OCR (B) Physics GCSE

PAG 07 - Investigating the brightness of bulbs in series and parallel

Flashcards

What is a series circuit?

What is a series circuit?

A series circuit is one in which the same charge passes through all components. This means the current through each component is the same.

What is a parallel circuit?

What is a parallel circuit?

A circuit in which the charge is split between branches.

Describe the current across a series circuit.

Describe the current across a series circuit.

Current is the same at all points in a series circuit.

Describe potential difference in a series circuit.

Describe potential difference in a series circuit.

Potential difference is split between components, according to the ratio of their resistances.

Describe current across a parallel circuit.

Describe current across a parallel circuit.

Current is split between the branches of the circuit.

Describe potential difference across a parallel circuit.

Describe the potential difference across a parallel circuit.

Each branch has a potential difference equal to the potential difference of the supply.

What is the total resistance in a series circuit?

What is the total resistance in a series circuit?

The sum of the individual resistances of each component.

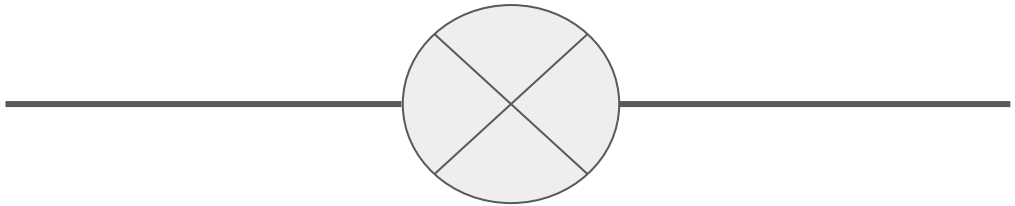
What is the total resistance in a parallel circuit?

What is the total resistance in a parallel circuit?

The total resistance will be lower than that of the branch with the lowest resistance. This is because the charge is split. Decreasing the charge to each component decreases its resistance.

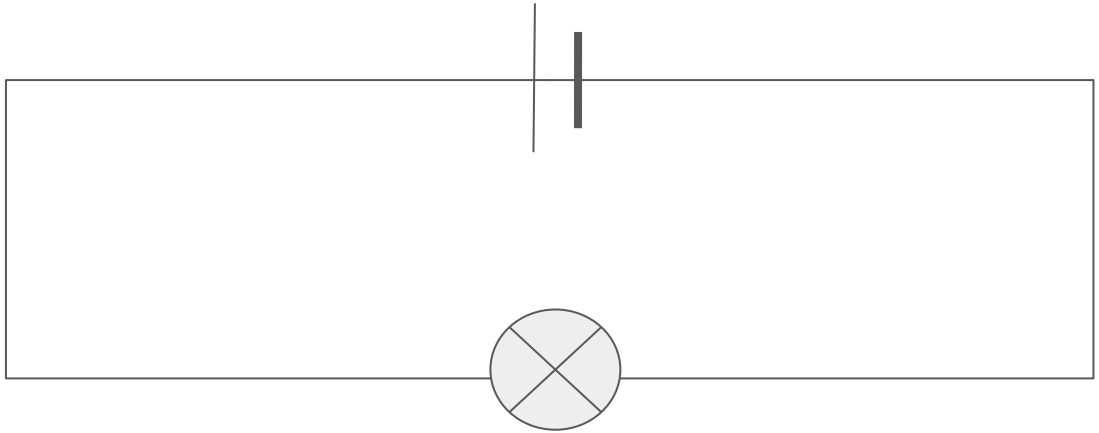
Draw the circuit symbol for a lamp.

Draw the circuit symbol for a lamp.



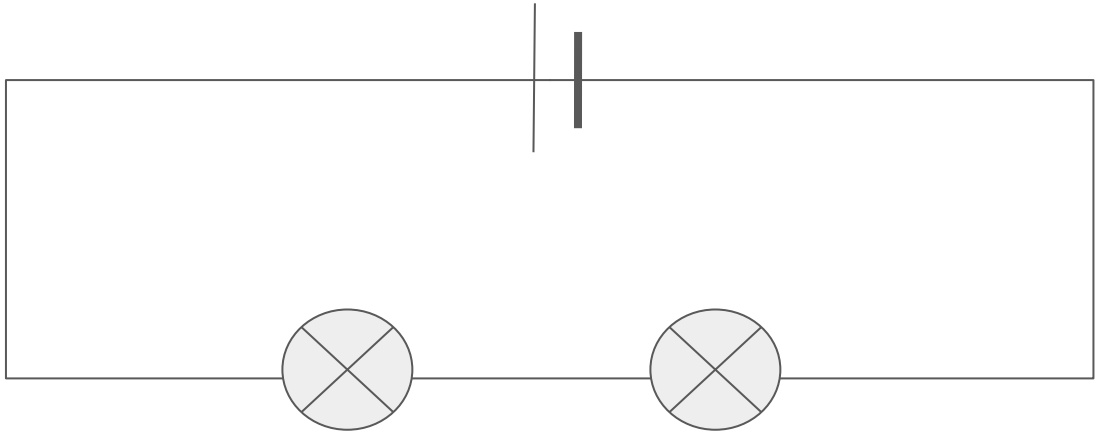
Draw a circuit diagram for one lamp in series.

