

Robot Bug

Build your own robot and watch how it moves

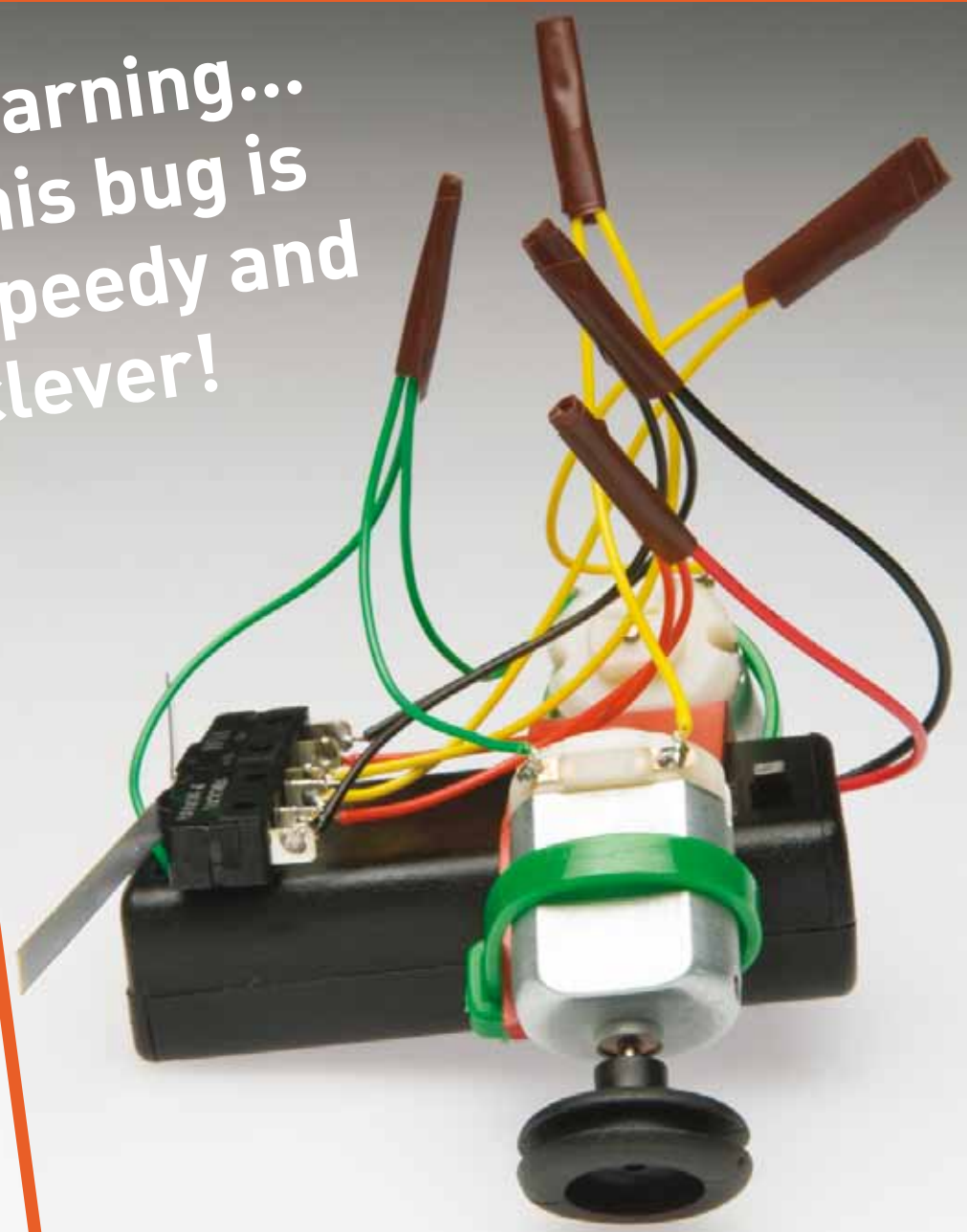
Educators' notes at www.sciencemuseum.org.uk/educatorsresources

GRAB THIS STUFF...

