Electricity

- **Voltage** (**V**) depends on the distance between charges.
- **Current** (**C**) depends on the number of moving charges.
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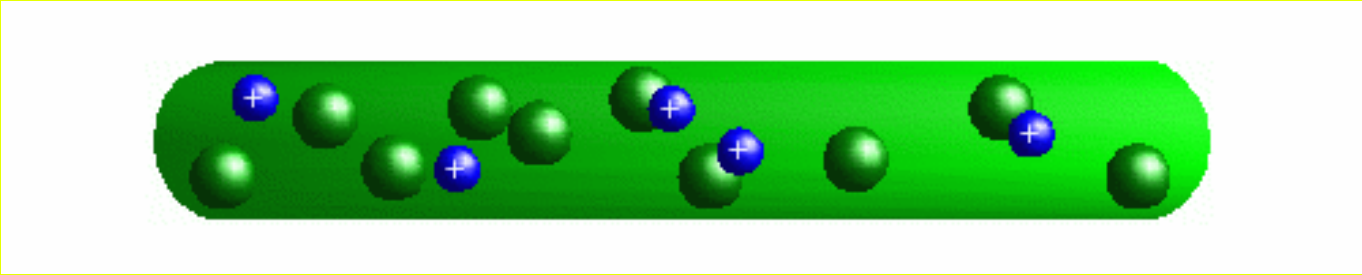

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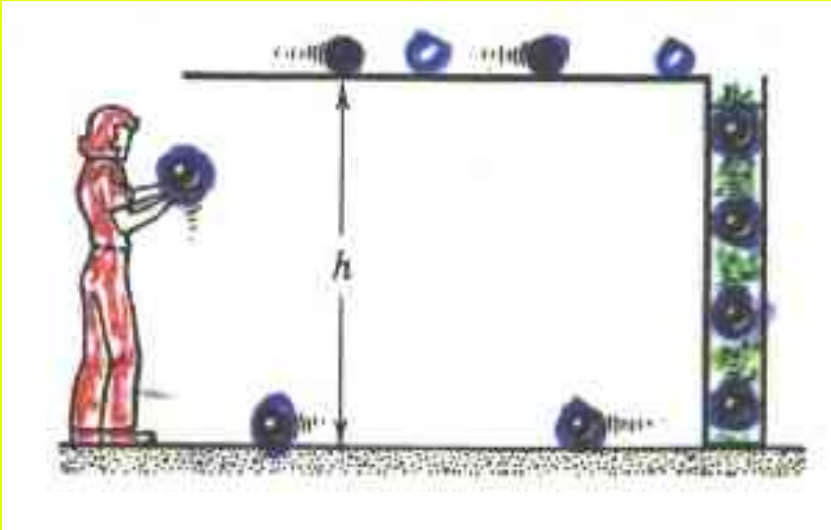

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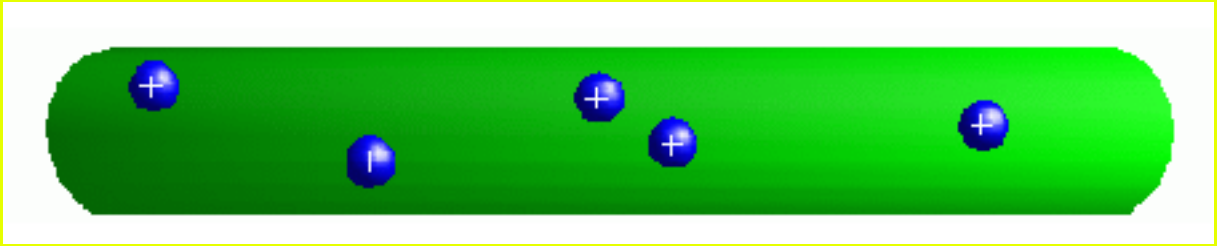
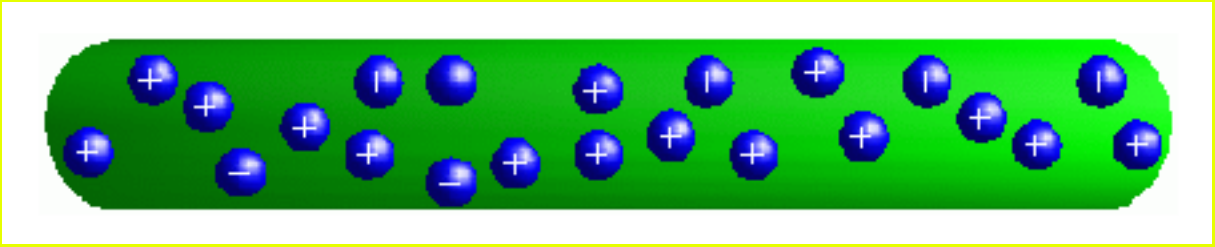


