

Activity 1: Touch & LED Interactivity with the volcano posterboard (10 minutes)

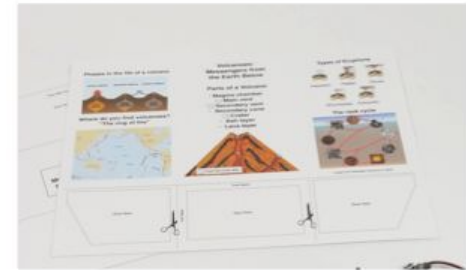
Locate the following on the activity area table...



Rainbow cables, one with a grey block connector for touchpoints and the other with a black block connector and 6 red LEDs



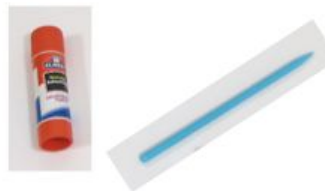
Five touchpoints & backs (earring posts & clasps)



flat cardstock for mini volcano project



Hyperduino & 9v battery



Glue stick, blue hole-making tool

Go to the next page of this Activity Guide and jump right in!

Make a Model



● Team Member "Green"

● Team Member "Blue"

● Shared Task

1 Use scissors to cut along the dotted lines as you see here.



2 Fold into thirds and fold the tabs back.



3 Locate the touchpoints and push them from the FRONT of the board through the marked "+" positions. Use a silicone earring back as a "backstop" to protect your fingers behind the paper. Secure on the back using the earring backs.



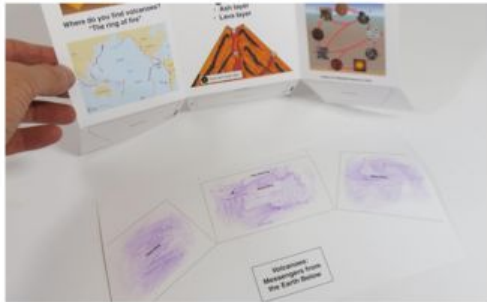
4 Use the blue "stick" to make 3 holes for the LEDs in the orange part of the volcano diagram. Push from the front and use the foam block as a backstop to protect your fingers.



Connect the LEDs and Touchpoints



- 1** Using the glue stick to apply glue to the 3 areas on the base, and attach the panels so that the base of each panel just covers the black line that indicates where it should be positioned.



- 2** Push the LEDs into the holes from the **BACK** of the board. Connect the LED with the red/brown wires to L2

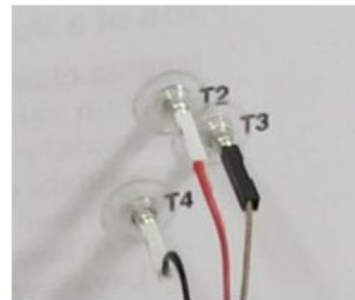


- 3** Continue with the LEDs for L3 and L4. Those wires will be black/white and purple/gray.



- 4** For the touch sensors, use the rainbow cable with the gray block connector, put 1 of each of the 4 touchpoints in each of the four sockets, starting with the **red** wire on the outside edge of the cable.

They only go about half-way in.



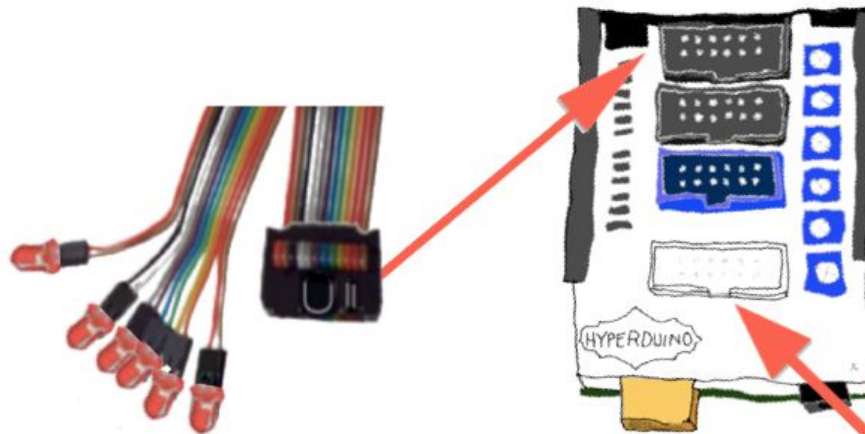
Connect the **RED** wire to T2, the **BROWN** wire T3, the **BLACK** wire to T4, and the **WHITE** wire to T5.

