

Circuit Construction Kit

Clicker questions

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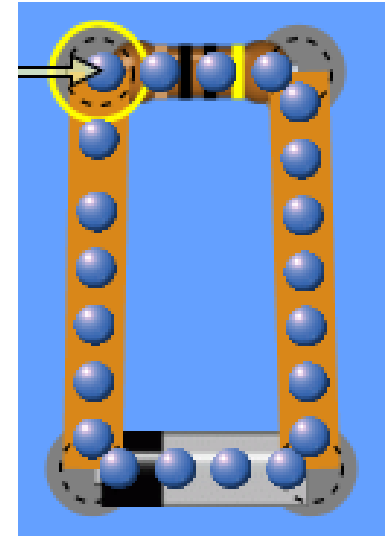
1. Introduction to Electrical circuits
2. Resistors in Series and Parallel Circuits
3. Combo Circuit Lab

Introduction to Electrical circuits

Learning Goals: Students will be able to

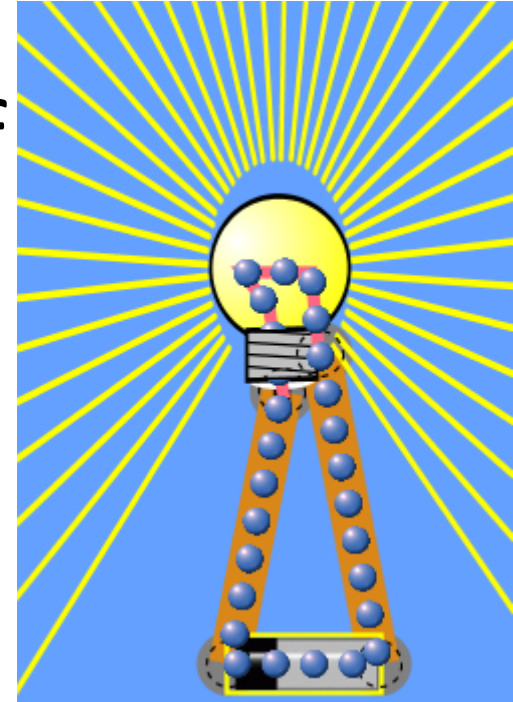
- 1. Discuss basic electricity relationships**
- 2. Analyze the differences between real circuits and the simulated ones**
- 3. Build circuits from schematic drawings**
- 4. Use a multimeter to take readings in circuits.**
- 5. Provide reasoning to explain the measurements and relationships in circuits.**

1.If you build this circuit with real equipment, how would you determine the resistance of the resistor?




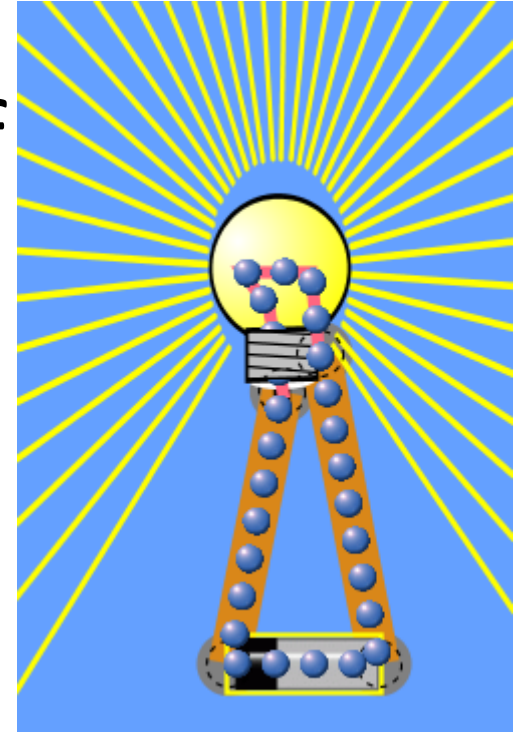
- A. Use the ohmmeter after connecting the battery.
- B. Use the ohmmeter before connecting the battery.
- C. Measure the current and voltage, then use Ohm's law
- D. Two of the above.

2.If you increase the voltage of the battery, how will the light bulb change?



