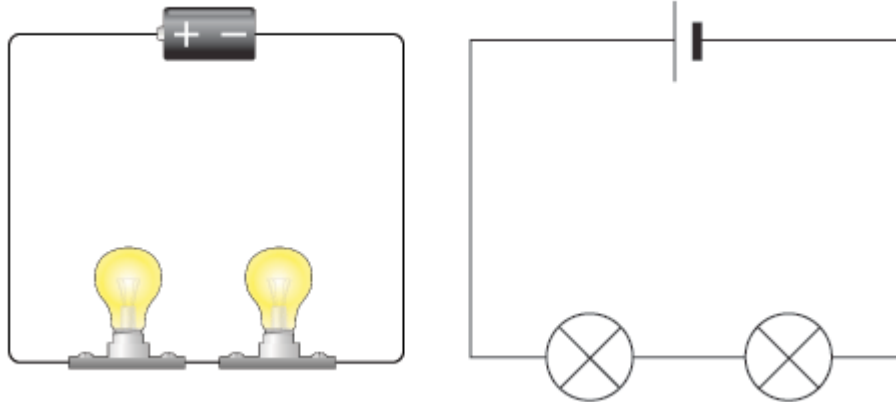
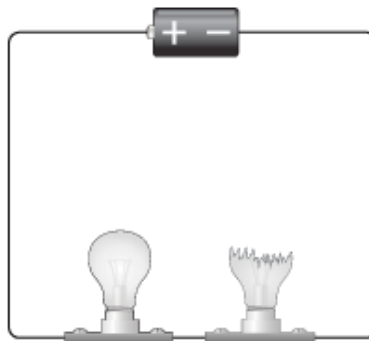


## Introduction to Series & Parallel Circuits

- ***Series*** and ***parallel*** are two important concepts when dealing with electricity.
- There are ***two*** ways that a ***component*** can be connected in a circuit, either series or parallel.
- The circuit below has two lamps connected to a battery. In this circuit, there is only ***one path*** over which the electrons can flow. When electrons only have one path to follow, that circuit is called a ***series circuit***. The lamps are said to be wired in series with respect to each other.



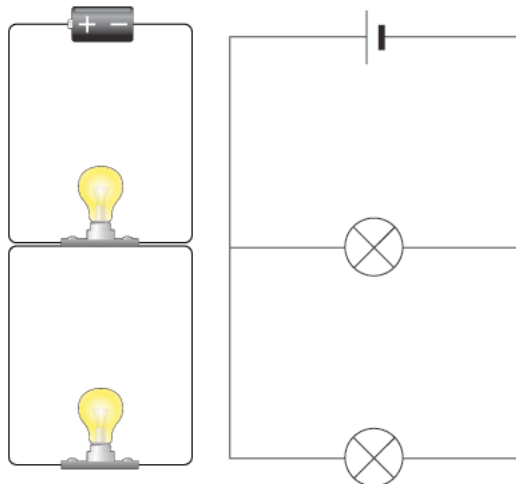
- When ***more*** lamps are added to a series circuit, the lights will become ***dimmer*** than before.
- In a series circuit, if a lamp ***breaks*** or a component is ***disconnected***, the circuit is ***broken*** and all the components stop working. See the image below.



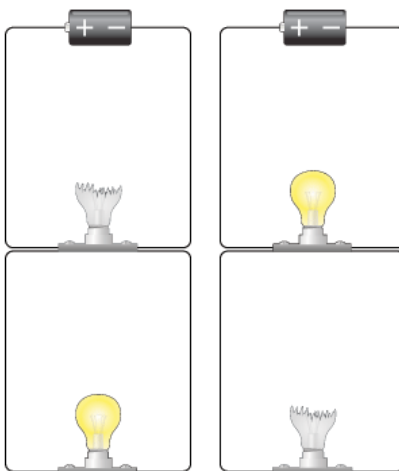
- Series circuits are useful if you want a ***warning*** that one of the components in the circuit has failed. They also use ***less wiring*** than parallel circuits.

## Introduction to Series & Parallel Circuits cont...

- The circuit below has two lamps connected to a battery and they are connected in ***parallel***. In this circuit, there are ***two*** different paths for the electrons to follow from battery terminal to battery terminal. When electrons have more than one path to follow, that circuit is called a ***parallel circuit***.



- In a parallel circuit, if a lamp breaks or a component is disconnected from one ***parallel wire***, the components on different branches ***keep working***. And, unlike a series circuit, the lamps ***stay bright*** if you add more lamps in parallel. See the image below.



- Parallel circuits are useful if you want ***everything to work***, even if one component has failed. This is why our ***homes*** are wired up with parallel circuits.