

EepyBird's

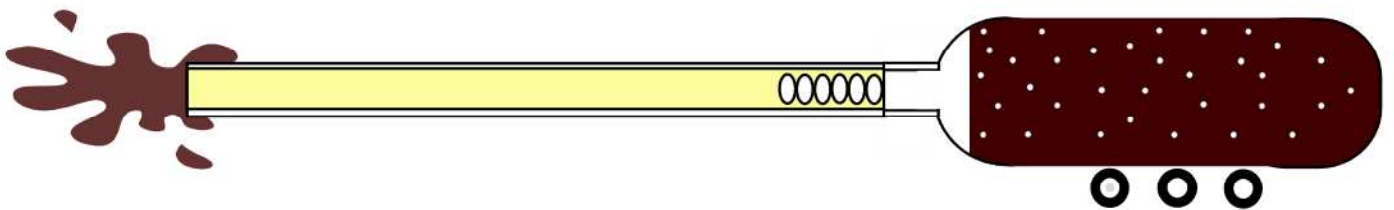
MENTOS POWERED

ROCKET

Mini

CAR

**EASY DO-IT-YOURSELF
INSTRUCTIONS**



(c) 2010 Fritz Grobe and Stephen Voltz



How do you capture the power of a Mentos geyser? It's easy!

Everything you need to build your own mini-rocket car can be found at your local hardware store, Home Depot, or Lowe's.

The total cost should be less than \$20.00, and the project only requires simple tools.

IMPORTANT SAFETY STUFF:

We've worked to make this project as safe and as fun as we can.

But be careful - this project is designed for grownups who are used to using tools.

If you're a kid, don't try this without a responsible adult supervising.

If you're an irresponsible adult, don't try this.

So be safe and have fun!

What you'll need:

- Mentos mints (we use 6 Mentos per launch)
- 2 liter bottles of diet soda (keep them at room temperature, not cold!)
- $\frac{3}{4}$ " Dowel
- Small block of wood (we use a 4" piece of a 1" x 3" board)
- Wrist strap (we use a 12" piece cut from a 1" nylon ratchet strap)
- $\frac{3}{4}$ " Screw
- 2" Screw
- $\frac{3}{4}$ " PVC pipe (it usually comes in 10 foot lengths; you'll only need 2 feet)
- Masking tape
- Duct tape
- Safety goggles
- Tri-dolly (a small, 6-inch, 3-wheeled furniture dolly)

Here's what a tri-dolly looks like. It's about 6 inches across, has three rotating casters, and costs about \$9. It's the best simple set of wheels we've found for the mini-rocket car, but lots of other wheels work also.



Tools you will need:



Safety Goggles
Marker

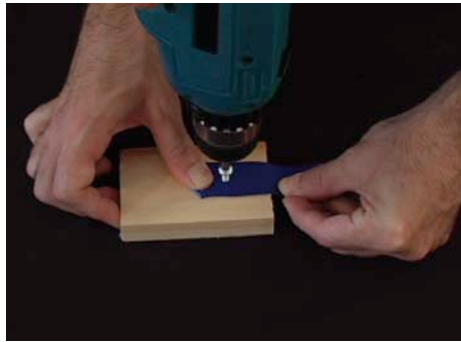
Measuring Tape
Scissors

Screw gun or screwdriver
Saw

Step One: The Piston

This piston is the key to harnessing the power of the Mentos geyser to give you real speed and distance with your mini-rocket car. It's a simple dowel with a handle block and very important wrist strap for safety.

1. Cut a 30 inch piece of the $\frac{3}{4}$ " dowel.
2. Cut a 4 inch piece of 1" x 3" board to make your handle block. If you don't have a 1" x 3" board, a block of similar size that fits in your hand will work.
3. Cut a 12 inch piece of the 1" wrist strap (or if your hands are larger, make the wrist strap slightly longer).
4. Using the $\frac{3}{4}$ " screw, carefully screw the wrist strap to the handle block as shown:



5. Flip the handle block over and start screwing the 2" screw into the handle block as shown. Only screw into the handle block far enough so that the tip of the screw pokes out the opposite side. This will help you in the next step.



6. With the tip of the 2" screw just sticking out through the handle block, line up the tip of that screw with the center of the end of the dowel and carefully screw in the rest of the way to firmly attach the handle block to the dowel.



The piston is now complete!

Step Two: The Tube

This tube, taped onto the bottle, will hold the Mentos and serve as a pressure chamber for the piston.

1. Cut a 24 inch piece of the $\frac{3}{4}$ " PVC pipe.



That's it. The tube is done.

Step Three: The Mini-Rocket Car

Now it's time to go outside and find a nice open space, away from traffic, people, and any objects that might get in the way. After this step, the mini-rocket car will be ready to launch.

1. Put a strip of masking tape across one end of the tube.



2. Turn the tube so that the taped end is down, and load 6 Mentos mints into the tube.



3. Keeping the tube upright so that the Mentos don't fall out, open the bottle of soda and line up the end of the tube with the mouth of the bottle. And don't forget: the soda should be at room temperature - cold soda will make for a very slow mini-rocket car!



4. Use duct tape to tape the tube tightly and solidly onto the mouth of the bottle.



5. Tape the tri-dolly (or other wheels) onto the side of the bottle with a piece of duct tape.



You now have the piston, tube, and mini-rocket car, and you're ready for launch!

Step Four: The Launch

Read through the launch instructions carefully ahead of time – once you tip the bottle on it's side, the soda will start reacting with the Mentos and there won't be time to go back and read these instructions!

1. Put on those safety goggles.
2. Put on that wrist strap. This important step is to help keep the piston from flying away accidentally. Lab coats are optional, the wrist strap is not.
3. Aim away from people, cars, buildings, and other nearby objects.

• Build Your Own Mentos Mini-Rocket Car •

4. With the bottle standing up and the tube vertical, insert the piston into the tube so that it just rests on top of the Mentos - but don't push it all the way in yet!



5. With one hand on the tube and the other on the piston handle, tip the rocket car down so the wheels are on the ground.



6. Once the car is resting on its wheels, immediately push the piston all the way into the tube so that the Mentos break through the tape and go into the bottle.



7. Keep a hold of the piston handle and let go of the tube. And prepare to get a little bit wet!



8. Watch that rocket car go!

9. Finally, don't forget the most important part: celebrate!



That's it - the Mentos Mini-Rocket Car!
Make several and race them against each other!

Our big rocket car, powered by 108 bottles of soda and 648 Mentos mints, uses a similar piston mechanism to harness all that power and carry a human. It carried Fritz 221 feet, and it carried David Letterman 364 feet - but he had a downhill slope assisting him.

So how far can a single-bottle mini-rocket car go? Our first tests went 30 feet. Now that we've refined the methods, the farthest we've propelled a single bottle (so far!) is 176 feet.

See what results you can get, and let us know how far your mini-rocket car goes!

Be safe. Have fun. Explore your world!

To see cool videos of the mini-rocket car, the big rocket car,
and other fun stuff, visit **www.EepyBird.com**.