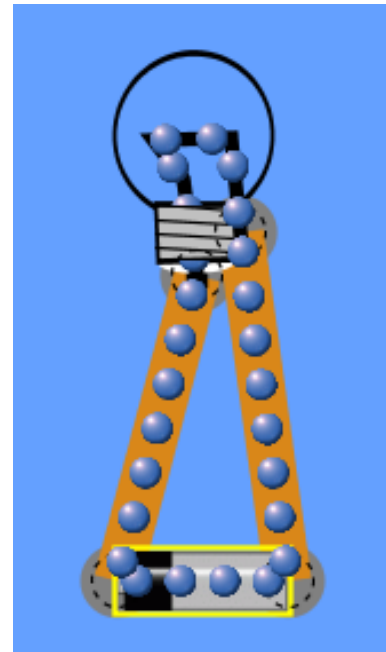
- A. It will be look brighter because the yellow lines are brighter and longer
- B. It will be less bright because the yellow lines are less bright and shorter
- C. There is no change because the bulb just uses the extra energy without changing brightness

3. If you increase the voltage of the battery, how will the electron display  change?

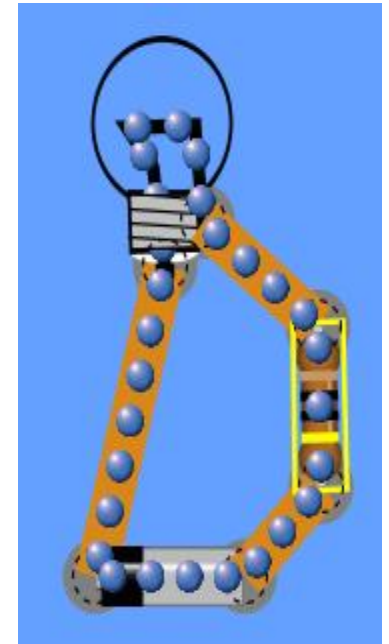


- A. The blue dots will get bigger to show more energy is being used**
- B. The blue dots will move faster to show more energy is being used**
- C. There is no change**

4. If you build circuit A and then add a resistor as in circuit B, the light will



A



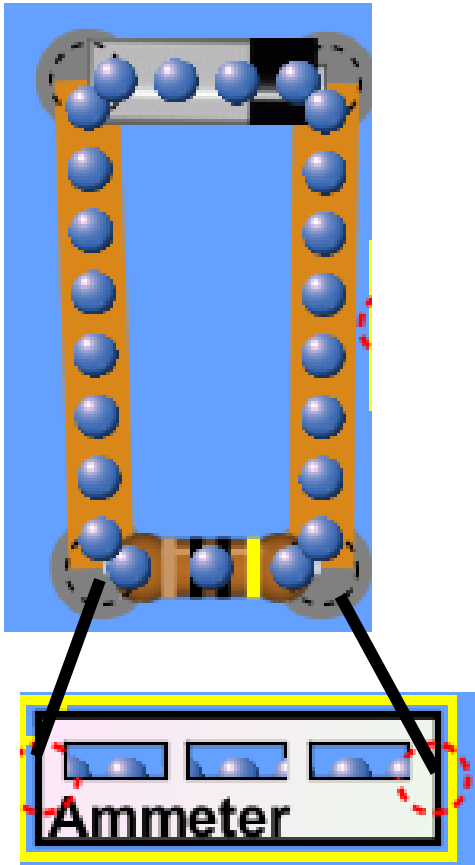
B

- A. Look brighter**
- B. Look less bright**
- C. There will no change in brightness**

