**Science 9 – Current (Current Electricity Notes 2)**

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| **What is Current?**  Current is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through a circuit.  **Chart, box and whisker chart  Description automatically generated**An electrochemical cell (battery) uses chemical reactions to move electrons. This creates a “potential difference” between two ends of the battery:   * Positive terminal is positively charged * Negative terminal is negatively charged and has an excess of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   When a circuit connects the two terminals, current flows through the wire.   * Electrons are repelled by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ terminal and are attracted by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ terminal. * Electrons cannot move through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, but they can definitely move through a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_! |

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| **Calculating Current**  Shape  Description automatically generatedCurrent (**I**) is the amount of charge (**Q**) that passes a point in a circuit every second (**t**):   * **I:** is the symbol for \_\_\_\_\_\_\_\_\_, measured in **Amperes** (A) * **Q**: is the symbol for charge, measured in **\_\_\_\_\_\_\_\_\_\_\_\_\_** (C) * **t**: is time, measured in **seconds (s)** | |
| **Example #1**  What is the current in a wire if 25 C of charge passes by a point in 5 seconds? | **Example #2**  If the current in a wire is measured to be 12 A, how much charge passes by a point in the circuit every minute? |
| **Example #3**  A current of 64 mA is equivalent to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ A. | **Example #3**  A current of 0.0028 A is equivalent to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mA. |

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| **Measuring Current**  Current is measured by a device called an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   * Symbol in circuit diagrams:   Typical amounts of current:   * + In a light bulb is 1A   + In a TV is 4A   + In a car starter is 500 A | Chart, box and whisker chart  Description automatically generated*Complete this circuit diagram by adding a light bulb and an ammeter.* |

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| **Series and Parallel Circuits**  In a circuit, devices (such as light bulbs or batteries) can be placed in two different ways. | |
| **SERIES**   * When devices are placed in series, the current goes through a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through all devices. * In this circuit, there is only **one path** and the \_\_\_\_\_\_\_\_\_\_\_\_\_ goes through the two light bulbs in the series.   Diagram, engineering drawing  Description automatically generated | **PARALLEL**   * When devices are placed in parallel, there are 2 or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that the current can take * Current \_\_\_\_\_\_\_\_\_\_\_\_: some electrons go through one device, and some go through the other(s).   Diagram  Description automatically generated |
| Decide whether each circuit is **S**eries, **P**arallel, or a **C**ombination of the two. | |

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| **Calculating Current in SERIES**   * **Current** (I)   + Measured in Amperes (A)   + When you place an Ammeter in SERIES (SIDE BY SIDE) the current \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   001 - Copy (2).jpg   * **Series**: | **Calculating Current in PARALLEL**   * **Current** (I)   + Measured in Amperes (A)   + When you place an Ammeter in PARALLEL (OPPPOSITE FROM EACHOTHER), you \_\_\_\_\_\_ the current to find a total. * 001 - Copy (2) - Copy.jpg**Parallel**: |
| 001 - Copy (2) - Copy.jpg**Example #4**  Find the total current for the following circuit. | |
| **Example #5**  001 - Copy (2).jpgFind the total current for the following circuit. | |
| **Example #6**  How long does it take 40 C of charge to pass by a point if the current in the circuit is 0.76 A ? | |