

## CODING CHALLENGES

**MAKE THE SWITCH CHANGE DIRECTIONS:** Change the code so that the position of the switch changes the direction of the motor instead of turning it on and off.

**REPLACE THE SWITCH WITH A BUTTON:** Try wiring a button into the circuit instead of the sliding switch. Now the motor only turns on when you push the button.

**REPLACE THE SWITCH WITH A SENSOR:** Try changing the code so that the motor is activated by another sensor, like the photoresistor.

## TROUBLESHOOTING

### Motor not spinning

Check the wiring to the motor driver. There are a lot of connections, and it's easy to mix one of them up with another. Double check the polarity of the motor driver. All the text should face the same direction as everything else.

### Switch not working

Make sure that you are hooked up to the middle pin and one side pin on the switch, and not both side pins.

### Still not working?

Jumper wires unfortunately can go “bad” from getting bent too much. The copper wire inside can break, leaving an open connection in your circuit. If you are certain that your circuit is wired correctly and that your code is error-free and uploaded but you are still encountering issues, try replacing one or more of the jumper wires for the component that is not working.

You've completed  
Circuit 5A!

Continue to circuit 5B to construct a remote-controlled robot.

MOTOR BASICS



REMOTE-CONTROLLED ROBOT



AUTONOMOUS ROBOT

