

# GLOSSARY of MODEL ROCKETRY TERMS

**Aerodynamics** - The science and study of air in motion.

**Acceleration** - A rate of change in the speed of an object over a unit of time.

**Accelerometer** - An instrument that measures acceleration.

**Aerospace** - A compound term used to describe the atmosphere and space as one medium. The science of aeronautics and space spoken as one.

**Altimeter** - A device, usually an aneroid barometer, that reads in feet of altitude based on atmospheric pressure in inches of mercury.

**Apogee** - The highest point reached in the flight of a rocket.

**Airfoil** - A component of an airplane or a rocket that causes a dynamic reaction from the air through which it moves. A fin is an airfoil.

**Armed** - A ready-to-launch condition in which a safety key is inserted.

**Ballistic** - A projectile that receives an initial thrust from a power source then continues in motion due to momentum. A bullet is an example of a ballistic missile.

**Ballast** - Added weight, such as clay in a nose cone.

**Blast** - A burst of hot rocket motor exhaust.

**Blast Deflector** - A device that is designed to deflect the exhaust in a direction away from the source.

**Boost** - An additional source of power or thrust.

**Boost Phase** - The period in a model rocket's flight where a motor is providing thrust.

**Burn** - The time in which a model rocket motor is providing thrust.

**Burn-out** - The point where all of the fuel is expended and thrust is no longer provided.

**Center of Gravity** - The balancing point of all of the mass. This is also known as the Center of Mass.

**Center of Pressure** - The point where all of the aerodynamic forces will balance while the rocket is in motion. This is usually behind the center of gravity near the tail of the model.

**Cluster** - A group of rocket motors working together.

**Coasting** - A time in the flight of a model rocket right after the fuel is expended and the ejection charge is not yet fired.

**Combustion** - A chemical reaction that occurs inside the combustion chamber and provides a controlled explosion resulting in thrust.

**Deceleration** - Slowing down or decreasing speed.

**Drag** - Forces acting upon an object to slow it down.

**Duration** - The length of time in flight.

**Ejection** - To be forcefully moved.

**Ejection Charge** - A component of fuel in a model rocket's motor that provides enough thrust to blow the recovery system out of the body.

**Elevation** - An angle measured above the horizon.

**FAA** - Federal Aviation Administration. This is the governing body that controls all of the air-space above the USA.

**Fillet** - A filler added at the juncture of two components. In the case of a model rocket, a fillet is a layer of glue or putty that smooths out a right angle joint. This can add strength and improve aerodynamic flow.

**Fin** - An airfoil attached to the body. In the example of a model rocket, a fin is attached to aft section and adds stability in flight.

**Finish** - The final surface of a model rocket.

**Fuel** - The chemical, which reacts with oxygen to create thrust.

**G** - A unit of gravity.

**Glide** - The non-powered descent of a model with airfoils controlling part of the descent.

**High-Power Rocketry** - An advanced segment of the model rocketry hobby where motors larger than a "D" are used for thrust.

**Igniter** - An electrical device, usually nichrome wire, that provides enough heat to cause the chemical reaction between the fuel and the oxidizer.

**Impulse** - A motion-producing force.

**Ignition** - A point where fuel and oxidizer combine.

**Lateral axis** - The axis running through the center of gravity from side to side as viewed from the front. Movement about this axis is called "Pitch."

**Launch** - The takeoff.

**Launch controller** - An electrical system that provides a current to the igniter.

**Launch lug** - A tube that is attached to the body of the rocket for the purpose of guiding the model up the launch rod during liftoff.

**Launch rod** - A rod used to guide a model rocket in the first moments of ascent. This rod provides a path in the first seconds of launch.

**Launch tower** - A structure that provides a path for the rocket, during launch, by exerting slight pressures upon the fins.

**Leading Edge** - The front edge of an airfoil. This is the edge that encounters the oncoming wind first.

**Longitudinal axis** - The axis going from the nose to the tail through the body of the rocket. Movement about this axis is called "Roll."

**Mass Ratio** - A ratio between the mass (weight) of a rocket at liftoff to its mass after the fuel has burned off.

**Maximum Thrust** - The greatest amount of thrust created during the combustion process.

**Momentum** - Mass times velocity equals momentum.

**Motor** - A device that converts chemical energy into thrust. The word is used interchangeably with "engine."

**Multi-Stage** - A rocket having two or more sections that operate one after the other.

**NAR** - The National Association of Rocketry. This is the official governing body of the model rocket hobby.

**Newton** - In scientific terms, it is method of measuring **impulse**. It

is the amount of force necessary to move one kilogram of mass through a distance of one meter per second per second.