Draw a circuit diagram for one lamp in series.



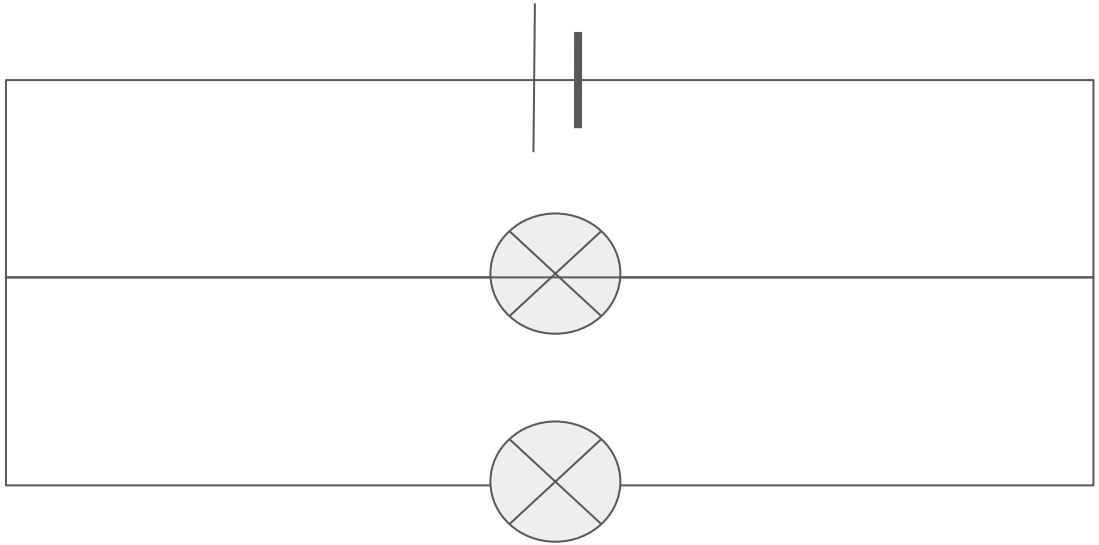
Draw a circuit diagram for two lamps in series.

Draw a circuit diagram for two lamps in series.



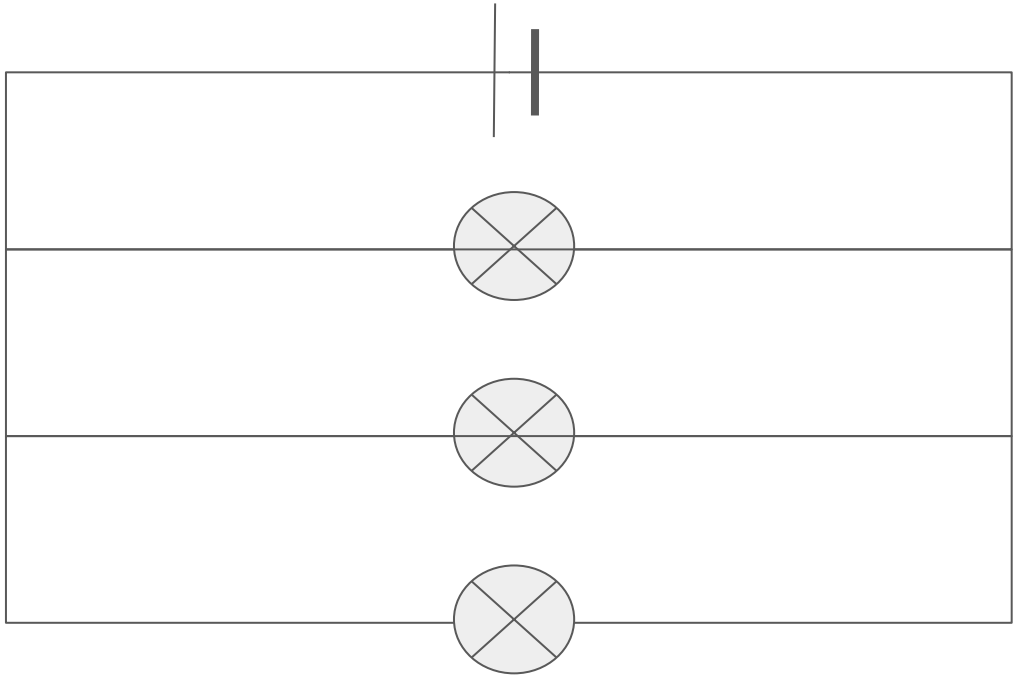
Draw a circuit diagram for two lamps in parallel.