- A** 2 motors
- B** 2 cable ties
- C** Double-sided tape
- D** Battery box
- E** 2 pulleys
- F** 2 grommets
- G** 2 microswitches
- H** Foamex wing
- I** 2 AA batteries
- J** Electrical tape
- K** Scissors



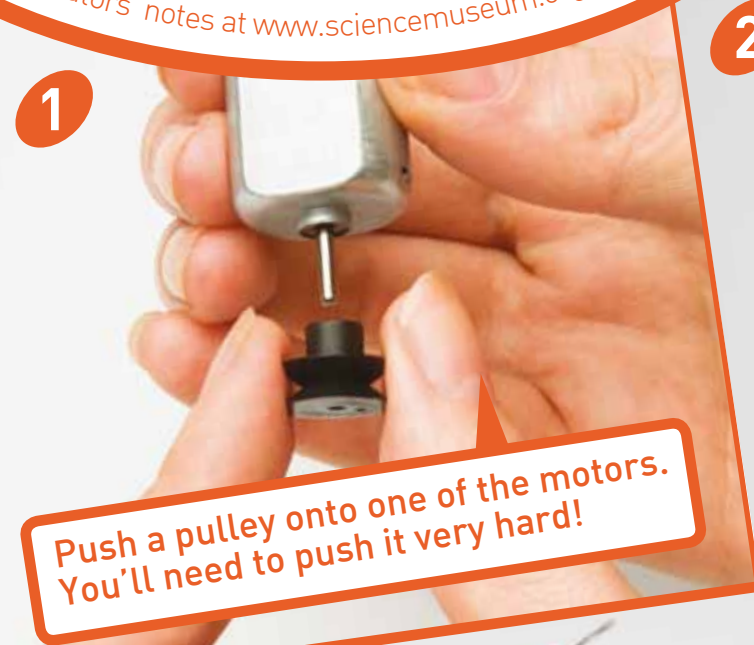
Warning...
this bug is
speedy and
clever!



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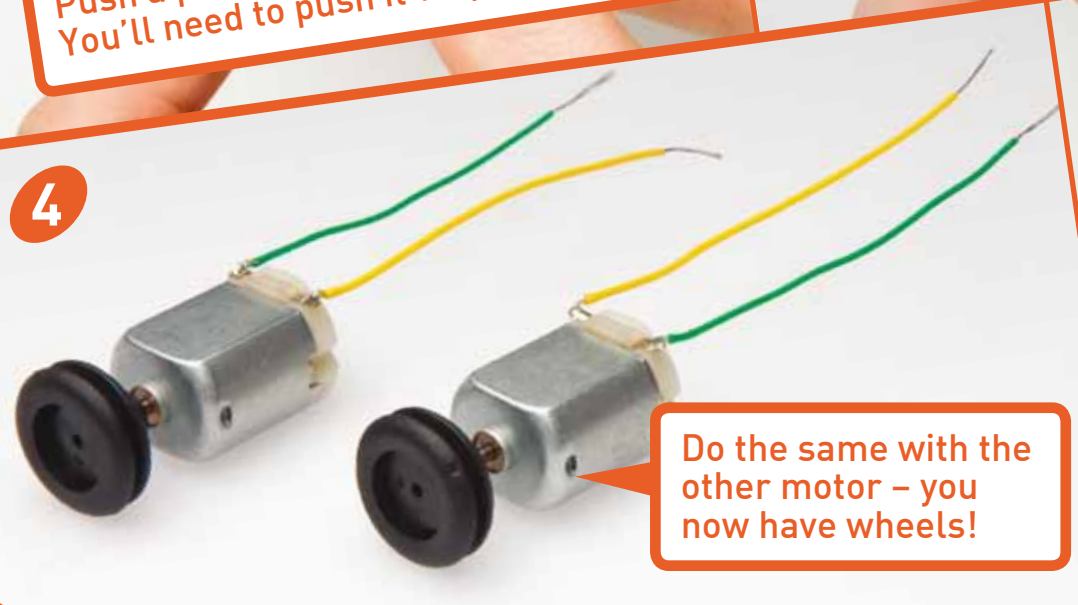
Push a pulley onto one of the motors. You'll need to push it very hard!