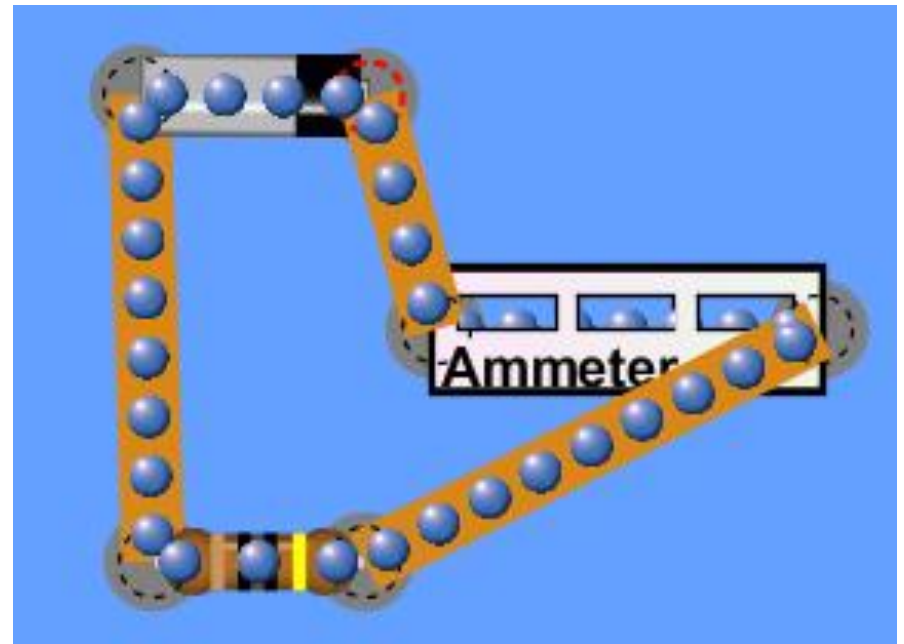
Resistors in Series and Parallel Circuits

- 1. Learning Goals: Students will be able to**
- 2. Discuss basic electricity relationships in series and parallel circuits**
- 3. Analyze the differences between real circuits and the simulated ones**
- 4. Build circuits from schematic drawings**
- 5. Use a multimeter to take readings in circuits.**
- 6. Provide reasoning to explain the measurements in circuits.**