Connect the Cables to the HyperDuino



1

Plug the black block of the LED cable into the TOP black box on HyperDuino board.



2

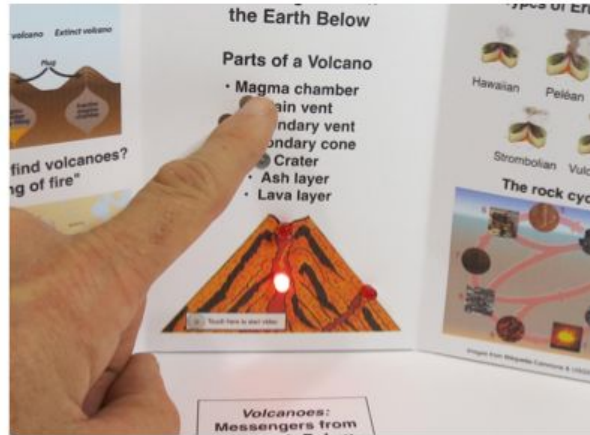
Plug grey block into white box on HyperDuino board



Try It Out!



Connect the 9v battery. **Wait for the blinking to stop (about 5 seconds)**
When you touch the "Main vent" and other sensors, the LEDs will light up.



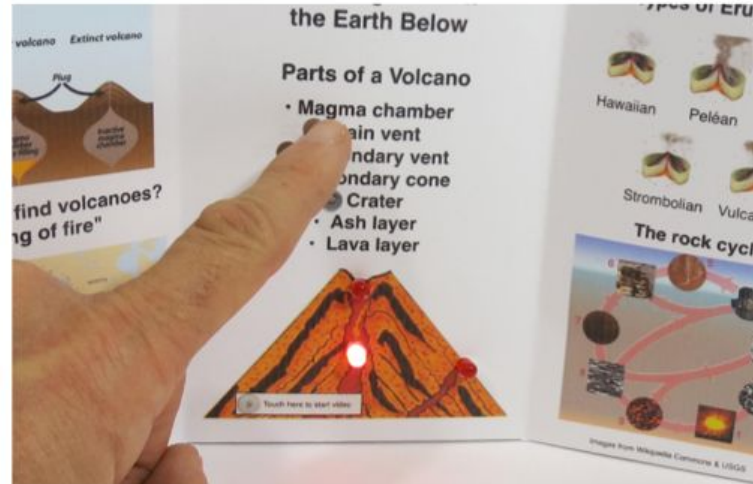
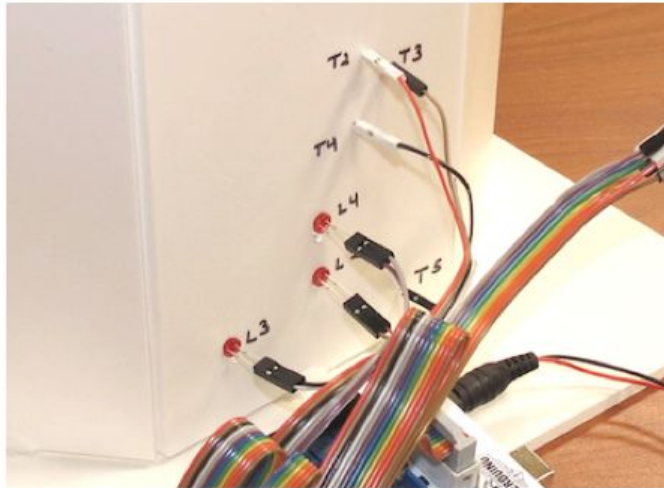
Note: The 4th touch sensor, "Touch here to start video" is used to initiate a YouTube or Google drive video. To see how that works, continue to Part 2 of this activity!

How Did All That Work?



