**Topic 3.3: How do charges flow through the components of a circuit**

**Concept 1: Chemical energy separates electrical charges in cells**

**Electrochemical cell**

**Using page 214 to define the following terms:**

|  |  |
| --- | --- |
| **Electrode**  |  |
| **Electrolyte** |  |
| **Terminals**  |  |

**What is the difference between a wet cell and a dry cell?**

**Battery:** a connection of two or more cells

**Source:** Anything that supplies electrical energy

**How a cell works**

In the space below, draw the ladder analogy from the textbook and provide a brief description of how an electrochemical cell work. Use pg. 215 in your textbook.

**Description**

**Drawing**

**Electrical Potential Difference**

**Use page 216 in the NEW textbook to help fill in the blanks**

* a unit of charge, called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, gains electrical potential energy when it passes through a source

**Electrical potential difference (voltage):** measure of the electrical potential energy that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by a unit of charge. Measured in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (V).

* + represents the amount of energy it took to carry the last unit of charge up the ladder
	+ Electrical potential difference is determined by the nature of the chemical reaction in the cell

**If it took 1.5 units of energy to carry the last unit of charge up the ladder, then what is the electrical potential difference?**

**If you link together three 1.5 V cells what is the voltage?**

**Concept 3: Moving electrical charges form an electric current**

* Charges can flow from a source through a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ material to an appliance or electrical device
	+ The moving charges are called electrical \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The symbol is I and the unit is amperes (A).

**Concept 4: A load resists the flow of current**

**Load:** a device that converts electrical energy into another type of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + Ex. Lightbulb, radio
* A load resists or hinders the flow of current
* The degree to which the flow is hindered is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.** The symbol for resistance is R and the unit is ohms (Ω).

**Explain the cartoon using the vocabulary you just learned.**