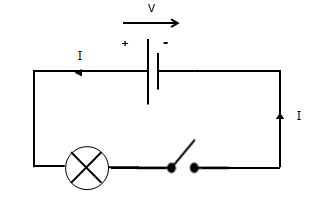
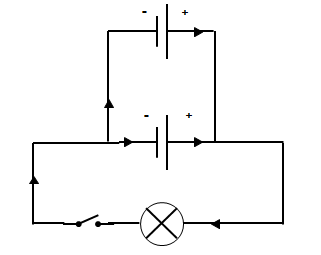
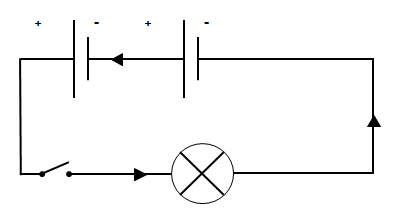
Practical electricity for class 9

**Day 1 : Introduction of practical Wiring and series and parallel combination.**

* Introduction by questioning them about what they know about electricity (sources, what is used for, ohms low…)
* Draw with them a simple circuit with a battery a led and a switch. They do the practical and created what we draw (create different groups like 4 or 5).



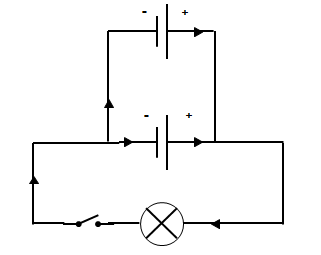
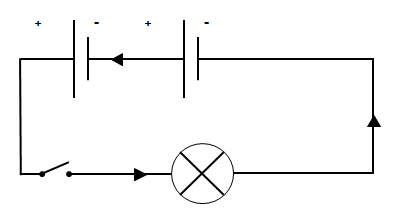
* Do a reminding about parallel and series combination, ask them to draw the two combinations on the board and correct all together.

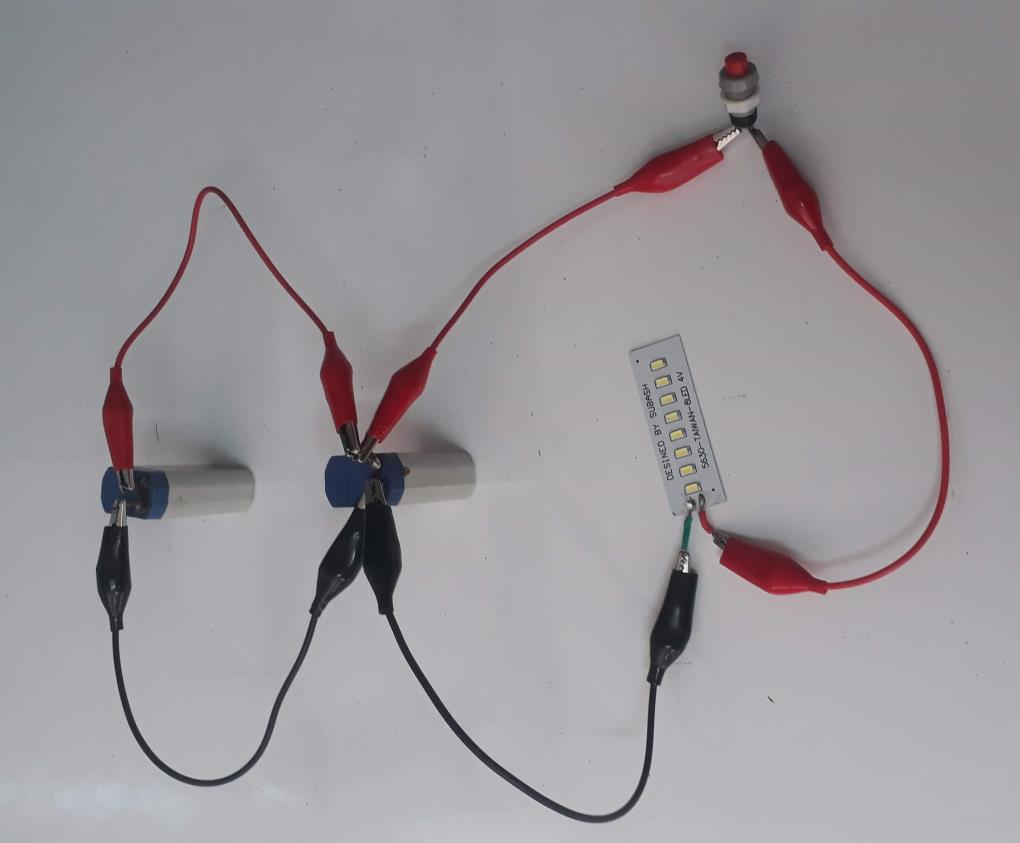


* Reminding about symbols of different electrical components.