The Arduino is like a small computer, and the HyperDuino program that you installed on it just continuously watches the touchpoints. Each touchpoint has a number (5-16), and each LED has the same range of numbers (5-16).

When a touchpoint is touched, the HyperDuino program lights up the same number LED as the touchpoint that is being touched.

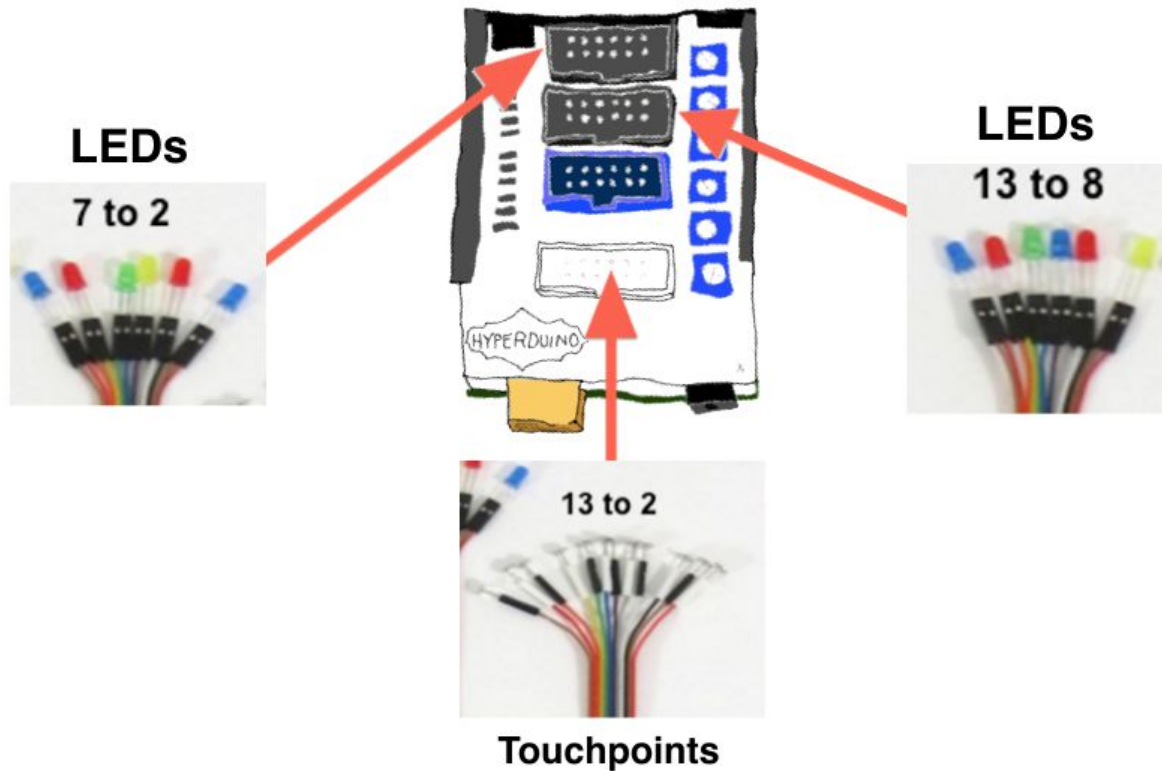


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<http://bit.ly/2J0U0M1>

If you don't have time for that, restore your area by disconnecting the cables, touchpoints and battery, and returning them to the tray as you found them.

HyperDuino Cable Colors & Numbers



underlined = outside edge of cable
 (note that odd/even touch sockets are black/white)

-  Touch #2 red
-  Touch #3 brown
-  Touch #4 black
-  Touch #5 white
-  Touch #6 gray
-  Touch #7 violet

-  Touch #8 blue
-  Touch #9 green
-  Touch #10 yellow
-  Touch #11 orange
-  Touch #12 red
-  Touch #13 brown

-  LED #2 or #8: red/brown
-  LED #3 or #9: black/white
-  LED #4 or #10 gray/violet
-  LED #5 or #11: blue/green
-  LED #6 or #12: yellow/orange
-  LED #8 or #13: red/brown