 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Compare the voltage drop across resistors connected in series in a circuit.



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| --- | --- | --- | --- | --- |
| Know | |  | Apply  2  1 | |
| Ideas | |  |  |  |
| K1 | We can model voltage as an electrical push from the battery, or the amount of energy per unit of charge transferred through the electrical pathway. In a series circuit, voltage is shared between each component. In a  parallel circuit, voltage is the same across each loop. |  | A1 | Draw a circuit diagram to show how voltage can be measured in a simple circuit. |
| A2 | Use the idea of energy to explain how voltage and resistance affect the way components work. |
| A3 | Given a table of voltage against current. Use the ratio of voltage to current to determine the resistance. |
| K2 | Components with resistance reduce the current flowing and shift energy to the surroundings. |  | A4 | Use an analogy like water in pipes to explain why part of a circuit has higher resistance. |
|  | |  |  |  |
| Skill | |
| K3 | Calculate resistance using the formula: Resistance (Ω) = potential difference (V) ÷ current (A). |  | A5 |  |
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| Key words | |
| K4 | **Potential difference (voltage):** The amount of energy shifted from the battery to the moving charge, or from the charge to circuit components, in volts (V). |  |  |  |
| K5 | **Resistance:** A property of a component, making it difficult for charge to pass through, in ohms (Ω). |  | A6 |  |
| K6 | **Electrical conductor:** A material that allows current to flow through it easily, and has a low resistance. |  |  |  |
| K7 | **Electrical insulator:** A material that does not allow current to flow easily, and has a high resistance. |  |  |  |
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| 3 | Extend |  |  |  |
| E1 | Predict the effect of changing the rating of a battery or a bulb on other components in a series or parallel circuit. |  |  |  |
| E2 | Justify the sizes of voltages in a circuit, using arguments based on energy. |  |  |  |
| E3 | Draw conclusions about safety risks, from data on voltage, resistance and current. |  |  |  |
| E4 |  |  |  |  |
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|  |  |  |  |  |
| E5 |  |  |  |  |
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