Small Current



Large Current

Electricity

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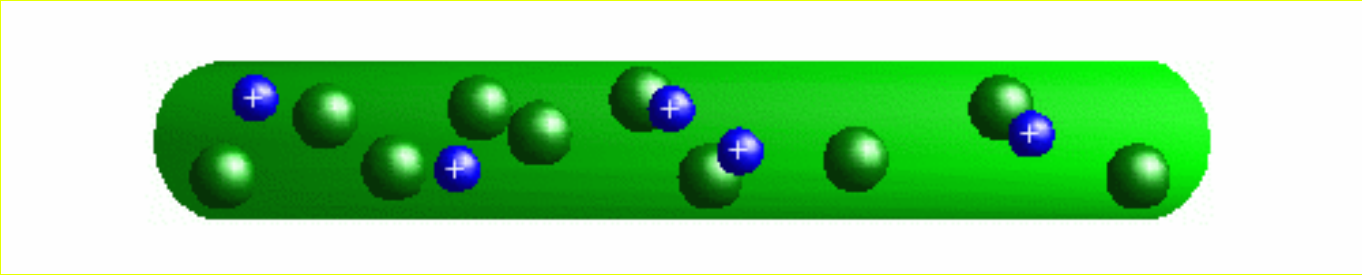

Electricity

- **Voltage** (**V**) depends on the distance between charges.
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- A formula which describes how **voltage**, **current** and **resistance** depend on each other is:

V = **C** x **R** or **C** = **V** / **R**

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  - If the **current** is **C** = 2 and the **resistance** is **R** = 100, how large is the **voltage** (**V**)?

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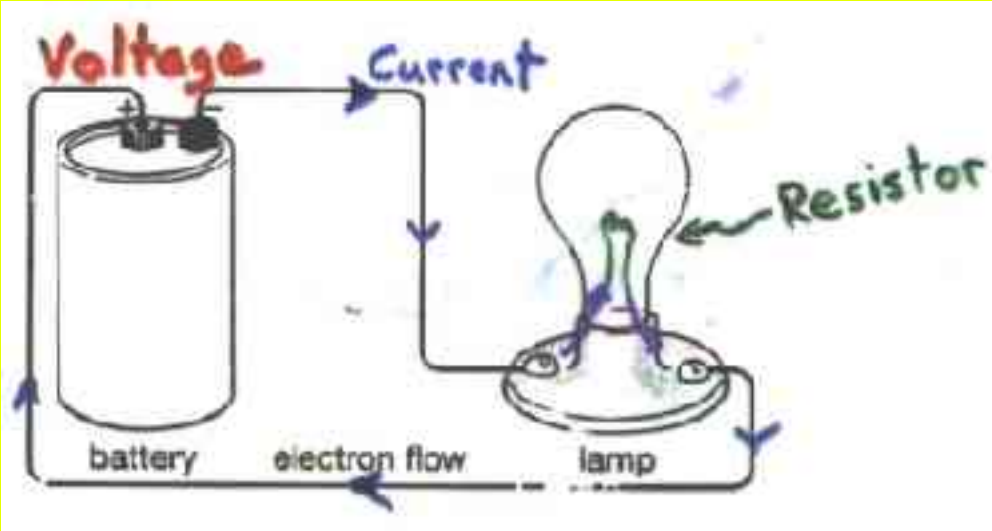
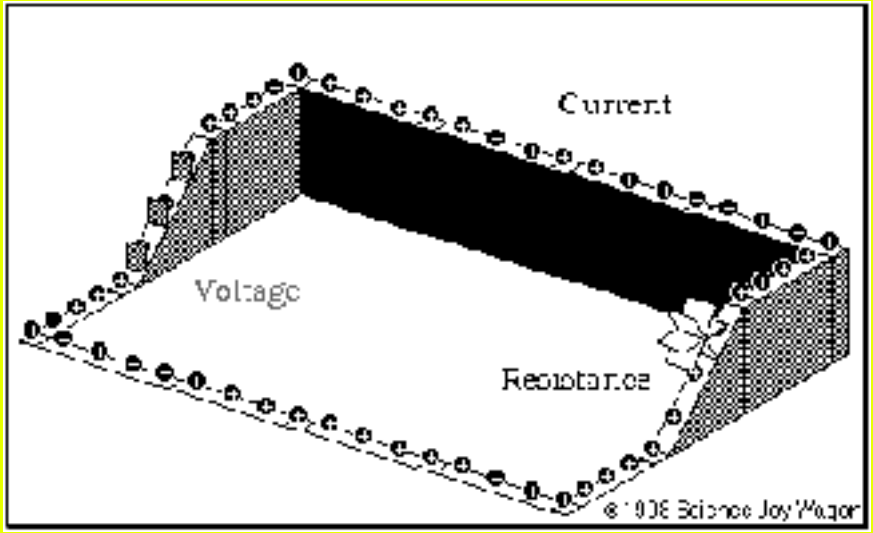
Electricity

