

STE
Mystery Box Lab

Name _____
Mysterious Partner _____

Purpose: To use voltage readings to figure out what circuits exist inside various mystery boxes.

Procedure and Results:

1. Record the number of your mystery box. It is a three digit number found on the side of the box. Print it here: _____.
2. Attach the side of the mystery box to the power source. Set the voltage at 5.0 V.
3. Measure the voltage across each resistor, and record your results here.

| | Voltage |
|----------------|------------------|
| R ₁ | V ₁ = |
| R ₂ | V ₂ = |
| R ₃ | V ₃ = |
| R ₄ | V ₄ = |

4. Record the number of another mystery box. The first number of the unknown must be different from that of the first box you used. (In all you need to have boxes from three levels: 1__ , 2__ and 3__ .)
Print it here: _____.
5. Set the voltage at 5.0 V. Measure the voltage across each resistor, and record your results here.

| | Voltage |
|----------------|------------------|
| R ₁ | V ₁ = |
| R ₂ | V ₂ = |
| R ₃ | V ₃ = |
| R ₄ | V ₄ = |

6. Record the number of another mystery box. The first number of the unknown must be different from that of the first box you used. (In all you need to have boxes from three levels: 1__ , 2__ and 3__ .)
Print it here: _____.

7. Set the voltage at 5.0 V. Measure the voltage across each resistor, and record your results here.

| | Voltage |
|----------------|------------------|
| R ₁ | V ₁ = |
| R ₂ | V ₂ = |
| R ₃ | V ₃ = |
| R ₄ | V ₄ = |

Analysis of Results and Conclusion (combined):

1. For each mystery box, draw a circuit that is consistent with the results obtained. *Keep in mind that all resistors are identical. Identify each resistor's voltage as V₁, V₂ etc*

| | |
|------------------------|--|
| Mystery Box # _____ | |
| Mystery Box # _____ | |
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