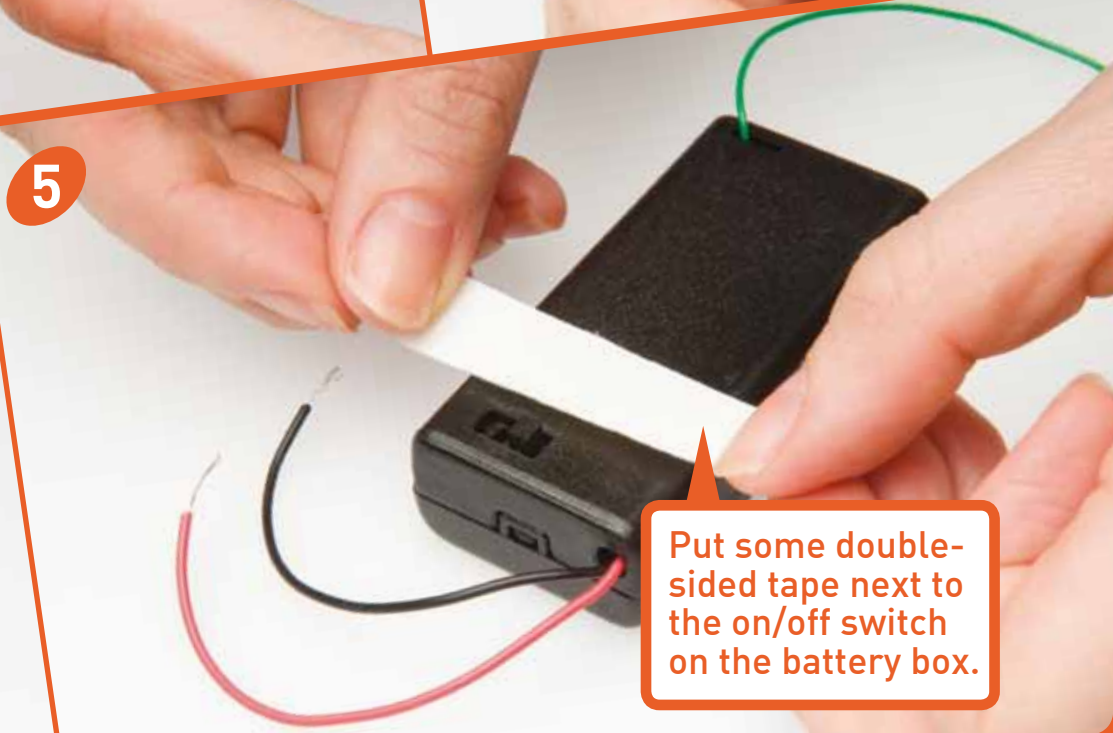
Push a grommet onto the pulley.



Make sure it's on firmly.



Do the same with the other motor - you now have wheels!



Put some double-sided tape next to the on/off switch on the battery box.

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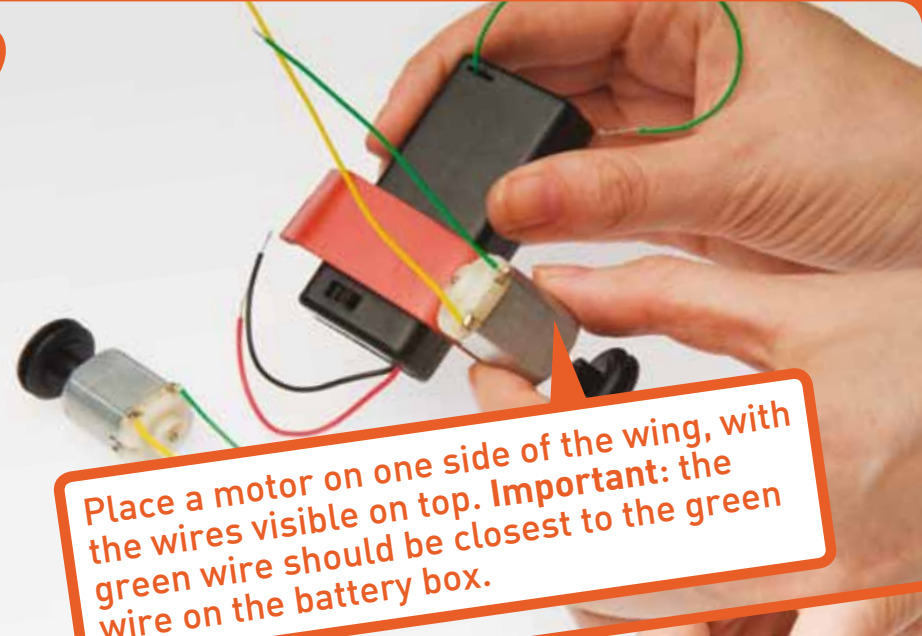
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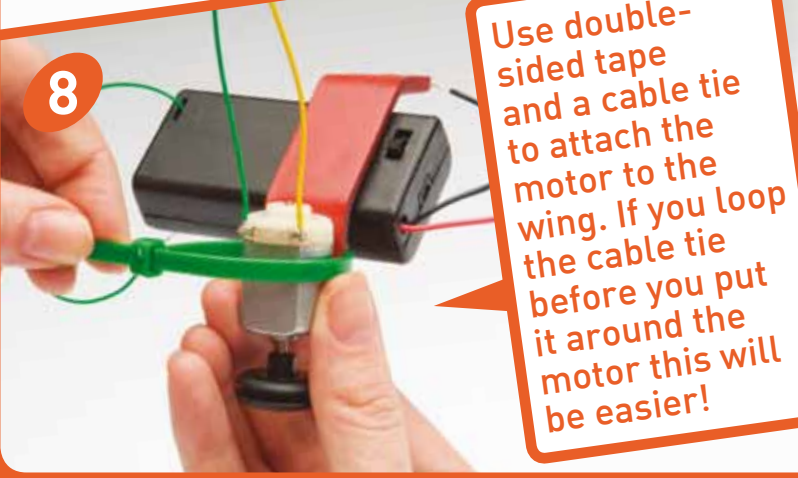
Stick the Foamex wing onto the double-sided tape on the battery box.

