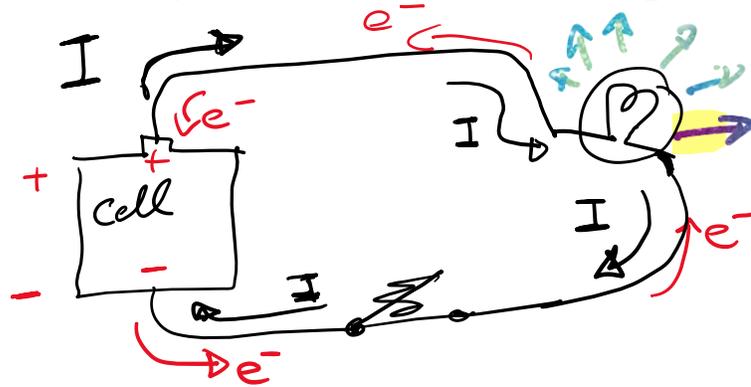


## Feb 26, 2024 – Science 9 – Chapter 10.1

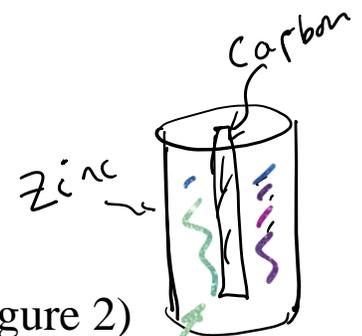
Current electricity: charge flows in a continuous pathway (circuit)



### Necessary Parts of an electric circuit

#### 1. Power source (e.g. battery or cell)

- Parts of an electrochemical cell are: (pg 303 Figure 2)
  - o 2 different types of metal electrodes
  - o electrolytic paste (or carbon)



#### 2. Pathway for current (wires/leads)

#### 3. Load (something that transforms electrical energy into other forms of energy): e.g. - a toaster transforms electrical energy into heat (with some light)

- a lightbulb transforms electrical energy into light (with some heat) waste
- a ceramic resistor transforms electrical energy into heat
- a radio transforms electrical energy into sound (with some light and heat)

## **NOTE regarding electric current**

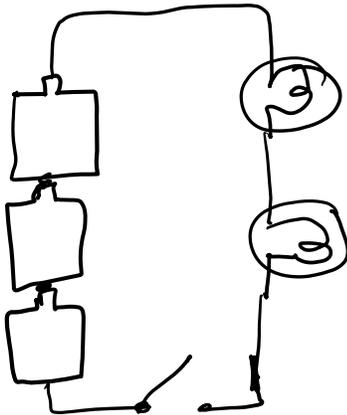
- The electrons are actually flowing (i.e. negative charges, not the protons)
  - Electrons flow out of the negative terminal of the power source, through the circuit to the positive terminal of the power source.
  - Electrons are shown with this symbol:  $e^-$
- BUT, “conventional current” assumes that the flow of charge is positive
  - “conventional current” is shown as flowing out of the positive terminal of the power source, through the circuit to the negative terminal
  - The symbol for conventional current is  $I$

**Electric Circuit Diagrams: sketch vs formal circuit diagram**  
using standard symbols

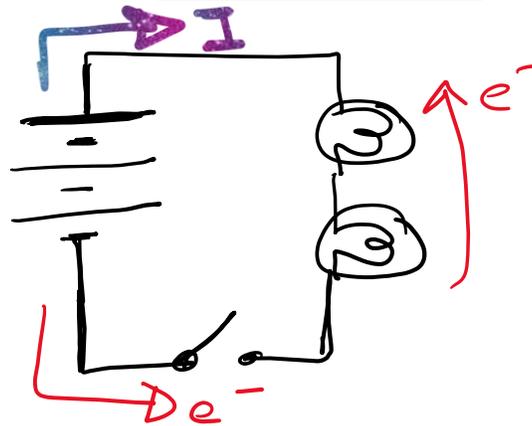
**Circuit Example A:**

- 2 light bulbs connected in **series** (in a single line)
- A battery of 3 cells connected in series
- One switch
- Show electron flow and conventional current

**Sketch**



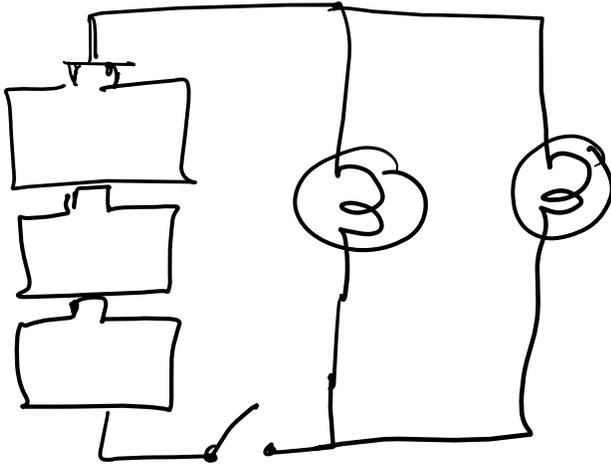
**Circuit Diagram**



## Circuit Example B:

- 2 light bulbs connected in parallel
- A battery of 3 cells connected in series
- One switch in series with the cells
- Show electron flow and conventional current

### Sketch



### Circuit Diagram

