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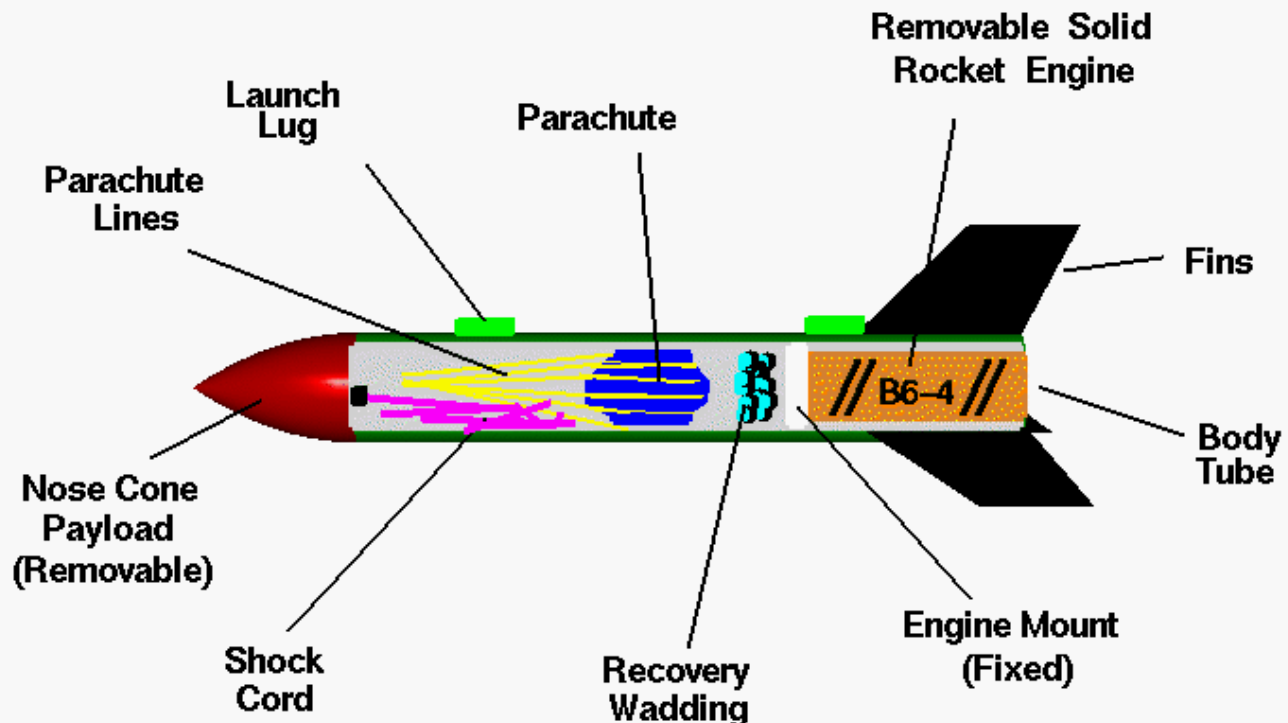
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Model Rockets



Flying model rockets is a relatively [safe](#) and inexpensive way for students to learn the basics of [forces](#) and the response of a vehicle to external forces. Like an airplane, a model rocket is subjected to the [forces](#) of [weight](#), [thrust](#), and [aerodynamics](#) during its [flight](#).

On this slide we show the parts of a single stage model rocket. We have laid the rocket on its side and cut a hole in the body tube so that we can see what is inside. Beginning at the far right, the **body** of the rocket is a green cardboard tube with black **fins** attached at the rear. The fins can be made of either plastic or balsa wood and are used to provide [stability](#) during flight. Model rockets use small, pre-packaged, [solid fuel engines](#). The engine is [used](#) only once, and then is replaced with a new engine for the next flight. Engines come in a variety of [sizes](#) and can be purchased at hobby stores and at some toy stores. The thrust of the engine is transmitted to the body of the rocket through the **engine mount**. This part is fixed to the rocket and can be made of heavy cardboard or wood. There is a hole through the engine mount to allow the **ejection charge** of the engine to pressurize the body tube at the end of the coasting phase and eject the nose cone and the recovery system. **Recovery wadding** is inserted between the engine mount and the recovery system to prevent the hot gas of the ejection charge from damaging the recovery system. The recovery wadding is sold with the engine. The recovery system consists of a **parachute** (or a **streamer**) and some **lines** to connect the parachute to the nose cone. Parachutes and streamers are made of thin sheets of plastic. The **nose cone** can be made of balsa wood, or plastic, and may be either solid or hollow. The nose cone is inserted into the body tube before flight. An elastic **shock cord** is connected to both the body tube and the nose cone and is used to keep all the parts of the rocket together during recovery. The **launch lugs** are small tubes (straws) which are attached to the body tube. The launch rail is inserted through these tubes to provide stability to the rocket during launch.

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