- Simple circuit to show how current depends on voltage





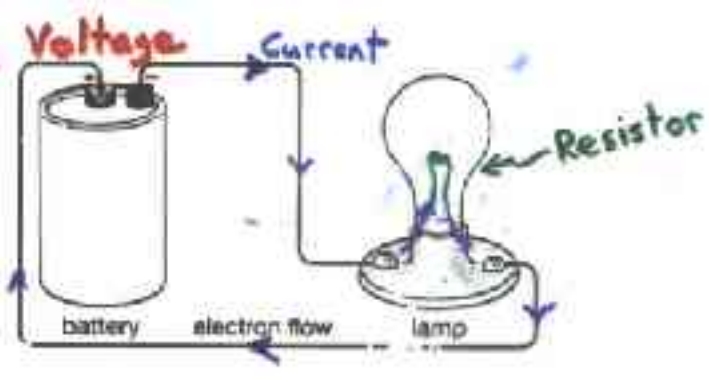
Resistance -- tries to stop current!

Current -- charges flowing through wire

Voltage – separates charges

Electricity

- Simple circuit to show how current depends on voltage:

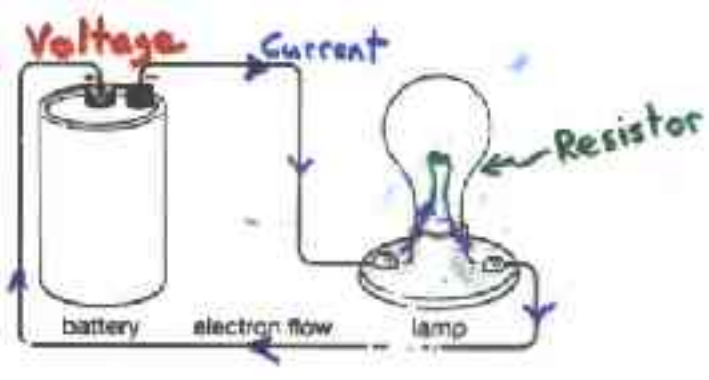


Table

Voltage **Current**

Electricity

- Simple circuit to show how current depends on voltage:

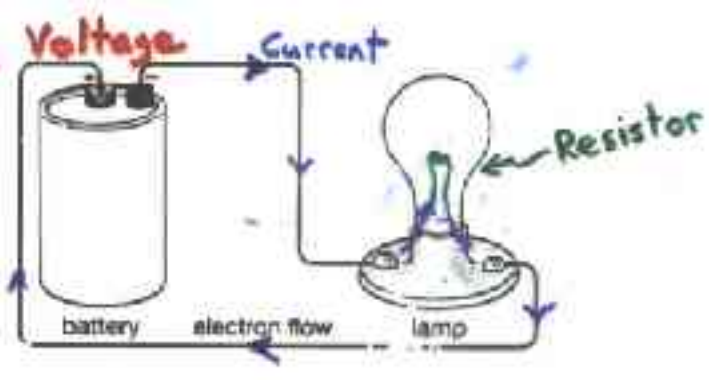


Table

Voltage	Current
0.	0.

Electricity

- Simple circuit to show how current depends on voltage:



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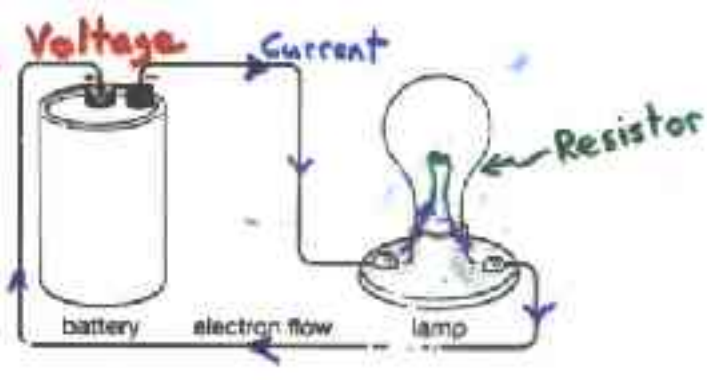
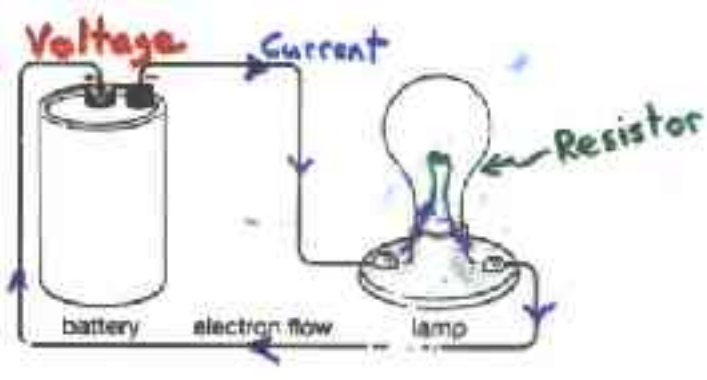


Table

Voltage	Current
0.	0.
40.	185.