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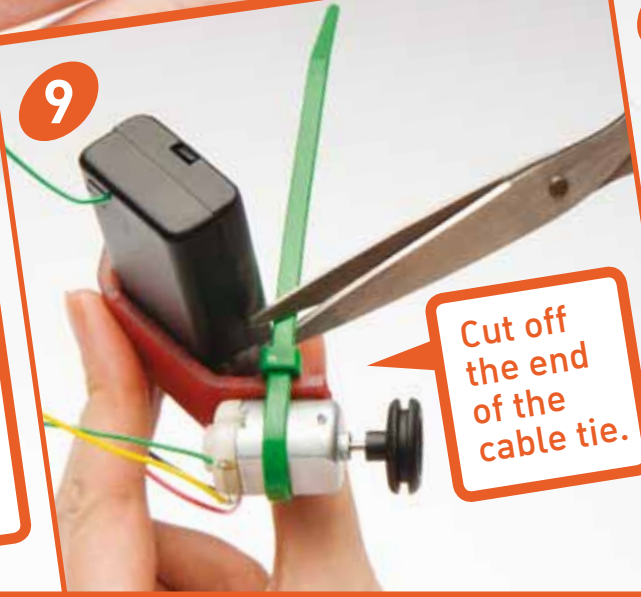
Place a motor on one side of the wing, with the wires visible on top. Important: the green wire should be closest to the green wire on the battery box.

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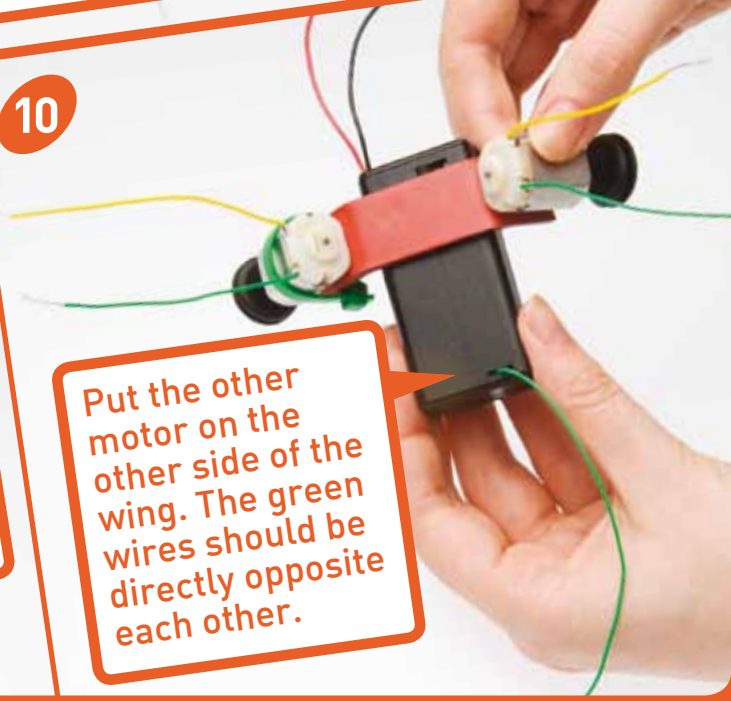
Use double-sided tape and a cable tie to attach the motor to the wing. If you loop the cable tie before you put it around the motor this will be easier!

9



Cut off the end of the cable tie.

