Hello from your local library! Thank you to the generous financial support of Mid-Valley STEM CTE Hub (http://www.midvalleystem.org/), we are presenting Bristlebots as this month's maker kit. They supported each Linn County library so that kids from all over the county can have some science fun.

If you want video instructions, check here: www.midvalleystem.org/bristle-bots

If you want print instructions, see below!

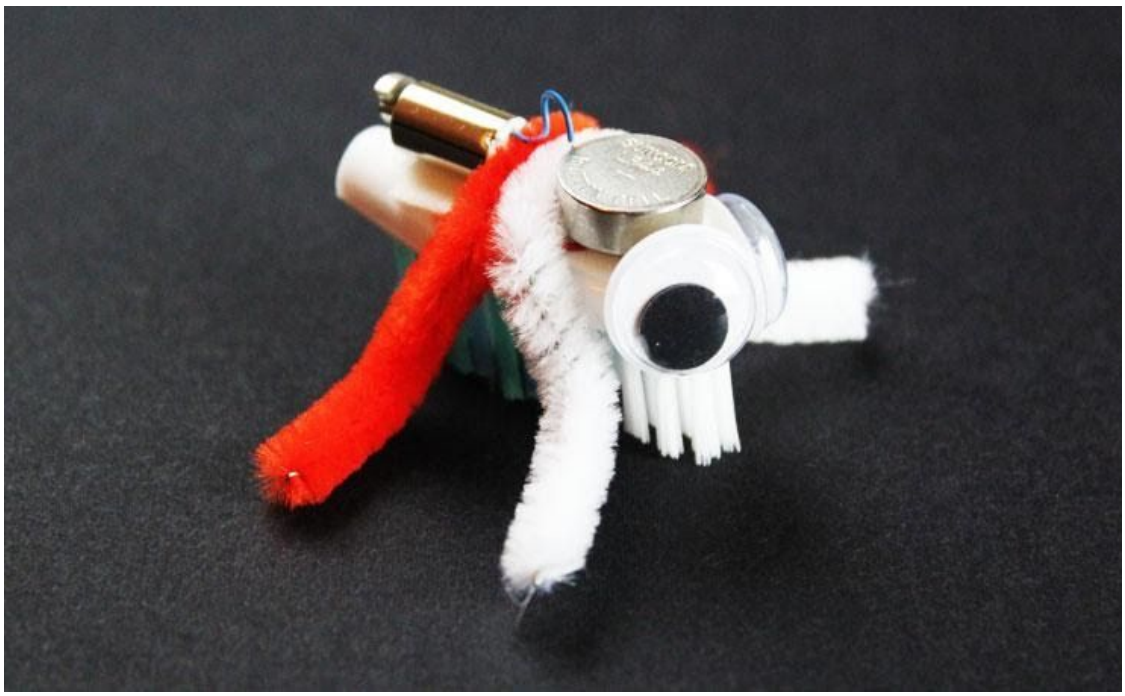
Join us mid-December for our next Take and Make Maker day, when we'll be playing around with circuitry and LED lights to make our own greeting cards.

How To Make a Bristlebot

This guide will show you how to make a bristlebot which is a simple robot created from a toothbrush and a vibrating motor. This makerspace project is great for K-6 students and older because of its simplicity and fun.

Use your creativity to customize your bristlebot and then race it against your friends.