Electricity

- Simple circuit to show how current depends on voltage:

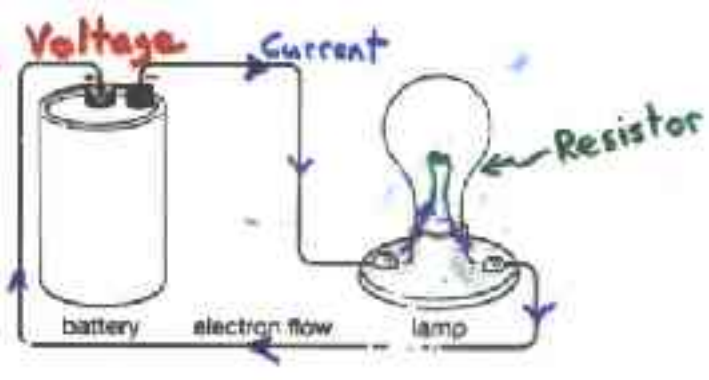


Table

Voltage	Current
0.	0.
40.	185.
80.	260.

Electricity

- Simple circuit to show how current depends on voltage:

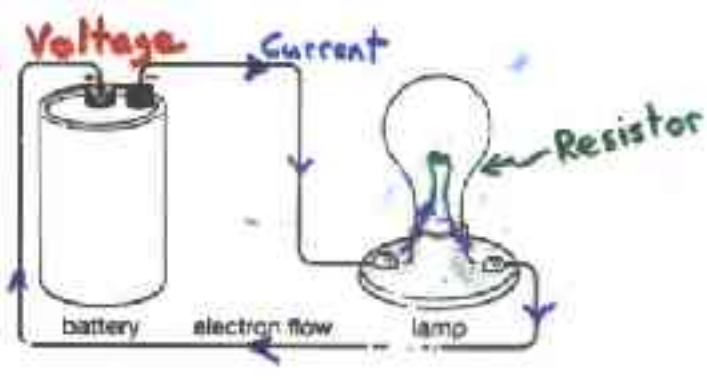


Table

Voltage	Current
0.	0.
40.	185.
80.	260.
120.	317.