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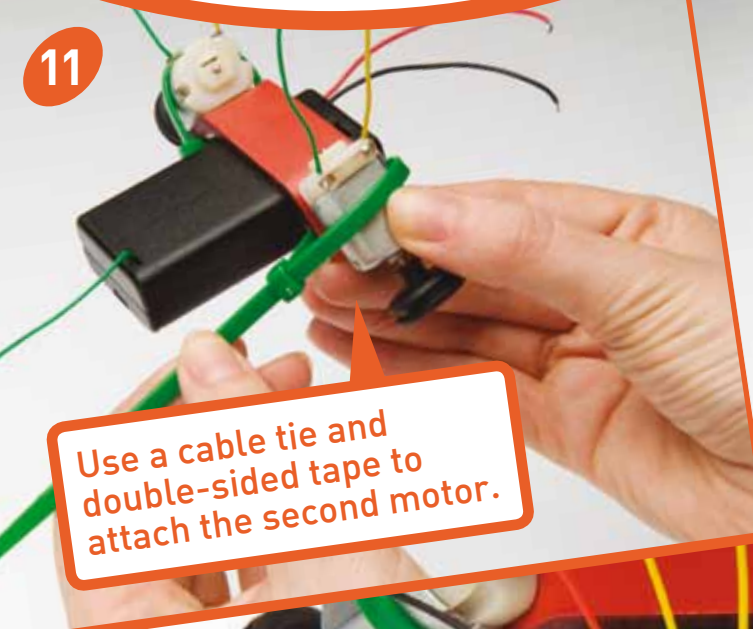


Put the other motor on the other side of the wing. The green wires should be directly opposite each other.

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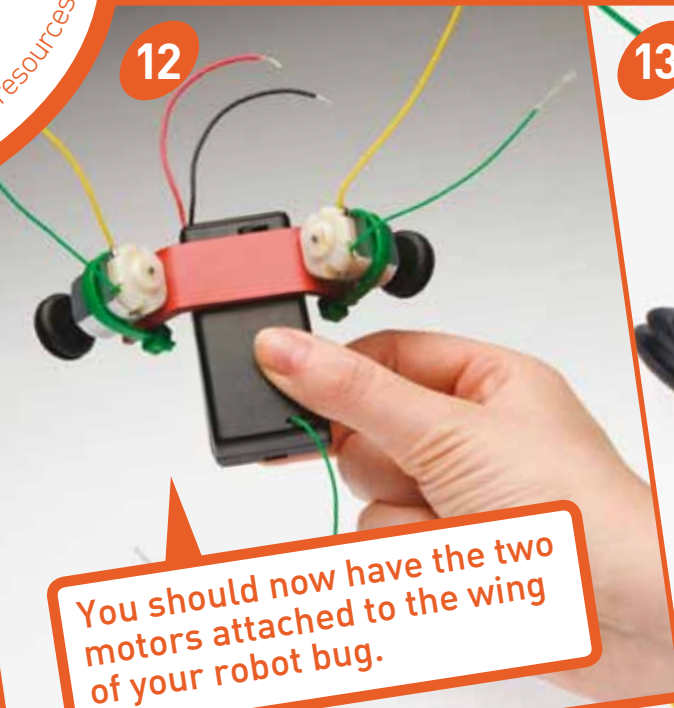
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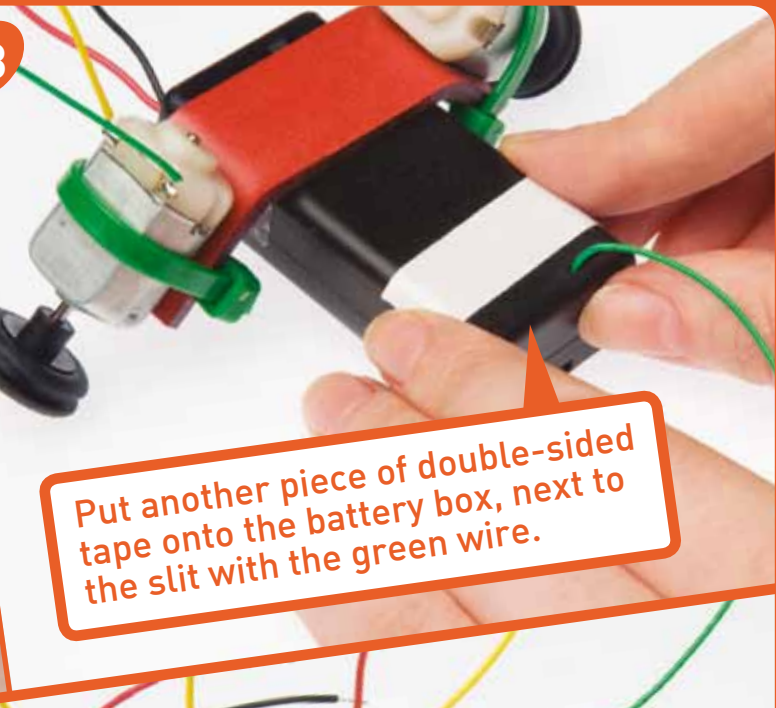
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Use a cable tie and double-sided tape to attach the second motor.