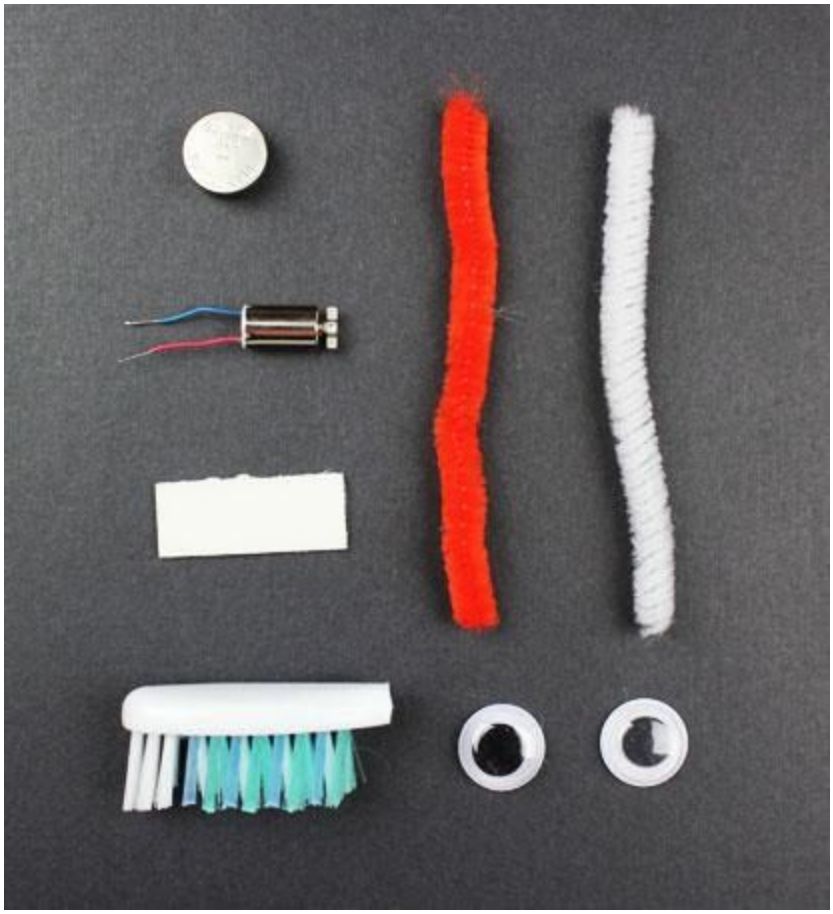
This project can be completed in about 20 minutes, and then there are lots of ways to extend by thinking about how to change your bristlebot, use it to make art, or think about ways to slow it down or speed it up depending on changes you make.



Materials Needed

The following are the parts and materials you will need in order to complete this project.

- (1) Vibrating Motor – 6mm
- (1) LR44 Button Cell Battery
- (1) Toothbrush
- (2) Craft Eyes
- (2) Pipe Cleaners
- Double Sided Tape

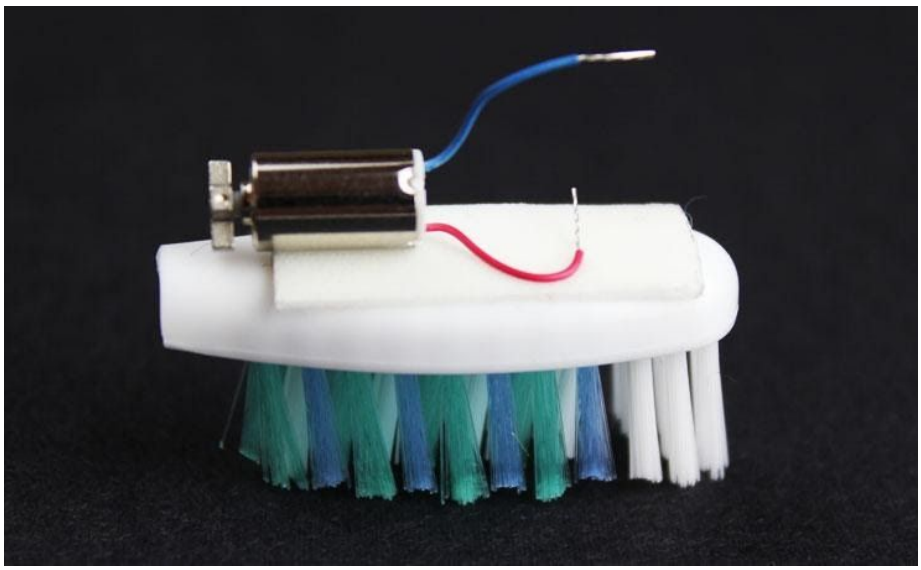


Prep The Toothbrush

The first step is to cut the handle off the toothbrush leaving only the head as shown below. Next, you will need to cut a piece of double-sided tape and apply it to the opposite side of the bristles.