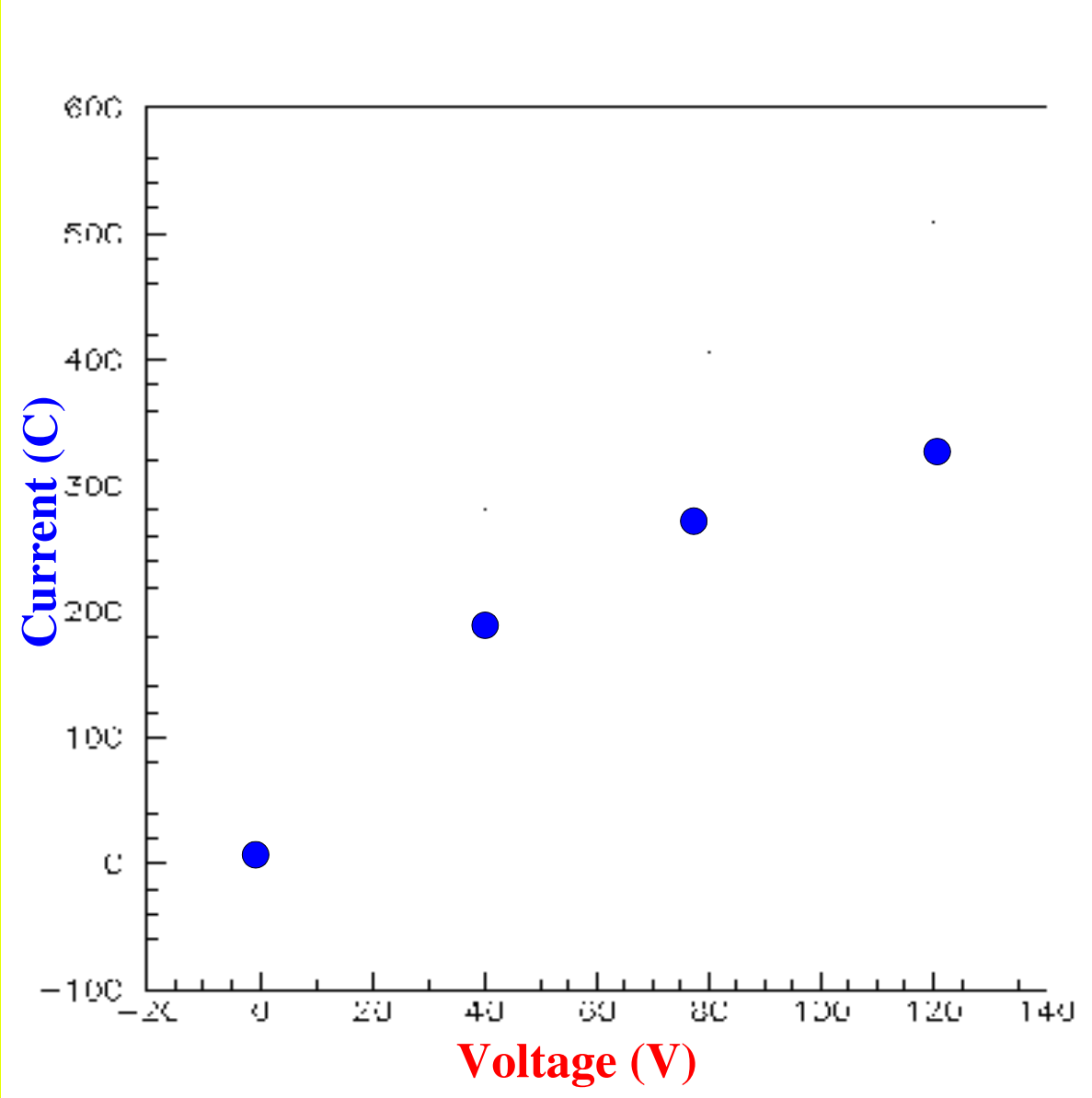
Electricity

- Simple circuit to show how current depends on voltage:



Table

Voltage	Current
0.	0.
40.	182.
80.	254.
120.	315.



Electricity

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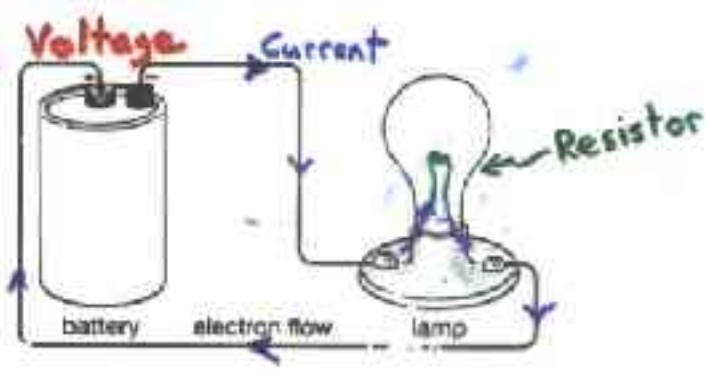