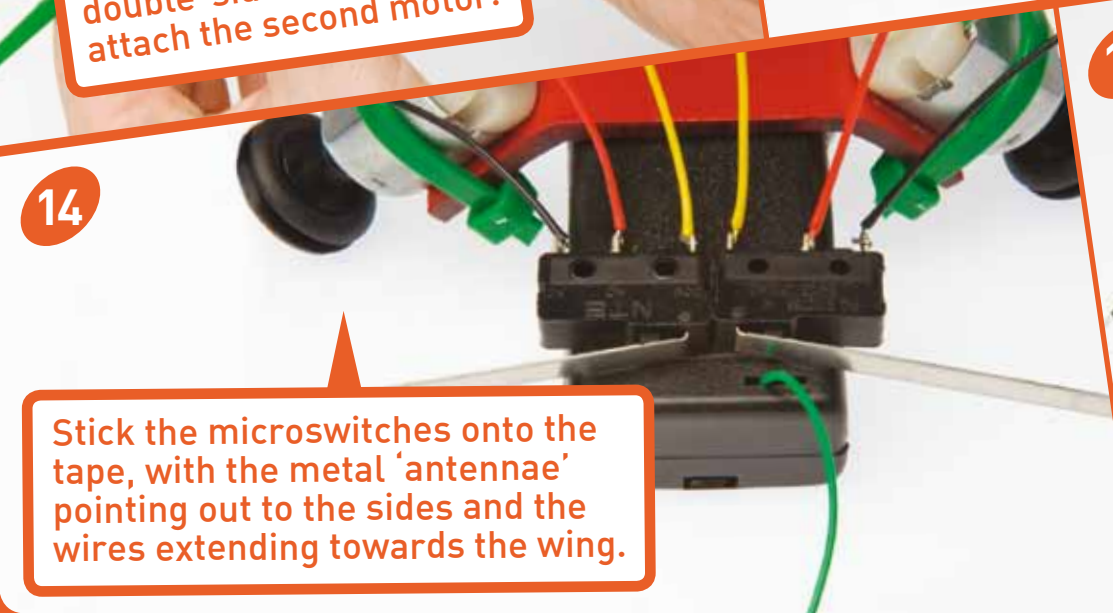
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You should now have the two motors attached to the wing of your robot bug.



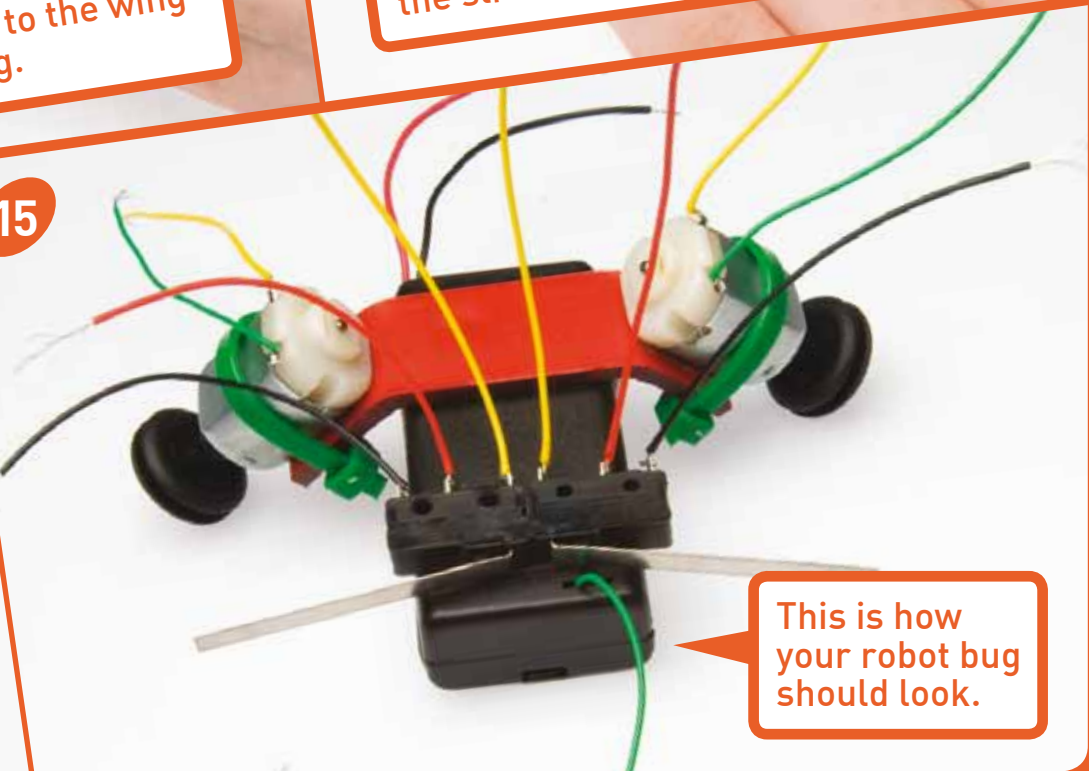
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Put another piece of double-sided tape onto the battery box, next to the slit with the green wire.