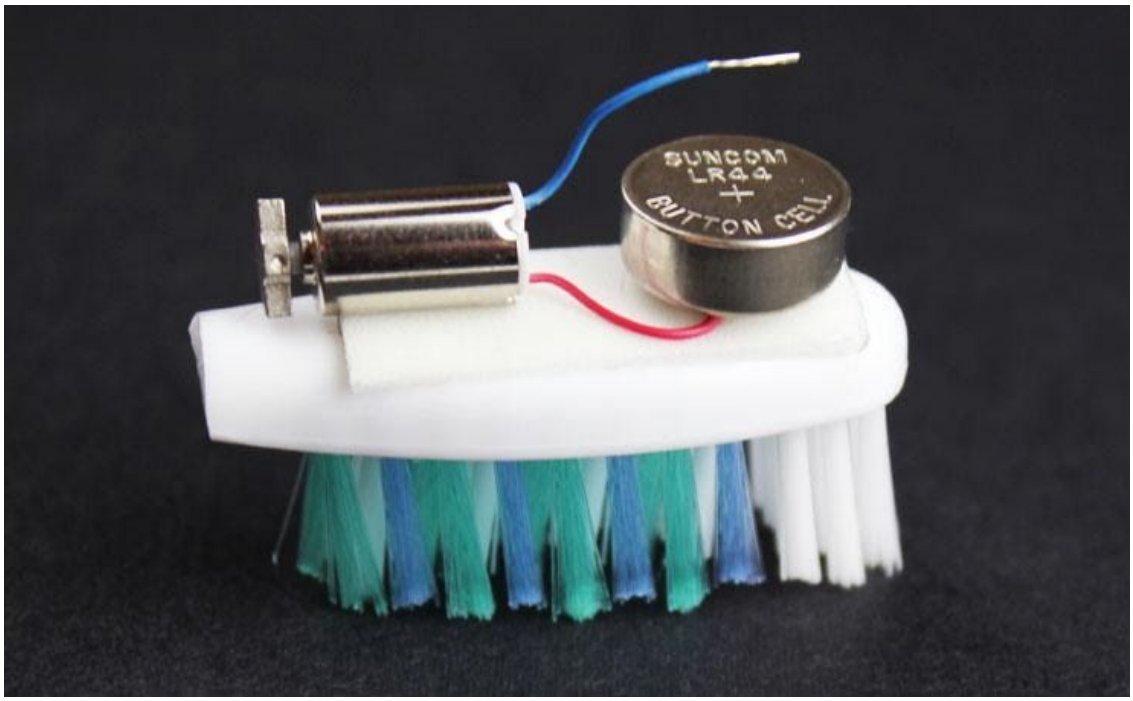
Attach The Motor

Once the double-sided tape has been applied, you can mount the vibration motor on top of it. Place one of the motor wires on the tape and keep the other motor wire in the air. Make sure not to push the wire deep into the double-sided tape. The reason for this is because you need the exposed wire to contact the battery and it won't be able to if pushed deep into the tape.



Mount The Battery

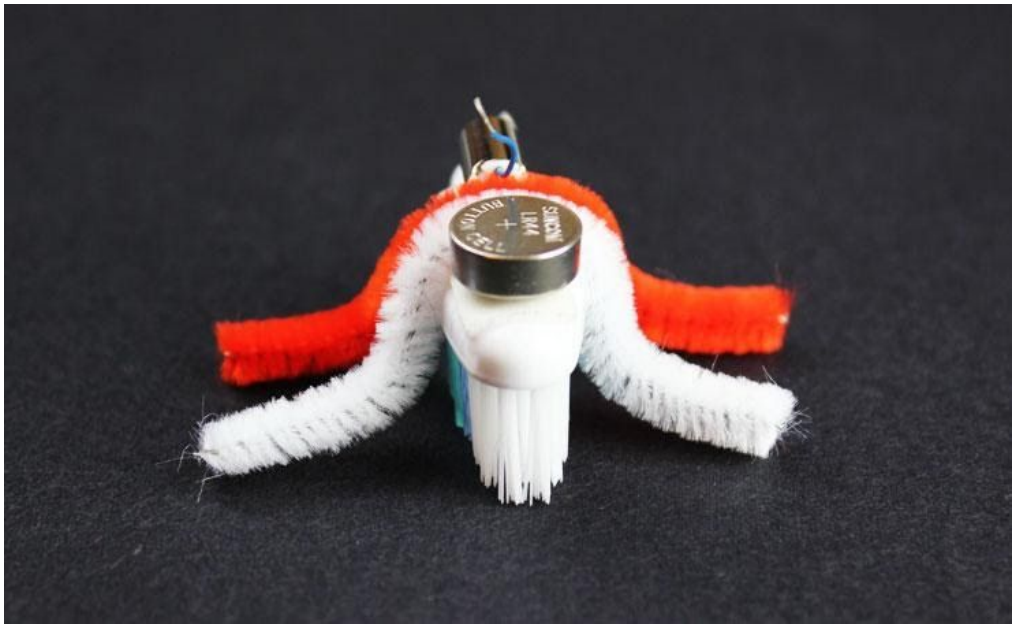
Mount the button cell battery on the double-sided tape with the negative side facing down. Make sure it contacts with the motor wire that is on the tape already.