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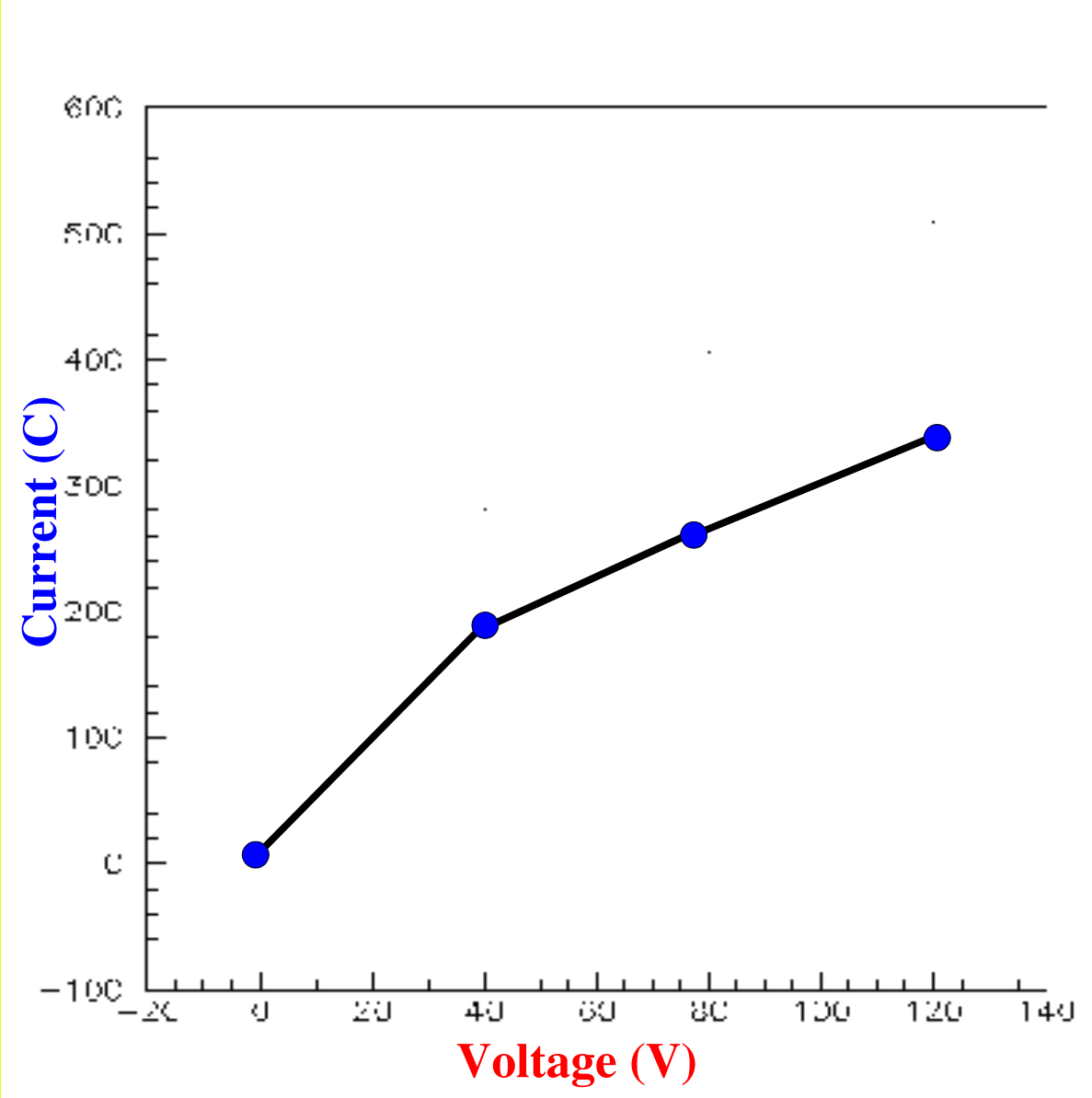
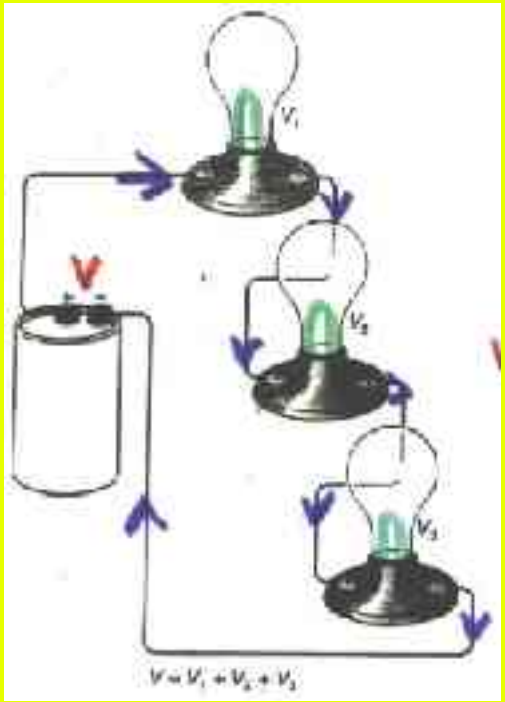


Electricity

- Series circuit of three light bulbs:



- **Will bulbs be brighter or dimmer?**
- **What will happen if we remove one bulb?**

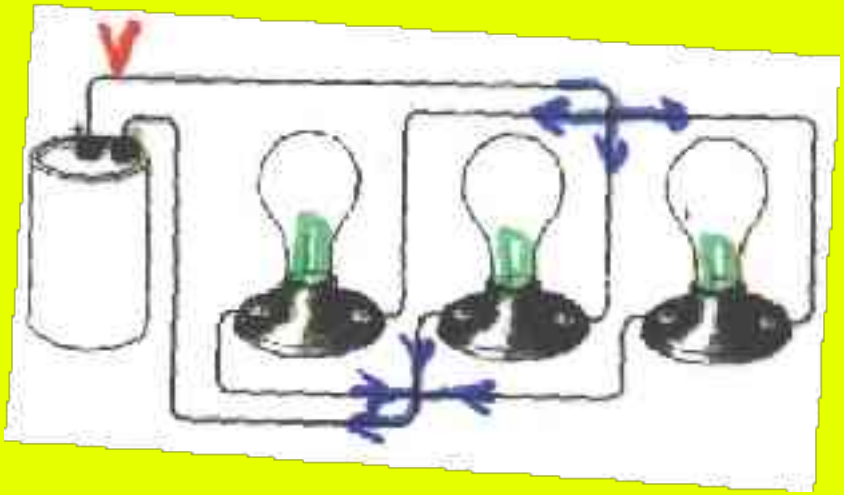
Voltage – Pushes charges (current) through wires

Current – charges flowing through wire

Resistance tries to stop current!

