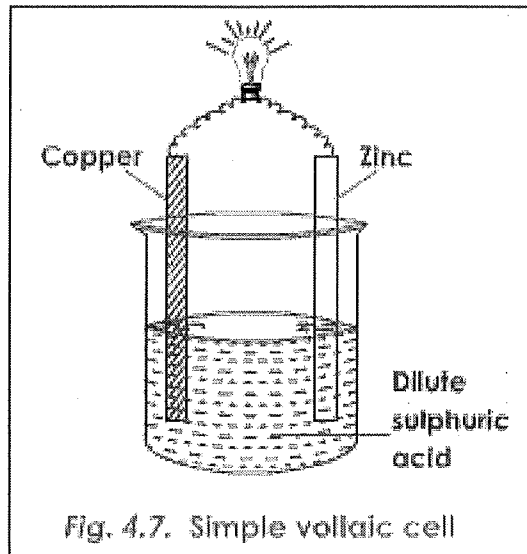
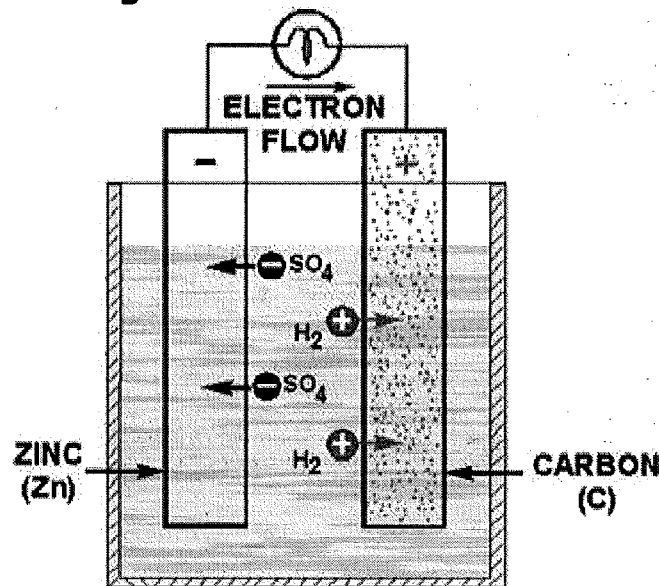


Physics 12 Section 18-1 to 18-3
The Electric Cell, Current, and Ohm's Law

1. A simple cell consists of two electrodes and an electrolyte. The electrodes are usually two dissimilar metals while the electrolyte is usually an acid solution.



2. The zinc in this case acquires negative charge while the copper acquires positive charge.

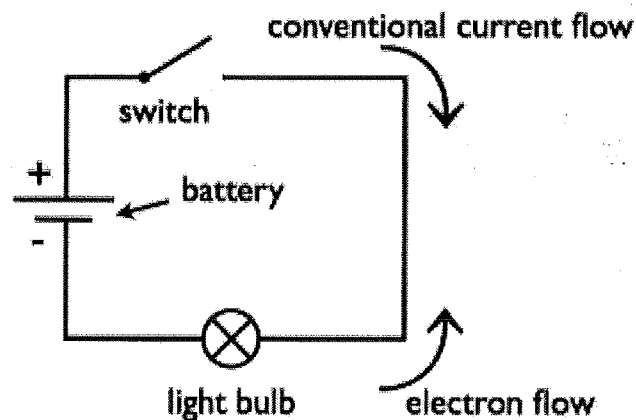


3. The result is a charge separation or a potential difference between the two terminals (electrodes).

4. The potential difference results in a current flow (movement of negative charge) from the negative terminal to the positive terminal through a conducting path.
5. Current (I) is the amount of charge (Q) passing a given point in a given amount of time (t)

$$I = \frac{Q}{t}$$

6. Conventional current is the direction positive charge would move in a circuit.



7. From grade 9 we have ohm's law:

$$V = I \times R$$

Example 18-3 p533. A small flash light bulb draws 300mA from its 1.5V battery. What is the resistance of the bulb? If the voltage dropped to 1.2V, how would the current change?

$$V = I \times R$$

or

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

$$R = \frac{1.5V}{.3A}$$

$$R = 5.0 \text{ Ohms}$$

Second part:

$$V = I \times R$$

or

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

$$I = \frac{1.2V}{5.0 \text{ ohms}}$$

$$0.24 \text{ A}$$