GARNER HOLT EDUCATION THROUGH IMAGINATION

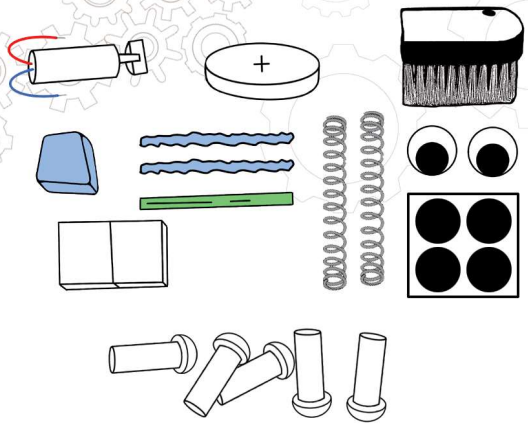
Brushtronic Bug Build Guide

1 Objectives & Materials

Get a glimpse into the career of a Garner Holt Productions engineer. Get creative & determine the best way to design and construct your bug to move in life-like ways and knock down all five wooden pegs. There are hundreds of right ways - find the best one!

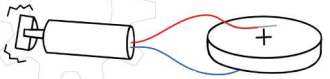
Explore Your Materials:

1 Vibration Motor
1 Coin Cell Battery
1 Toothbrush Head
1 Square Sticky Tack
2 Pipe Cleaners
2 Metal Springs
1 Twist-Tie
2 Squares Double-Sided Tape
4 Black Circle Tapes
2 Googly Eyes
5 Wooden Pegs (For Challenge)



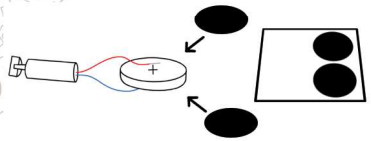
2 Test your battery

WARNING: Keep battery away from younger children and pets



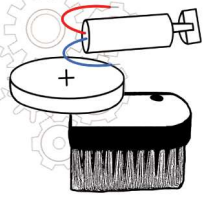
Touch the bare metal end of the blue wire to one side of the battery and the bare metal end of the red wire to the other side of the battery. The rotating head of the motor should spin.
Note: Reversing the wires will cause the motor to turn in the opposite direction.

3 Create an on and off switch



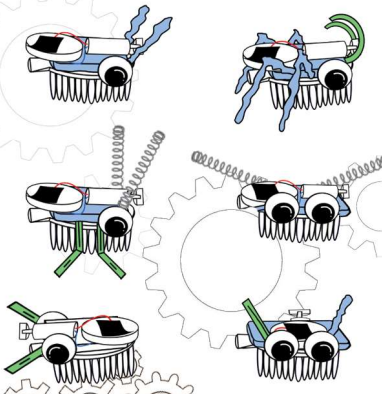
Use two pieces of the black circle tape to secure the bare metal wire ends to each side of the battery. Pull one of the tapes off and on to make a power switch.

4 Attach your motor and battery to the brush head



There are many ways to attach the motor and battery to the toothbrush head. Experiment and see what works best.

5 Start Building!



There are hundreds of ways to build your bug. Be creative and consider all of your materials.

6 Tips & Troubleshooting

Motor not working?
• Make sure the weight of the motor is able to spin freely.
• Your battery may have drained; switch out the battery with the spare.
Note: The energy in a battery will drain overtime. Replacement batteries (3V-CR2032) can be found in many stores and on-line.

Bug falling over?
• Refer to the seven questions in the enclosed pamphlet for important considerations.
Hint: Try adding legs, arms or adjusting the bristles on the brush head.

Bug not moving in the desired direction?
• Refer to the seven questions in the enclosed pamphlet for important considerations.
Hint: Think about balance, the location of your motor and how your bristles or legs are positioned.