atmosphere or in orbit around the earth.	
Aileron	Sections of the wing, which can move up or down and control roll.	
Rudder	The hinged section of the tail of the airplane, which helps the plane move right or left; that is yaw.	

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Elevators	The horizontal part of a plane's stabilizer used to control pitch.	
Fuselage	The main body of the plane.	
Wings (airplane)	Rigid horizontal structures that project from both sides of an aircraft and supports it in the air.	