**Nichrome** - An alloy wire used to ignite model rocket motors when an electrical current is passed through it.

**Nozzle** - A small area of a rocket motor where exhaust gases pass through and are directed outward.

**Oxidizer** - A chemical in a rocket motor that reacts with the fuel to provide combustion.

**Payload** - An object (s) that is carried on board of a rocket during its flight. The payload is not normally a permanent fixture of the rocket.

**Propellant** - The combined mass of the fuel and the oxidizer.

**Propulsion** - The act of moving the rocket forward.

**Range** - An outdoor launch area.

**Recovery System** - A system built into a model rocket to bring it safely back to Earth after a flight.

**Relative Wind** - As a rocket moves through the air, it creates a "wind" that travels in the opposite direction. This is the relative wind.

**Shock cord** - An elastic cord that attaches the parts that separate when the ejection charge is ignited.

**Shroud Line** - The lines that make up the parachute.

**Solid Propellant** - When the fuel and oxidizer are dry chemicals, they make up the solid propellant.

**Specific Impulse** - The number of pounds of thrust delivered by consuming one pound of propellant in one second.

**Stability** - A measure of perform-

ance based on the ability of a rocket to maintain a desired course.

**Streamer** - A strip, or ribbon, of material used to slow the descent of a model rocket-other than a parachute.

**Swing Test** - A method of testing the basic stability of a model rocket.

**Thrust** - A force produced when the propellant burns.

**Trajectory** - The flight path of a model rocket.

**Velocity** - The speed per unit of time in a given direction.

**Vertical Axis** - The axis going through the center of gravity and 90° to the lateral and horizontal axes. Movement around this axis is known as "yaw."

**Wadding** - A flame resistant material (usually paper) that is packed between the motor (ejection charge) and the recovery system. This keeps the heat from damaging the parachute, payload and/or streamer.

# MODEL ROCKET MANUFACTURERS, SUPPLY HOUSES and ORGANIZATIONS

## Associations and Publications

National Association of Rocketry (Safety Rules featured in Text)  
P.O. Box 177  
Altoona, WI 54720  
[www.nar.org](http://www.nar.org)

Tripoli Rocketry Association, Inc. (High Power Rocketry)  
P.O. Box 339  
Kenner, LA 70063  
[www.tripoli.org](http://www.tripoli.org)

Sport Rocketry Magazine (The official magazine of the NAR)  
P.O. Box 177  
Altoona, WI 54720  
[www.nar.org](http://www.nar.org)

Academy of Model Aeronautics (An organization that welcomes free flight, radio control, control line, rockets, boats and kites)  
5151 E. Memorial Dr.  
Muncie, IN 47302  
[www.modelaircraft.org](http://www.modelaircraft.org)

**The following businesses offer a line of products related to model rocketry. It is recommended that the cadet search the internet to see what is available.**

Estes Industries (Featured in Text)  
1295 H Street  
Penrose, CO 81240  
[www.estesrockets.com](http://www.estesrockets.com)

Quest Aerospace (Featured in Text)  
350 E. 18th St.  
Yuma, AZ 85364  
[www.questrockets.com](http://www.questrockets.com)

Custom Rocket Co. (Elite model featured in text)  
P.O. Box 1865  
Lake Havasu, AZ 86405  
[www.greathobbies.com](http://www.greathobbies.com)

Arbor Scientific (Air Powered kits / featured in text)  
P.O. Box 2750  
Ann Arbor, MI 48106  
[www.arborsci.com](http://www.arborsci.com)

Apogee  
1130 Elkton Dr., Ste A  
Colorado Springs, CO 80907  
[www.apogeerockets.com](http://www.apogeerockets.com)

Air Burst Rockets (Air Powered Model Rockets/ featured in text)  
MMI Mondo-tronics, Inc.  
PMBN 4286 Redwood Hwy.  
San Rafael, CA 94903

True Modeler's Rocket Kits  
P.O. Box 186  
Harbeson, DE 19951  
[www.truemodeler.com](http://www.truemodeler.com)

Pitsco, Inc.  
915 E. Jefferson  
P.O. Box 1708  
Pittsburg, KS 66762  
This company is primarily a school supply, however, they have a huge inventory of model rockets and related components.  
1-800 835-0686

Fliskits, Inc.  
6 Jennifer Drive  
Merrimack, N.H. 03054  
[www.fliskits.com](http://www.fliskits.com)

Civil Air Patrol Bookstore  
30 S. Arnold St  
Maxwell AFB, AL 36112  
1-800-633-8768