



An educational self-construct kit to show the principles of electronic resistance.

Tools Required

Scissors
Felt tip pens or Crayons.

Parts List

Item	Description	Number	Check
1	A4 Card of resistor colour chart	1	
2	Bifurcated paper fastener	1	



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RESISTOR CHART INSTRUCTIONS

Topics Learned

It is used to check the value of Resistors used in Electronics. You will probably use it throughout your life if you become an electronics engineer.

Safety

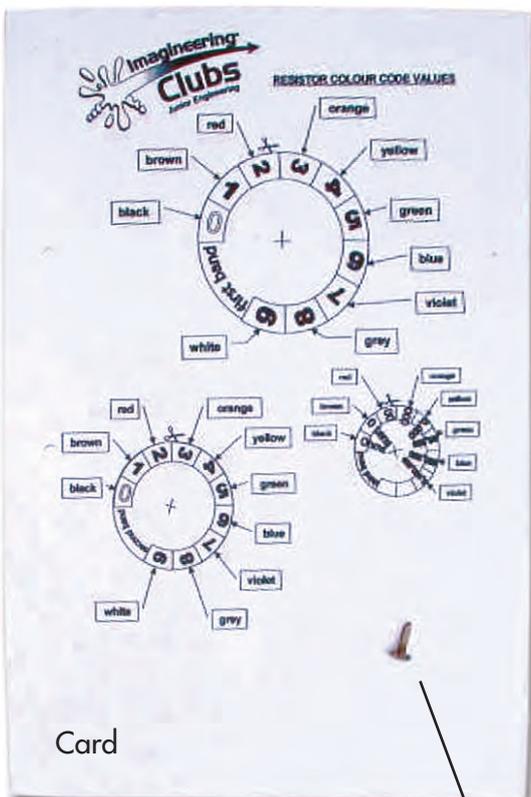
Observe all the safety rules when using scissors.

1 - Check that you have the parts.

Check that you have each part and tick it off in the Parts List above.

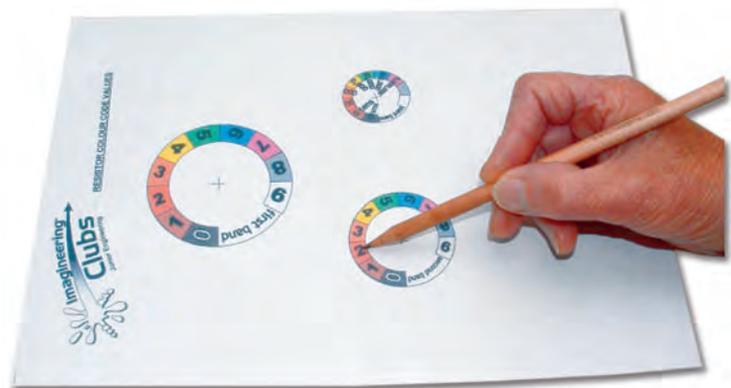
2 - Colour the Chart

Carefully colour the segments of the three circles on the A4 card using felt tip pens or crayons of the correct colours. When the felt tip ink has dried carefully cut out all three discs and cut a small hole in the centre of each.



Card

Paper Fastener



3 - Assemble the Chart

Push the paper fastener through the third, second and first discs in that order and bend the prongs of the fastener outwards. The discs should be free to turn on the fastener.

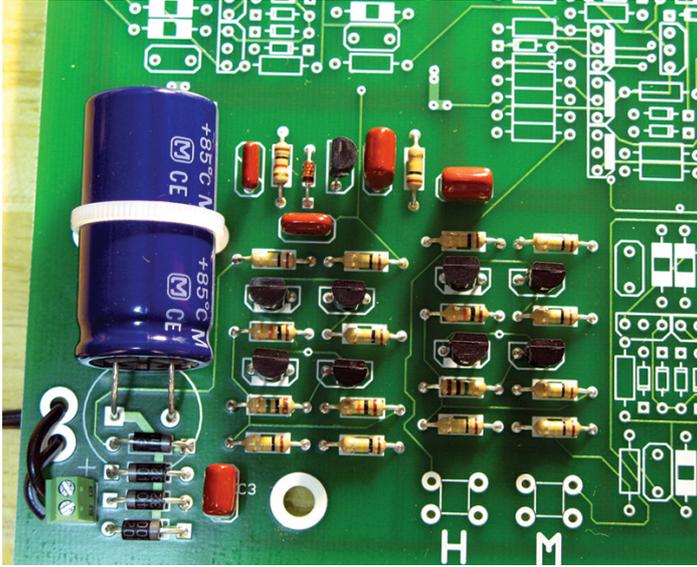
You can now check the resistance value of any resistor by turning the discs in sequence to match the resistor colour bands and the reading off the value along the aligned numbers.