Electricity

- Parallel circuit of three light bulbs:



- **Will bulbs be brighter or dimmer?**
- **What will happen if we remove one bulb?**

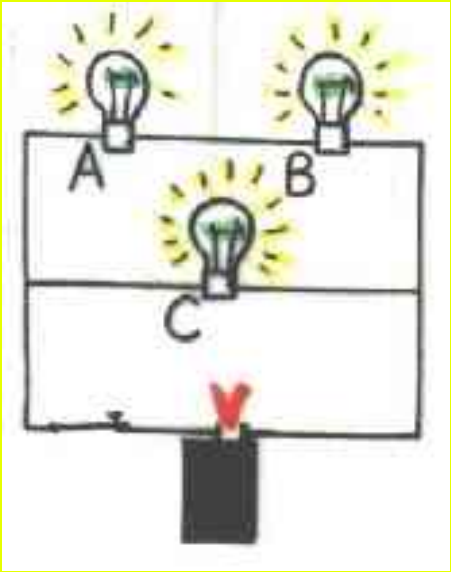
Voltage – Pushes charges (current) through wires

Current – charges flowing through wire

Resistance tries to stop current!

Electricity

- Combination circuit of three light bulbs:



- **Which bulb will shine the brightest?**
- **What will happen if we remove bulb A?**
- **What will happen if we remove bulb C?**

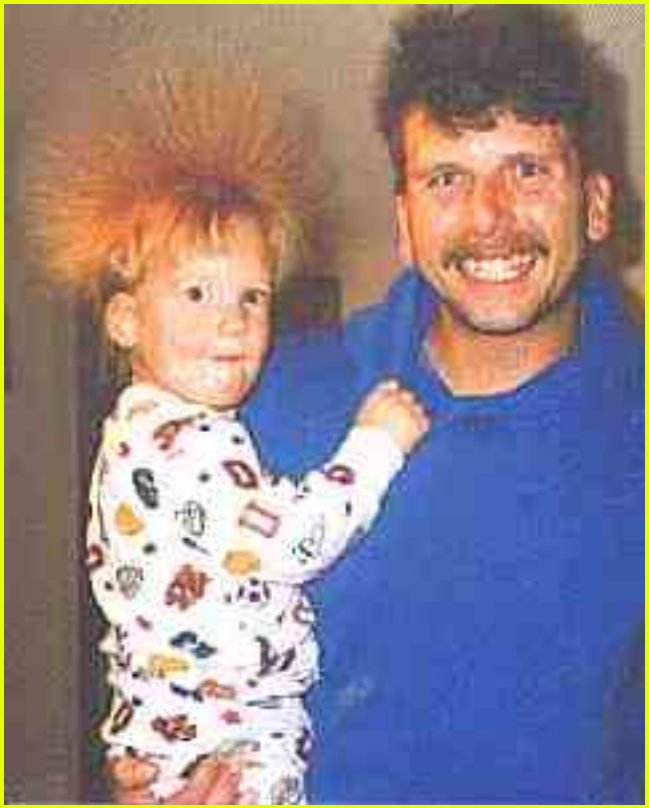
Voltage – Pushes charges (current) through wires

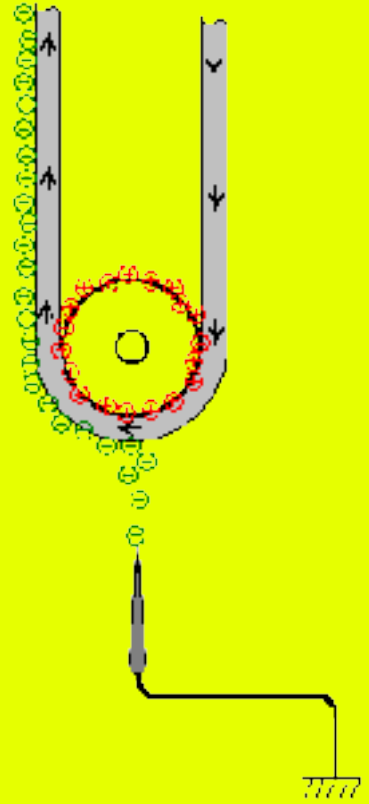
Current – charges flowing through wire

Resistance tries to stop current!