Add Feet To The Bot

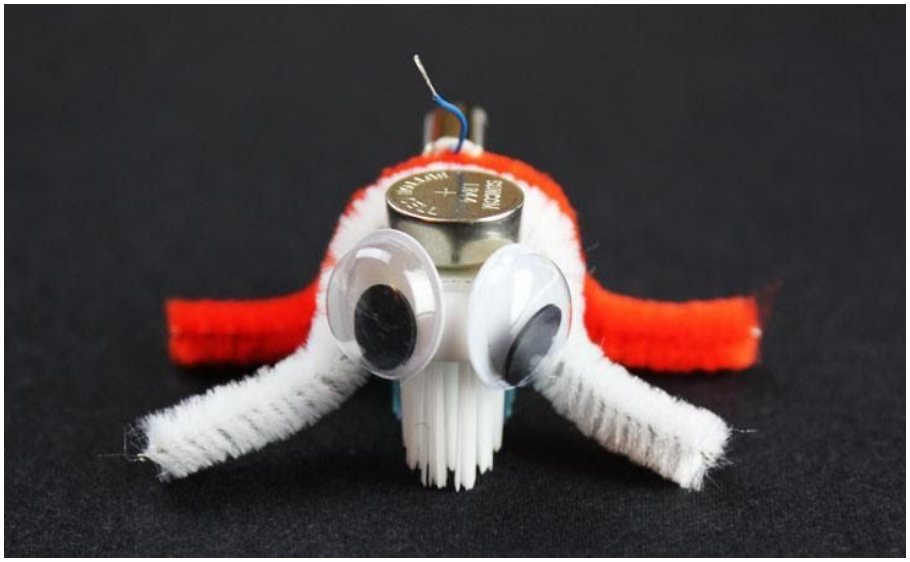
Once the motor and battery have been mounted, you can now add the pipe cleaner legs. These legs are not just for decoration as they help stabilize the robot.

Bend the pipe cleaner legs down and around the toothbrush head.



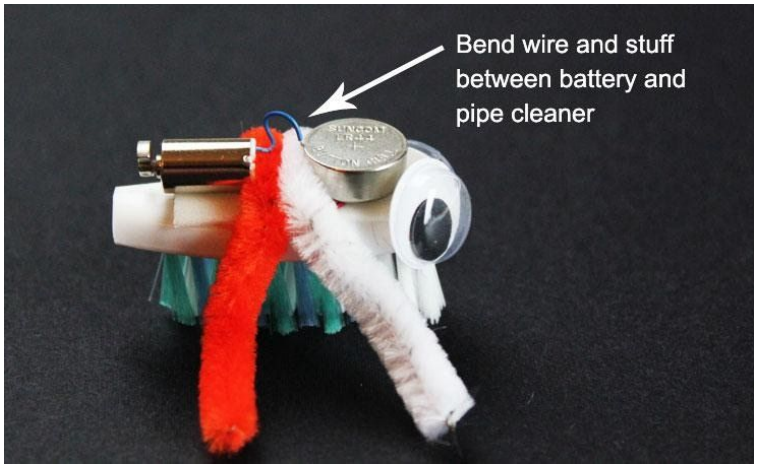
Add Eyes To The Bot

This part is optional and not needed for the bristlebot to function properly. Add eyes and any other robot decorations you want. This is a great way to show school spirit by adding school colors to your robot.



Your Bristlebot is Complete !

Now is the time to fire up your bristlebot and see if it works. Bend the motor wire and push it between the button battery and the pipe cleaner. At this point, the robot should come alive and start moving around.



Try experimenting with different variations of construction including using bigger motors and bigger brushes.

STEAM Art Project

Once your bristlebot is complete, you can use it to make custom robot paintings. Since the bristlebot roams everywhere, it's a good idea to do your painting inside a box or protected area. Dip the bristles into craft paint and let the mini-bot run wild to create priceless paintings. This is a great way to combine technology with the arts – STEAM.