**Day 2 : Series and parallel combination of batteries.**

* Draw the parallel and series combination of batteries on the board an create the two combinations (practical). Use two batteries, one switch and one LED for this experience.

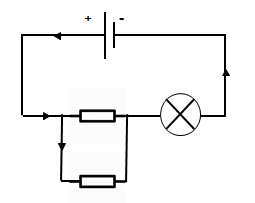
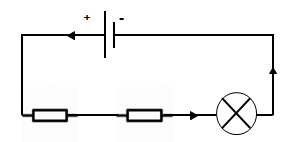


* Reminding the two equations for series an parallel combination : **V=V1=V2 et V=V1+V2**

**Day 3 : Series and parallel combination of resistances**

* Draw the parallel and series combination of resistance on the board an create the two combinations (practical). 1 battery, 2 resistances 33 ohm, 1 switch and 1 LED. The Led is important to analyses what will happen in each configuration.

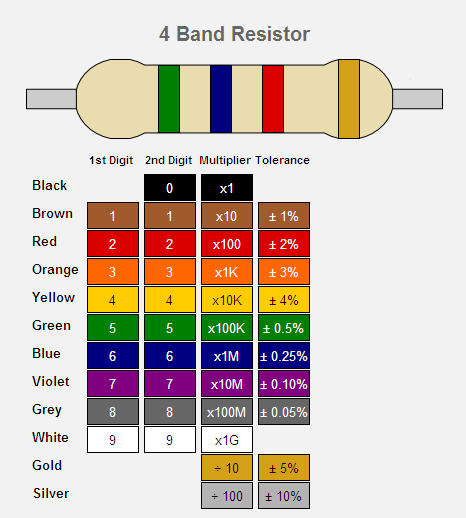


* Questioning them about the results and give some explanations about the results.
* Reminding the two equations for series an parallel combination:
  + **Req=R1+R2**
  + **1/Req=1/R1+1/R2**
  + Calculate R equivalent in each configuration 🡪 calculation show same result than experimentation.

**Day 4 : How to know the value of a resistance ?**

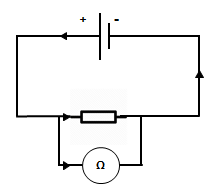
* Different ways to know the value of a resistance.
* First : with the color code you have on each resistance :
  + Draw the table and make them copy, explain the meaning of this code and how to use it.



* + Create different groups and give to each one 9 resistances. They need to find the value of each resistance by creating a table compose to : the colors they found on the resistance and the final value.

|  |  |
| --- | --- |
| RED/ORANGE/BROWN | 23x10=230Ω |

* Correct with them on the board
* Second : by using a Ohm’s meter
  + Show them how to use a ohm meter and check different resistance to see if we find the same result.

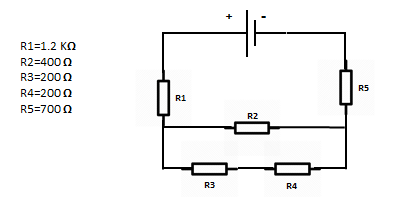
**Day 5 : Calculation of a resistance equivalent in a circuit.**

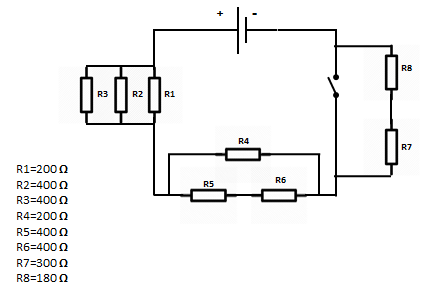
Draw on the board a complex circuit with a mix of parallel and series combination of resistance,

The goal of this class is to teach them how to simplify the drawing by identify different Req.

First identify the different Req, calculate them in the good order (if one Req is a part of another one he need to be calculate first)

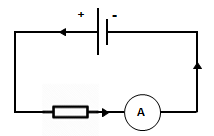
Calculate the different Req and calculate the global resistance in the circuit.





**Day 6 : Ohm’s law verification**

* Ohm’s law verification. We give to kids results of calculation for 4 or 5 different resistances.
* Make them create a simple circuit with one battery and one resistance for each resistance.

* Check intensity with the ampere meter. Opening with the link between Ohm’s equation and power equation P=UxI

**Day 7 : Magnetism**

* Introduction of magnetism: work with them to show the link between electricity and magnetism,
* Explain how to create magnetism with electricity: we need coils, Insist about COILS which are super important.
* Show them the experiences composed of a nail with coils around. Put some intensity inside and show that it be magnetic now.
* Give to students the following object: DC motors, Fan motor (two different), transformer, electro magnet. They can disassemble and touch each object to understand the link between them. In each case you have copper coils.



* Explain to them that you can also do the contrary, if you put a magnet in rotation with copper coils around you can create electricity.