**Series Vs Parallel Circuits**

**Diagram, schematic

Description automatically generated**

**There are two ways to connect components in a circuit:**

|  |  |
| --- | --- |
| **Series:** | **Parallel:** |
| When one bulb goes out, they all go out, because there is only \_\_\_\_\_\_\_\_ pathway for the current to flow! | When one bulb goes out, the other bulbs stay lit, because there is \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ one pathway for the current to flow! |

**Series Circuits – One Pathway:**

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| --- | --- |
| * All components are connected one after another *(\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_)* * Electrons must pass through \_\_\_\_\_\_\_\_ load in the circuit on their way back to the source * Only ONE path for electrons to flow (no branches) * Brightness of each bulb \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| **Voltage:**  The \_\_\_\_\_\_\_of the voltages lost on the loads equals the total voltage supplied by the battery  **Diagram  Description automatically generated** | **Current:**  Current measured anywhere in the series circuit will be the \_\_\_\_\_\_\_\_  **Diagram  Description automatically generated** |
| **Resistance:**   * The total resistance of the circuit is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ when resistors are placed in series (add together) * The total current leaving the battery (and throughout the circuit) therefore \_\_\_\_\_\_\_\_\_\_\_\_\_! | |

**Parallel Circuits – Multiple Pathways**

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| --- | --- |
| * Components are arranged in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ throughout the circuit = separate paths the electrons can take to get back to source * At each \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_(aka *junction* *point*) the current \_\_\_\_\_\_\_\_\_\_, then rejoins again at the source * If there is a break in one branch, the components on other branches still work! * Brightness of each bulb is overall \_\_\_\_\_\_\_\_\_\_\_\_ than in series | |
| **Voltage:**  Voltage remains the \_\_\_\_\_\_\_\_\_\_\_\_ throughout each pathway of the parallel circuit  **Diagram  Description automatically generated** | **Current:**  Current splits up between the different current pathways (\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_)  **Diagram, schematic  Description automatically generated** |
| **Resistance:**   * The total resistance of the circuit is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ when resistors are placed in parallel * The total current leaving the battery (and throughout the circuit) therefore \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_! | |

**Remember:**

SASS: PVSS:

**Notes and example problems from video:**