Draw a circuit diagram for two lamps in parallel.



Draw a circuit diagram for three lamps in parallel.

Draw a circuit diagram for three lamps in parallel.



Give 6 possible circuits for this investigation.

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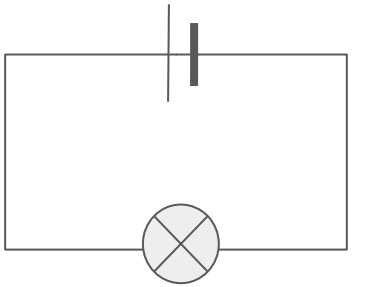

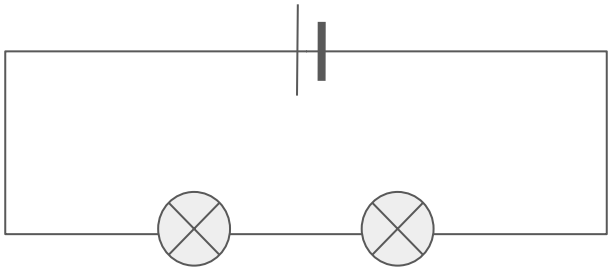

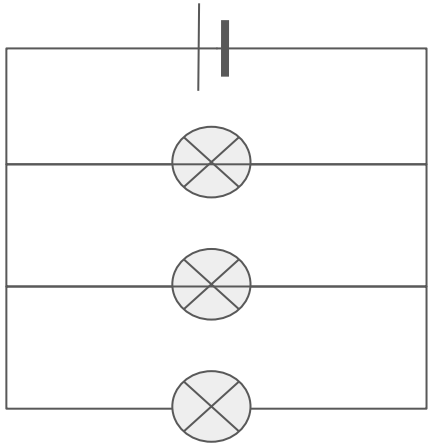

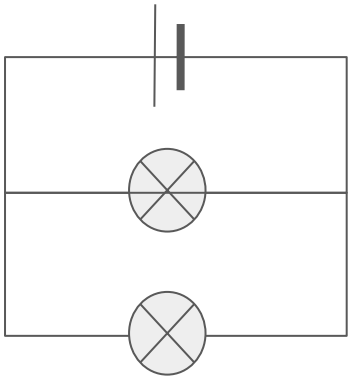

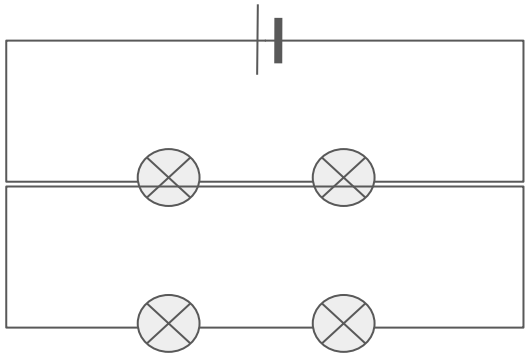

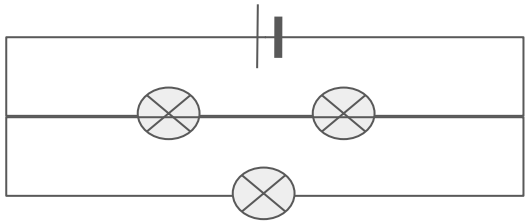

Describe a method for investigating the brightness of bulbs in these circuits.

Describe a method for investigating the brightness of bulbs in these circuits.

- Set up each circuit
- Record a description of the brightness of each bulb
- Compare the brightness of each bulb in each circuit

What kind of data does this method produce?

What kind of data does this method produce?

Qualitative data.

How can the method be adapted so quantitative data can be collected?

How can the method be adapted so quantitative data can be collected?

Attach a voltmeter to each bulb and record the voltage (the higher the voltage, the brighter the bulb will be).