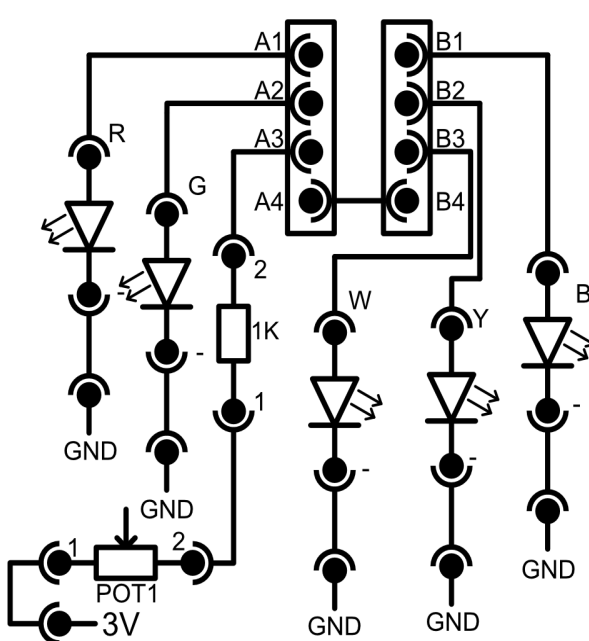
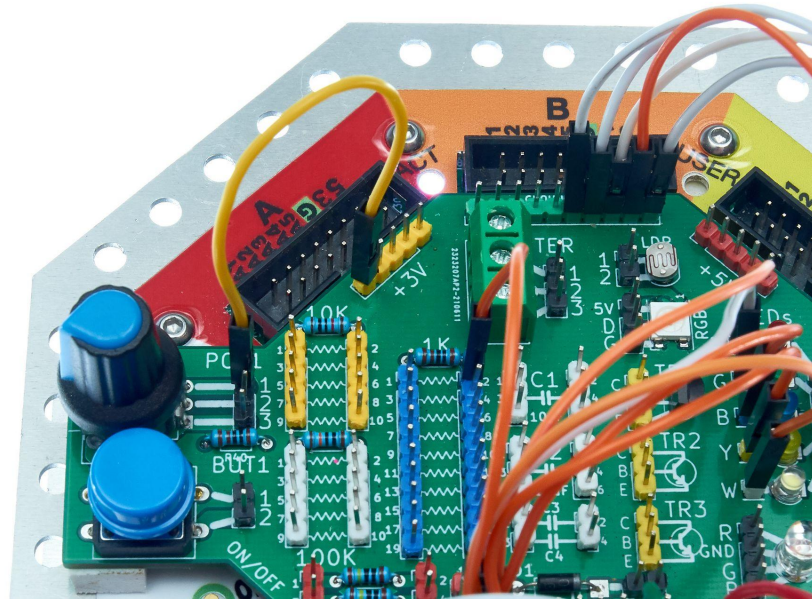


# 1001-act11 Introduction to Electronics

<b>Activity</b>	Use a Variable Resistor to Control the Brightness of the 5 LEDs Rainbow
<b>Student Guide</b>	<a href="#">1001-act11-stg Use a Variable Resistor to Control the Brightness of the 5 LEDs Rainbow: Student Guide</a> tmt3Nngl
<b>Teacher Guide</b>	<a href="#">1001-act11-tcg Use a Variable Resistor to Control the Brightness of the 5 LEDs Rainbow: Teacher Guide</a> tmt3Nngk
<b>Summary</b>	In this activity we will use a variable resistor to control the brightness of the 5 LEDs in the rainbow from activity 10.
<b>Principals Covered</b>	<ul style="list-style-type: none"> <li>• Resistance controls the current in a circuit</li> <li>• Varying the resistance changes the current and hence the power</li> <li>• Idea of connecting multiple LEDs to one line</li> </ul>
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• A variable resistor is a resistor whose value can be changed by turning a knob</li> <li>• Changing the resistance controls the brightness of the LED</li> <li>• Turning the resistor clockwise increases the resistance and decreases the brightness of the LED. Turning it anticlockwise has the opposite effect</li> <li>• Learn how changes in resistance affect current</li> </ul>
<b>Achievement Standards</b>	
<b>Equipment</b>	Each student will need: <ul style="list-style-type: none"> <li>• 1 x JackBord</li> <li>• 1 x JackBord TOP</li> <li>• 20 x 10cm jumper wires</li> </ul>
<b>Preparation</b>	<ul style="list-style-type: none"> <li>• Check the JackBords are charged</li> </ul>
<b>Instructions</b>	<p><b>1. Circuit Diagram:</b></p>  <p>This is the circuit of the rainbow with a variable resistor. The first thing is the 3V supply on the top left which powers the rainbow. This is followed by the variable resistor POT1, when this is turned the brightness of the rainbow will change.</p> <p>There are two variable resistors on the TOP, located above the buttons. The variable resistor then connects to the USER pins which allow the one variable resistor to feed the 5 LEDs at the same time. The LEDs are shown at the bottom.</p> <p><b>2. Build the Rainbow Circuit from Activity no 9</b> Build the rainbow circuit from activity 9. Confirm that all 5 LEDs light when the power is turned on.</p>

### 3. Remove the 3V Power Jumper and Connect the Variable Resistor

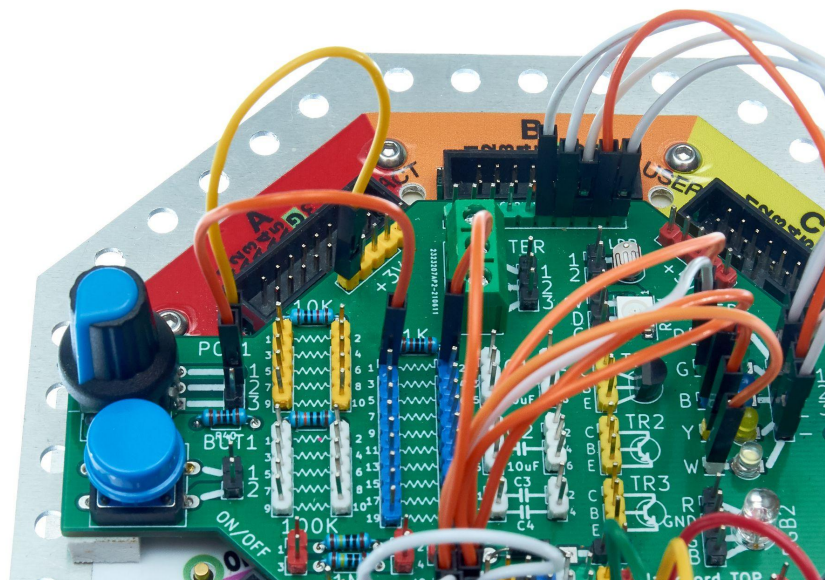
Once you have built the activity 9 circuit, remove the jumper and connect the 3V power line to pin 1 of the left variable resistor, POT1, on the TOP. The result should look like this.



The variable resistor is above the button and the yellow jumper from the 3V power supply goes into pin 1 of the variable resistor.

### 4. Connect a Jumper from the Variable Resistor to the 1K Resistor

Use a jumper to connect pin 2 of the POT1 variable resistor and pin 1 of the 1K resistor as shown below.



### 5. Turn on the JackBord

Once you have checked your circuit, turn on the JackBord and turn the variable resistor. If all is well the 5 LEDs brightness should change as you turn the variable resistor. If only some light, try using the 5V power.

**Notes**

**Extension**