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Stick the microswitches onto the tape, with the metal 'antennae' pointing out to the sides and the wires extending towards the wing.



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This is how your robot bug should look.

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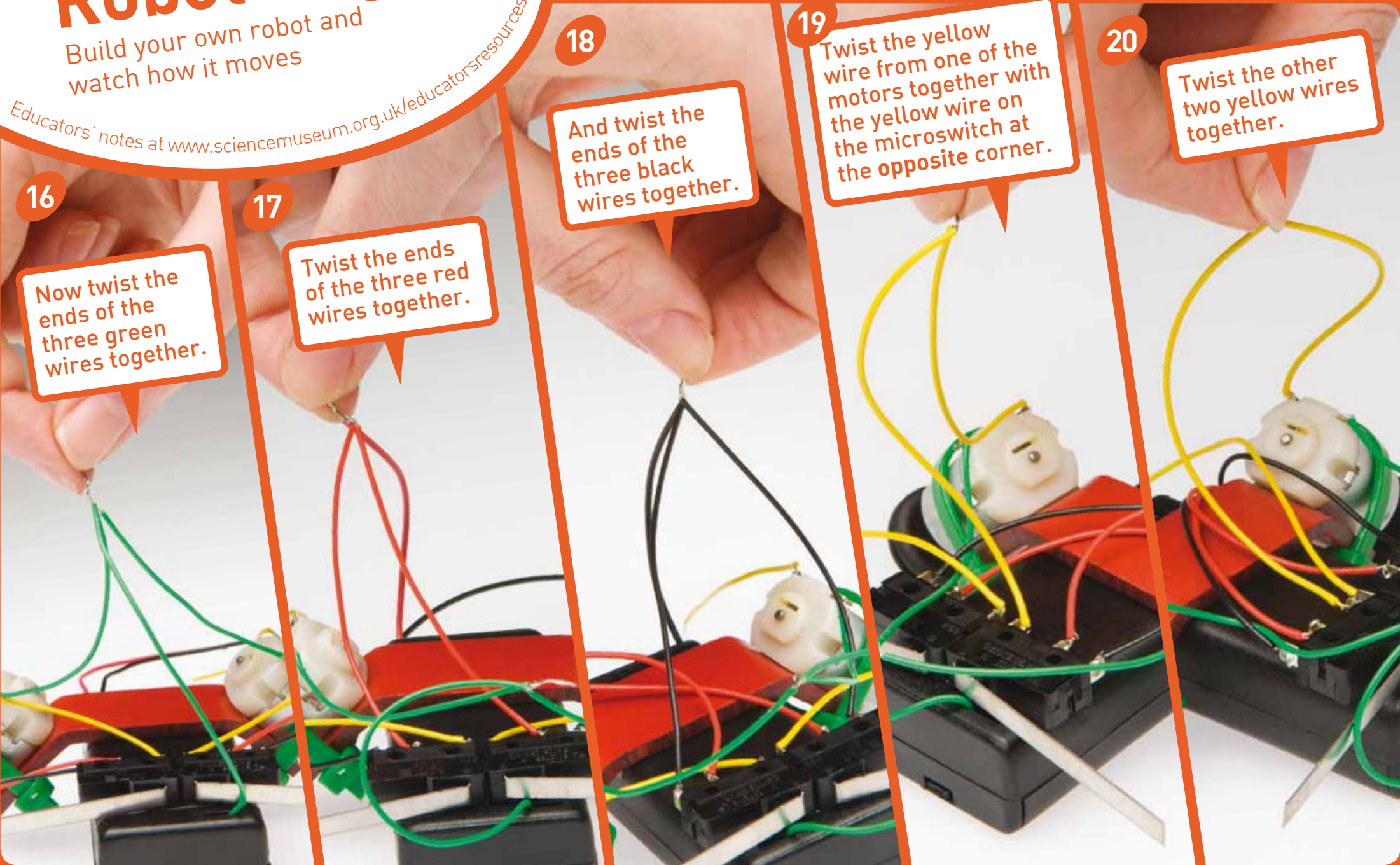
16
Now twist the ends of the three green wires together.

