

COKE AND MENTOS SUPER FOUNTAINS



an
Eepy Bird
Production

How to Do It Yourself

First and Most Important

BE CAREFUL, DON'T LET YOUNG CHILDREN TRY THIS UNSUPERVISED AND WEAR EYE PROTECTION. We love the look of the goggles we wear in the videos, but we actually wear them to protect our eyes as well. You should too. You can get a pair of shop goggles for a couple of bucks at any hardware store. Pick a couple pair up when you're out buying your soda and use them. Besides, they make you look cool.



Goggles: make sure to wear 'em.

Lab coats are optional, but of course stylish.

Soda and Bottle

We've used both name brand and off brand colas. And we've used both Diet Coke and Coke Zero. We like using **Coke Zero** these days.



The classic two liter bottle

Use diet rather than regular soda though because without the sugar it's not at all sticky to clean up and without the calories the bugs seem to have no interest. (We actually had bees come over, check out the bottles, turn around and go away.)

We're not saying it doesn't make a mess, just that diet soda makes much *less* of a mess.

You can use pretty much any soda, but cola seems to work just a little better. Be careful of the bottles though. It turns out that the shape of the Coke bottle is a little different than, for example, the shape of some generic cola bottles we've used, and while both work, generic cola can be bottled with a little less room above the soda for the Mentos to hang down into. You can use any brand of soda, just be aware that if you do it first with one brand and then try with another brand you might have to make some minor adjustments.

Soda Temperature

This is the key! Use WARM (i.e., at least room temperature) soda. It's tempting to take a bottle right out of the refrigerator and use it, but if you do, the results will be disappointing. As with most every reaction, the warmer it is, the more energy there is in the system and the better it works. It took us an embarrassingly long time to figure this out.

Some of the highest fountains we've ever set off were the ones in New York for the Letterman show when we were out setting up for hours on 53rd Street in 90 degree weather, and in Phoenix at the Arizona State Fair with the bottles baking in the Arizona desert sun for several hours before we fired them off. Our most disappointing fountains were the ones we tested in March and April here in Maine before we finally figured out that warmer is better. (D'oh!)

One note on temperature: Room temperature is warm enough. If you want to warm the bottles a little bit more, you can put them in a sink of hot tap water for a few minutes. **WARNING:** Do **not** heat bottles of soda in an oven, a microwave or on the stove. They can melt and/or explode.

Wait to open those bottles!

We don't like to open the bottles until we're just about ready to set them off, so if you can, get some spare caps from other bottles, drill those spares and make your "cartridges" as explained below. Then when everything's ready, open the bottles you're going to use and swap the caps for the cartridges you just made. That way less of the CO₂ escapes.

Some of the effects we were most looking forward to in Experiment 137 completely fizzled because (we think) they stood around open too long before we set them off. The rest of the stuff worked so beautifully though the whole thing made us very happy, but just a heads up to keep the bottles closed until you're ready to set

them off or you may lose a lot of your oomph.

The "Cartridge"

We prepared the Mentos in 5 mint "cartridges".



Five Mentos hanging on fishing line below the bottle cap (in this photo one of the Mentos is hidden by the cap)

Basically, a cartridge consists of a bottle cap with a hole drilled in it, a length of fishing line threaded through the hole and a number of Mentos threaded onto the fishing line hanging below the cap. We put a binder clip on the fishing line above the hole to keep the Mentos from falling into the bottle until we're ready.

1. Drilling the Caps

This is trickier than it sounds at first because if you hold the cap with one hand and drill with the other, the hand holding the cap is perilously close to the rapidly spinning drill bit. **Do not do this.**

And do not drill a hole through your hand the way Matt did!

The way we do it is to hold the cap with a pair of pliers with one hand and the drill with the other. Much safer. Easier too.

It's easier and faster to drill all the caps first, and then drill all the Mentos.

Hole size: We've tried a bunch of different size holes and $\frac{1}{4}$ " seem to work best. A $\frac{1}{2}$ " hole makes for a big, impressive, short-lived geyser while the $\frac{1}{4}$ " holes are less impressive individually, but go a little higher, and last longer.