4 - Resistor Colour Code

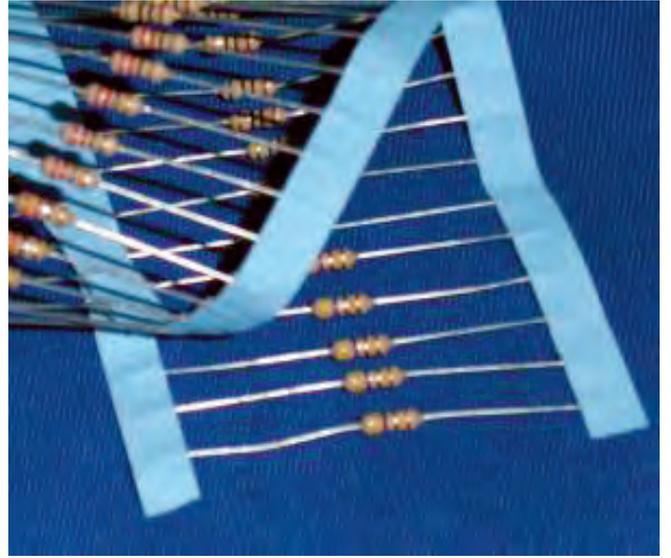
Each resistor has coloured bands round it to specify its resistance. The resistance is measured in OHMS after the famous German Physicist who lived in Cologne. The colour code is shown below. You do not need to worry about the "Tolerance"

A resistor is a two-terminal electrical or electronic component that resists an electric current by producing a voltage drop between its terminals in accordance with Ohm's law:

$$R = \frac{V}{I}$$



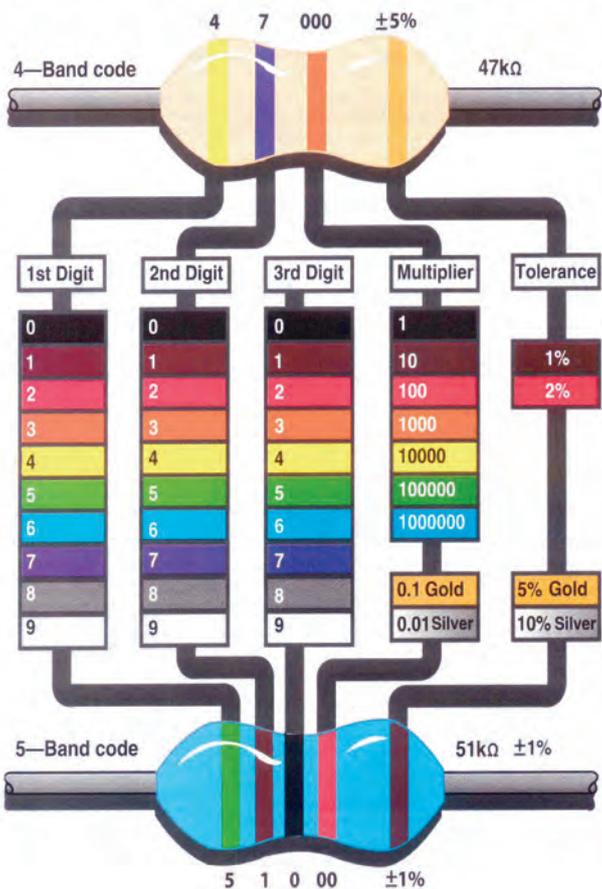
The electrical resistance is equal to the voltage drop across the resistor divided by the current through the resistor. Resistors are used as part of electrical networks and electronic circuits.



Above are axial-lead resistors on tape. The tape is removed during assembly before the leads are formed and the part is inserted into the board.

Left we show several resistors and other electronic components on a Printed Circuit Board (PCB) from a Digital Clock.

RESISTOR COLOUR CODE



5 - Check your Resistor Chart

Once your chart is complete, you should be able to read the value from a resistor. Resistors come in all shapes, sizes and background colours, but the coloured bands are the same world-wide. Here are some examples to try.

