

Bizarre Stuff

You Can Make in Your Kitchen

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Match stick rocket



A tiny rocket can be made very simply with a small piece of aluminum foil, a paper match from a matchbook, and a paper clip. The aluminum foil should be about one inch (25mm) high and about 2 inches (50mm) long. It needs to be free from holes. Cut off one of the match heads, leaving as little of the paper as possible. Place it on the aluminum foil, centered from top to bottom, and a little further away from one edge as it is thick.

Unfold a paperclip and lay one end on the foil, the tip touching the match head. The match head should be paper end up, business end towards the clip. Fold the narrower edge of the foil over, then foil the whole thing over two or three more times. Tear or cut off the excess edge, and twist the bottom tightly around the arm of the paper clip. At the same time, twist the top tightly closed. While doing this, be careful so that the paper clip stays in and in contact with the match. Also make sure you don't put any tears in the foil.



Once it is all twisted together tightly, you can cut off a little of the top if it seems too long. Be careful not to cut it too short, though, as there needs to be a good seal all around. You can either leave the little rocket on the paper clip, bending it to form a launch pad, or you can transfer it to a straight pin, which is sticking up through cardboard. The straight pin is smaller in diameter, so it offers less resistance during launch. The paper clip is easier to deal with, and actually works fairly well. Either way, the launch pad and rocket should be placed on a non-burnable surface. Make certain that it is not pointing towards



anything that may easily catch on fire, explode, etc. Do this outside, and aim it away from people and the pets!

When lighting the rocket, use either a long kitchen match or one of those long butane lighters used to light fire places. This isn't going to send out sheets of fire or anything, but you really don't want to stick your hand directly under it with a little paper match. Hold the flame right under the middle of the rocket. Pretty soon the match head will grow hot enough to ignite. The vapors formed by the ignition will be at high pressure, and their only means of escape will be through the opening where the paperclip is. For every action there is an equal and opposite reaction, so the tiny rocket is propelled through the air for a short distance.

If your rocket didn't work so well the first time, wait until it cools and examine it. If there are holes and burnt marks on the sides or top, then either there weren't enough layers of foil or it wasn't wrapped tightly enough. Adding more layers of foil is tricky, though, because it will make the rocket harder to light, and it will make it heavier so that it won't fly so far. Trial and error will determine how many times to fold the foil. Also make certain that the path from the match head and the outside world (paper clip) is unobstructed. Experimentation will help you work up to a little rocket that will fly fairly well. Increasing the number of match heads or using wooden match heads may make the rocket fly farther, but you are much more likely to have a "blow out". Too many match heads quickly becomes a fire hazard, so stick to one or two unless you happen to be in charge of a missile proving ground.

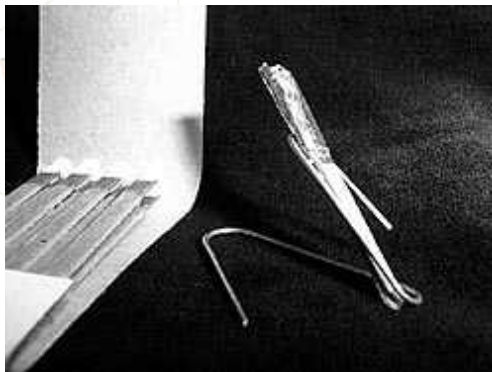
William Kolb adds a variation on the theme:



"To make this rocket, you will need some heavy-duty aluminum foil, a book of paper matches, a paper-clip and a pin. Cut a piece of aluminum foil about 1-inch wide and 1.5-inches long. Set a paper-match on the foil with the pin lying along the match as shown in the picture. The pin must touch the head of the match. Fold the aluminum over the match head and then roll the

foil tightly around the match and pin. Gently remove the pin to form the rocket nozzle.

Fold the paper-clip as shown to make a rocket launcher. Ignite the rocket by bringing a lighted match below the foil-wrapped head. When the match ignites, the rocket will fly several feet, propelled by the expanding gas shooting from the nozzle. Try making the nozzle slightly larger using the paper-clip wire and note what happens. Try extending the foil a little farther down the match and see what happens. For extra power, tear off the heads from an extra match or two and wrap them up in the foil on the rocket."



For even more info, there is a [Matchstick Rocket Website](#) full of other variations - be sure and check out the links!

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