**Cap with a $\frac{1}{8}$ " hole and cap with a $\frac{1}{4}$ " hole
from our very first fountains¹**

If you find that you're really getting into this and want to do a lot and want to use different size caps you might do what we did and color code them with a Sharpie.

2. Drilling the Mentos

Drilling the Mentos is even trickier than drilling the caps. They're smaller and are hard to hold sometimes, so use pliers to hold them too when you drill.

We used a $\frac{3}{64}$ " bit. Other sizes will work too, the hole just needs to be large enough to fit the fishing line through but not so large that it cracks the Mentos. (Some will crack regardless though, so expect it.)

Mentos seem to have one side that is slightly flat and one side that is slightly more rounded. If you put the flatter side up towards the drill, it's easier to get started without the spinning bit sliding off.

Be extra careful here. You may be tempted to ignore our advice and hold the Mentos with your fingers. Don't. If you're going to be making a ten bottle

¹ We label our fountains by the size of opening in sixteenths of an inch, so a cap with a $\frac{1}{4}$ " opening is a "4" ($\frac{4}{16}$ "), a cap with a $\frac{1}{8}$ " opening is an "8" ($\frac{8}{16}$ "), etcetera.

fountain using 5 Mentos per bottle, you're going to be drilling fifty Mentos and that's going to get so tedious and boring that your active mind is going to wander. You don't want your fingers a half inch away from a whirring power drill when that happens. We repeat: Do not do what Matt did. Use pliers.

We generally use 5-6 Mentos per bottle. Each roll has 14. The cheapest way to buy them is to buy them in packs of 6 rolls.

3. Threading the Mentos

Cut off about a 5" piece of fishing line, thread a single Mentos² on the line and tie it so that the Mentos is as horizontal as possible.

You can then thread the remaining four Mentos onto the fishing line and the one you just tied on will keep the rest of them from sliding off the end.



A single Mentos tied onto fishing line



Five Mentos threaded onto fishing line

4. Put the Cartridge Together

Next, thread the other end of the fishing line up through the hole in one of the caps you've drilled. Clip the line with a binder clip to keep it from falling off, and you're done.

We recommend keeping the finished cartridges in a waterproof container like a Zip-Loc bag until your ready to load. Doing all that work, then having to start all over again because you knocked a bottle over or set one off on purpose and accidentally got all your remaining cartridges wet is no fun.

² We know it sounds weird, but for some reason, according to the people who make them the word "Mentos" – like the word "moose" – is both singular and plural.

Preparing Your Geyser Display

If you can find a picnic table or something similar it's much easier to work on, and looks much better, than setting up on the ground. Cleaning up, if you use diet soda, is not bad. Just hose it off, let it dry and that's pretty much it.

We recommend trying one or two single bottles first to get an idea of how it works and then setting up a multi-bottle arrangement for a grander effect. Go for at least five. Then again, why not try ten or twenty? The Bellagio effect is all about the multi-bottles.

Our first ever multi-bottle attempt was Experiment #10, which you can see at our website at <http://www.eepybird.com/featured-video/experiment10-first-geyser-show/>. That was ten bottles and was awesome.

Lay out your bottles in whatever configuration seems most appealing. If you're setting them off in a particular order, start by setting off the bottles that are farthest away from you first, that way you won't find yourself reaching through a stream of blasting Coke to reach the later sprung bottles.

You can tie strings to the binder clips and release bottles remotely or tie them all on one string and release them all at once too.

If you're ambitious you might try setting a couple of the side bottles at angles propped up by something. For Experiment # 10 we used cinder blocks. Be careful not to tip so much that the Mentos get wet. You might also try a couple of bottles with holes drilled on the sides of the bottle near the top like we did in Experiment #10 to get multiple streams shooting from a single bottle.

Arming the Bottles

Time to put on your eye protection.

Done? Good. Now comes the tricky part. And the trick is: **be gentle**.

Open the first bottle. Replace the cap with one of the cartridges and screw it on tight. You'll want to screw the cartridge caps onto the bottles so that the Mentos hang down towards the soda but DON'T touch it. Once they touch, things start to happen.