1. Which shows the correct way to use an ammeter?



A



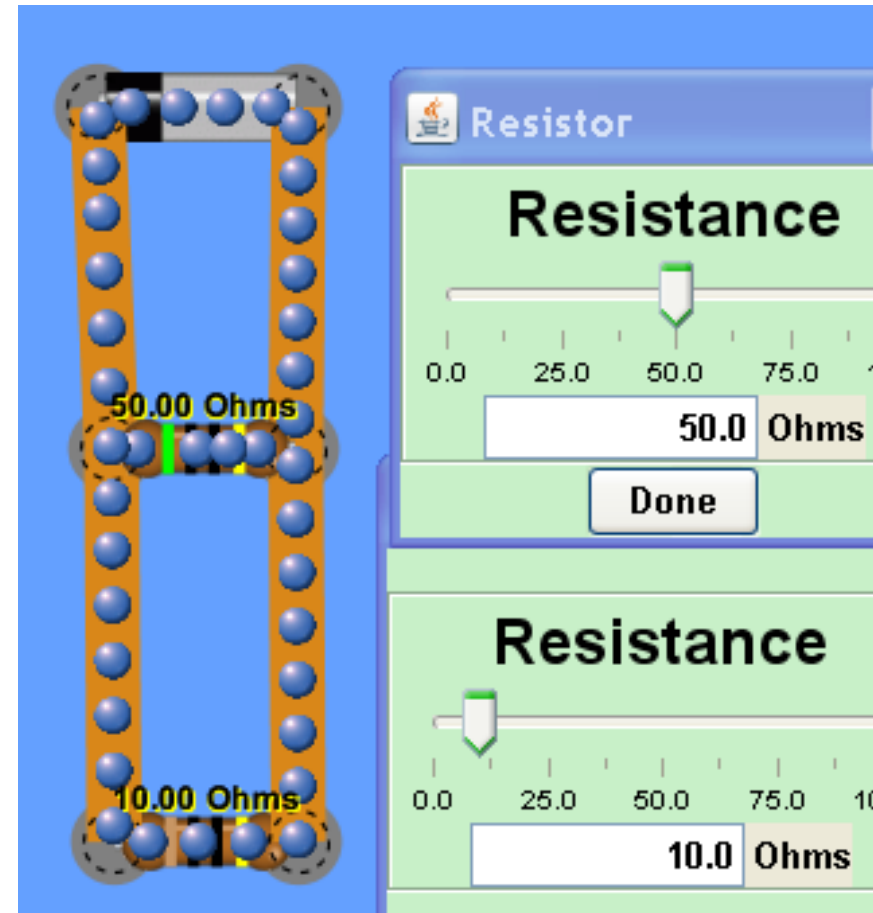
B

2. Which resistor will have the greatest current?

A. $50\ \Omega$

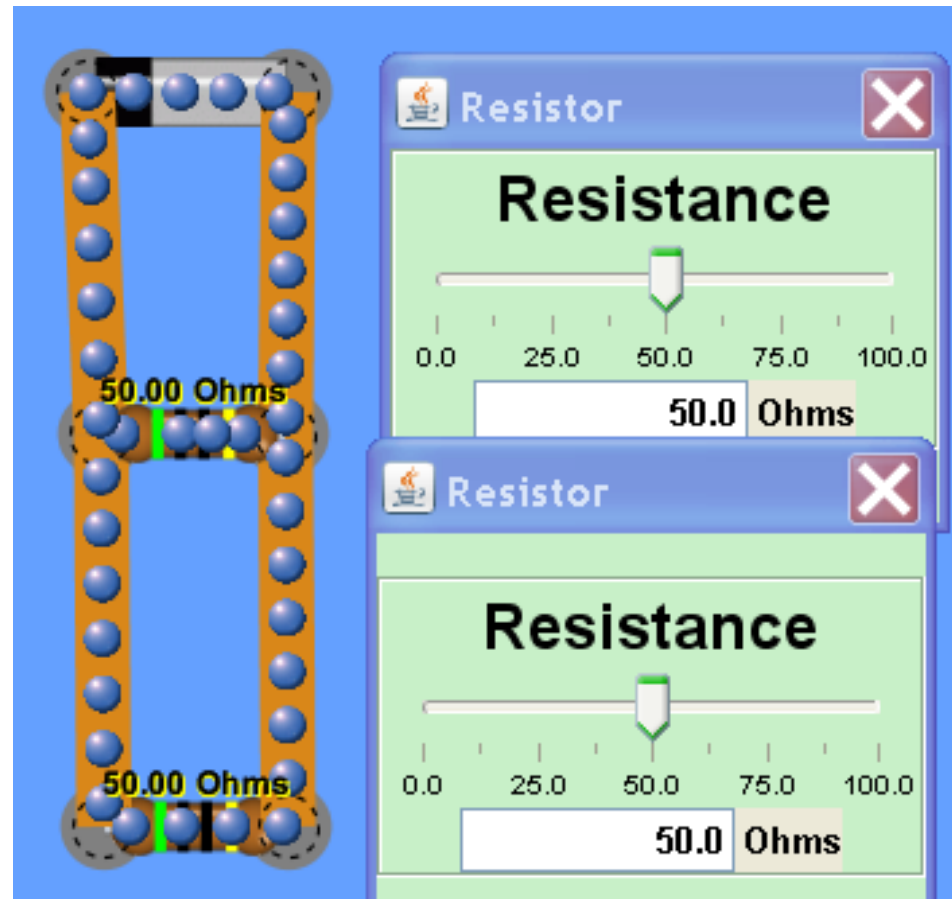
B. $10\ \Omega$

C. They have the same current



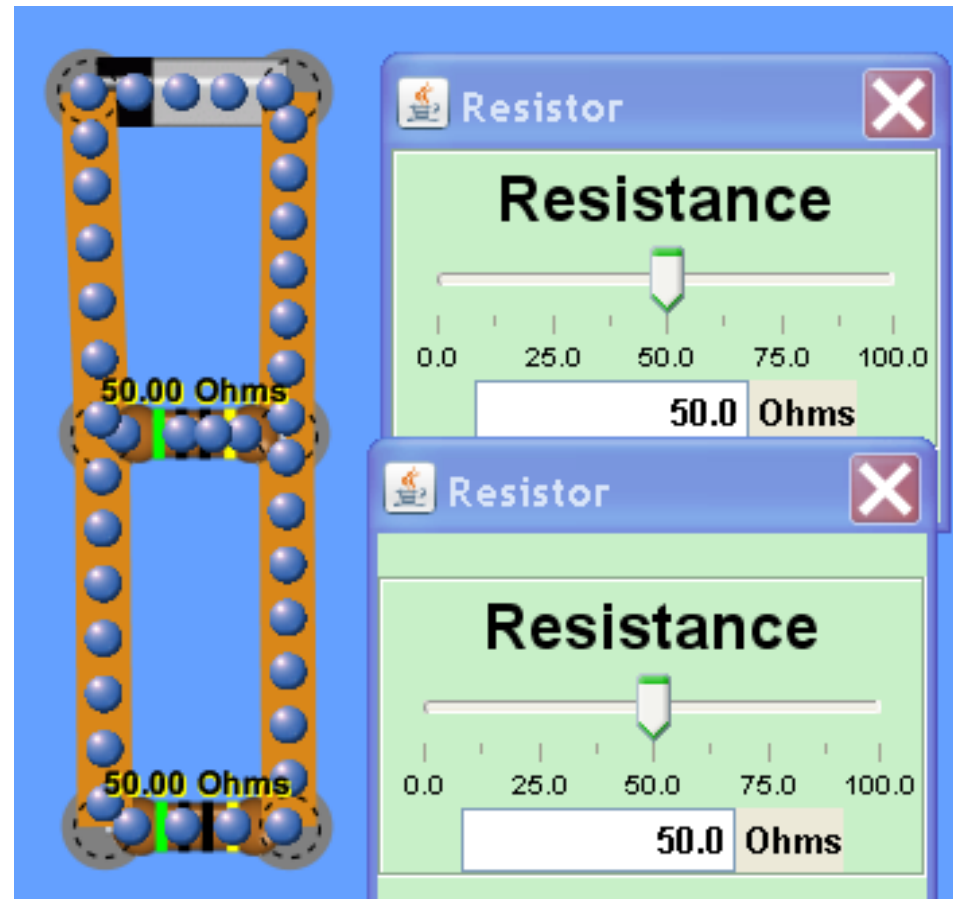
3. Which resistor will have the greatest current?

- A. The top resistor**
- B. The lower resistor**
- C. They have the same current**



4. Which resistor will have the greatest voltage?

- A. The top resistor**
- B. The lower resistor**
- C. They have the same voltage**