17
Twist the ends of the three red wires together.

18
And twist the ends of the three black wires together.

19
Twist the yellow wire from one of the motors together with the yellow wire on the microswitch at the opposite corner.

20
Twist the other two yellow wires together.

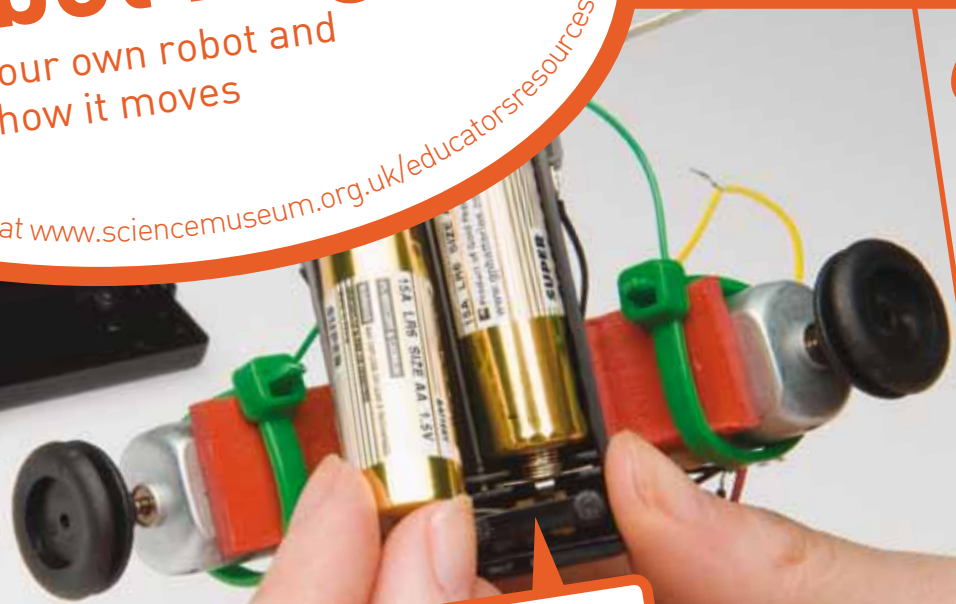


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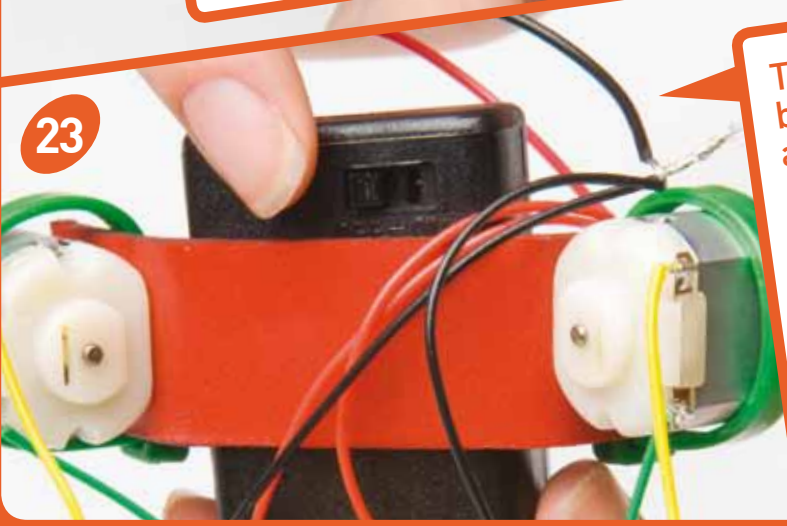
Make sure that no groups of wires are touching, then switch off the battery box, put the batteries in and shut the box.

22



Test if your robot bug works by pushing each metal antenna in turn. The opposite wheel should spin in each case.

23



Turn on the battery box and make sure both wheels spin at the same time. If they work, turn the battery box off again.

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Finally, tape up the twisted ends of all the wires so that they can't ever touch each other. Now turn your bug on and watch it go!