Electricity

- Van De Graaff Generator



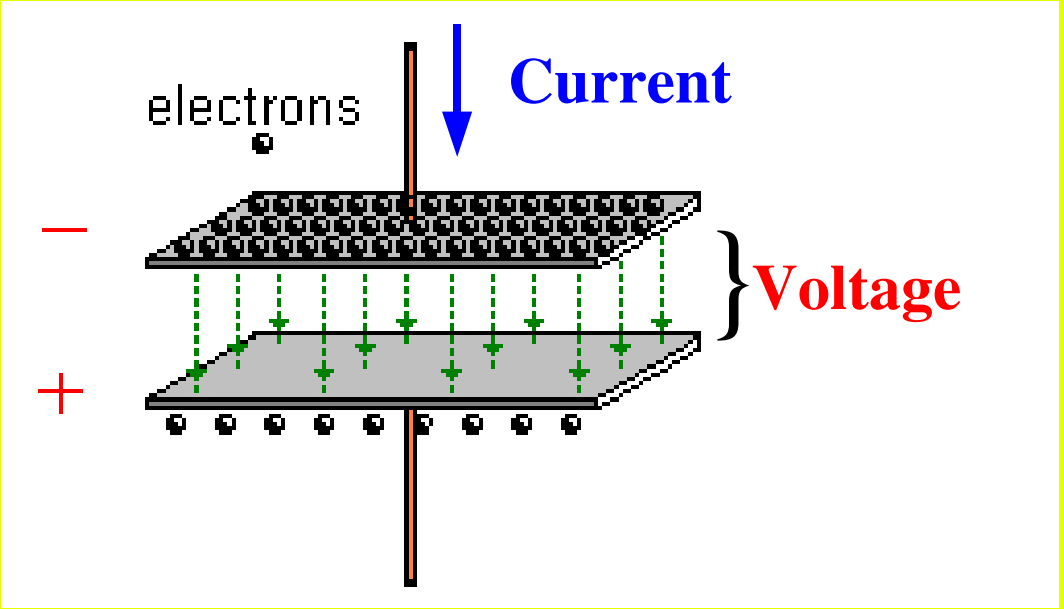


How charge is carried up to top

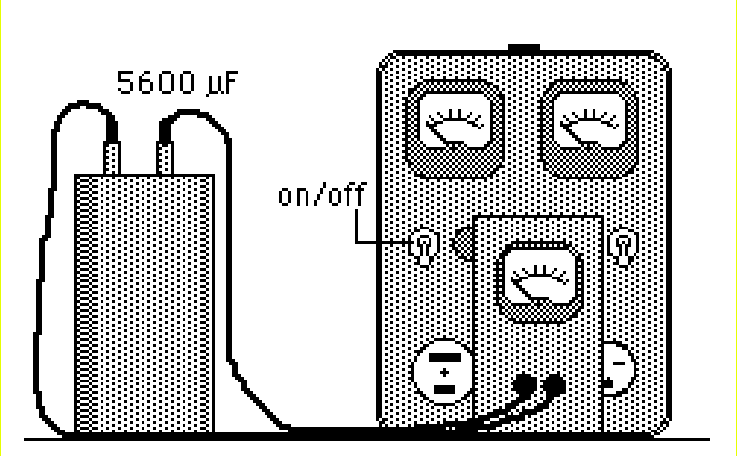
Electricity

- Capacitor Boom

Capacitor

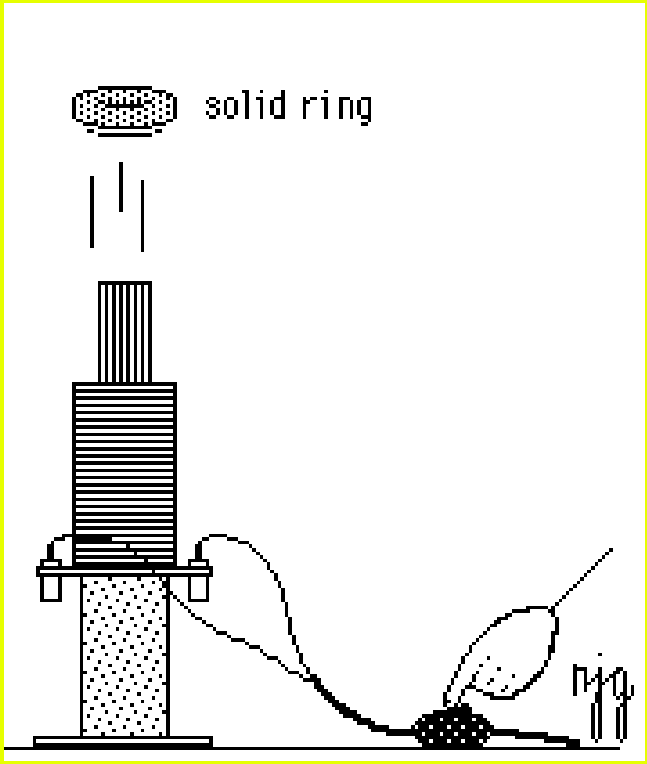


Circuit



Electricity

- **LN2 Jumping Ring**

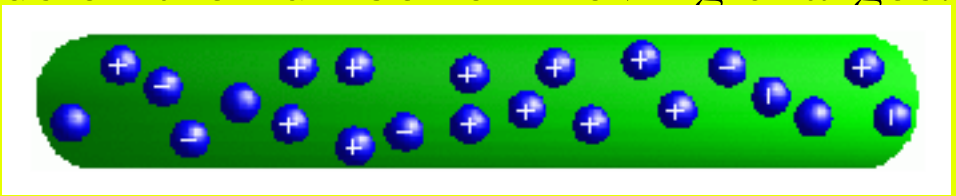


Electricity

- Summary:

- **Voltage** (**V**) depends on the distance between charges.

- **Current** (**C**) depends on the number of moving charges.



- **Resistance** (**R**) depends on how much moving charges are slowed down