

# 2 Build a bristle bot

Turn an old toothbrush into a mini robot.

### What you need

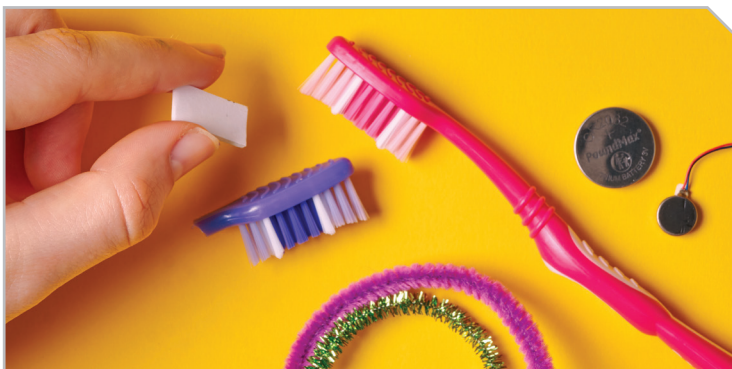
- Toothbrush
- Small saw or cutting pliers
- Scissors
- Double-sided foam pads
- 8x2mm mini vibration motor (available online)
- 3V coin battery
- Pipe cleaners
- Googly eyes
- Sticky tape



### How does it work?

Electricity is what happens when tiny negatively charged particles, called electrons, flow through a material. A circuit is a path along which electricity can flow, through conducting material (like copper wire). It usually consists of a power source (battery) and a device, such as the vibration motor that is powered by electrical energy. A battery is a store of chemical energy that, once connected in a circuit, moves the energy into a store of electrical energy. The vibration motor is the same type of motor found inside a mobile phone that makes it vibrate. When the motor spins, an off-centre weight causes it to shake, moving your bristlebot.

**WARNING!**  
Button batteries are very dangerous if swallowed. Make sure you ask a grown-up before starting this activity.



**1** Ask an adult to cut the top off the toothbrush. Trim a piece of a foam pad to the length of the toothbrush head. Then, peel off one side of the backing tape and stick it to the top of the toothbrush head.



**2** Peel off the other piece of backing tape and stick the vibration motor to the front of the toothbrush head. Then stick the negative wire (black or blue coloured) down on the sticky foam pad.



**3** Carefully position the battery over the negative wire and press it down firmly, making sure that you leave the red wire loose. Then, cut two lengths of pipe cleaner and stick them down between the battery and motor.



**4** Attach googly eyes to the sides of the brush head using small pieces of foam pad. To make your bristle bot go, press the red wire down onto the top of the battery and hold it in place with a small piece of tape.