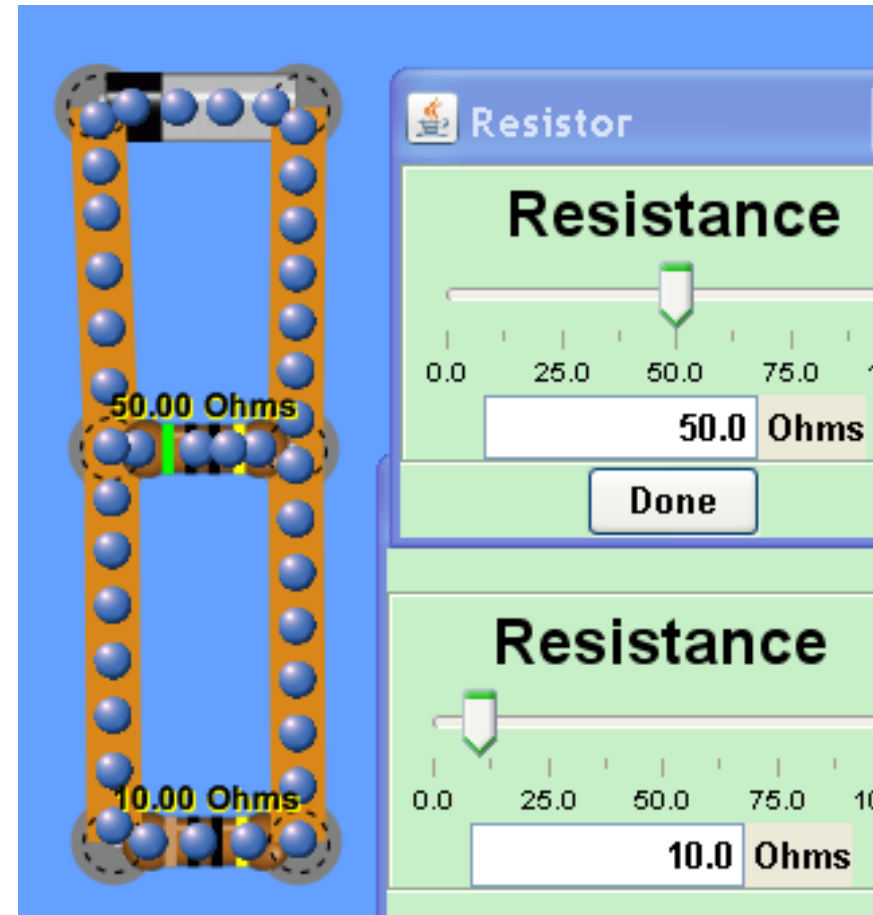


5. Which resistor will have the greatest voltage?

A. $50\ \Omega$

B. $10\ \Omega$

C. They have the same voltage

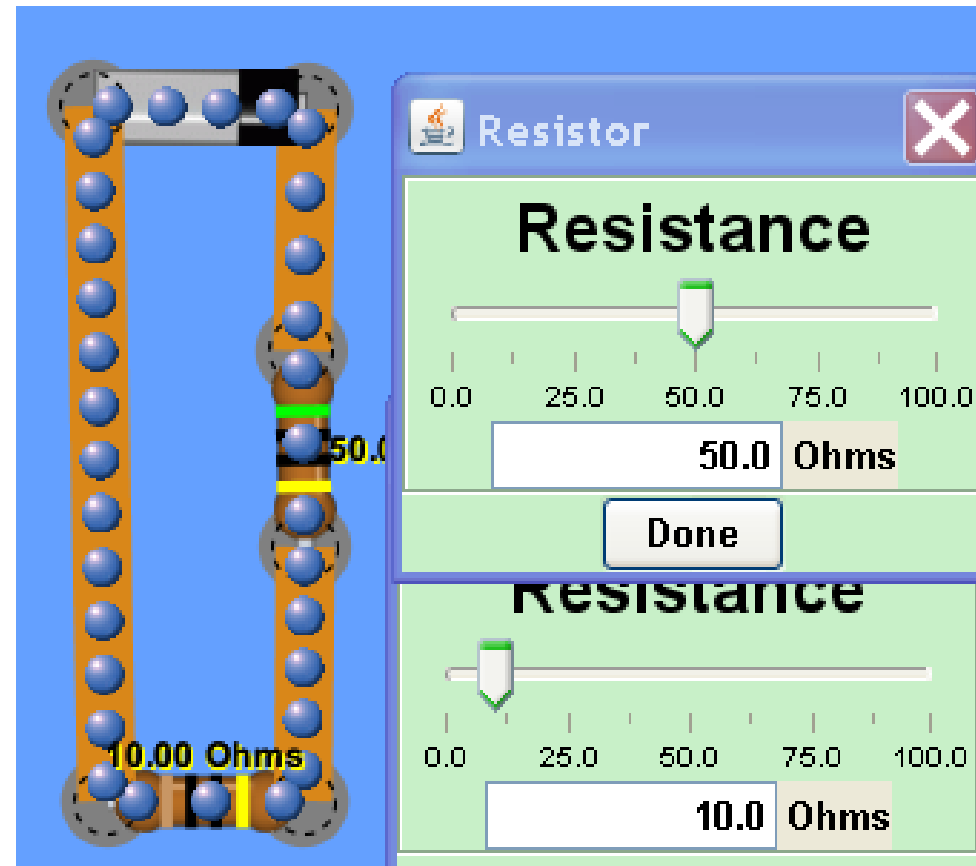


6. Which resistor will have the greatest voltage?

A. $50\ \Omega$

B. $10\ \Omega$

C. They have the same voltage

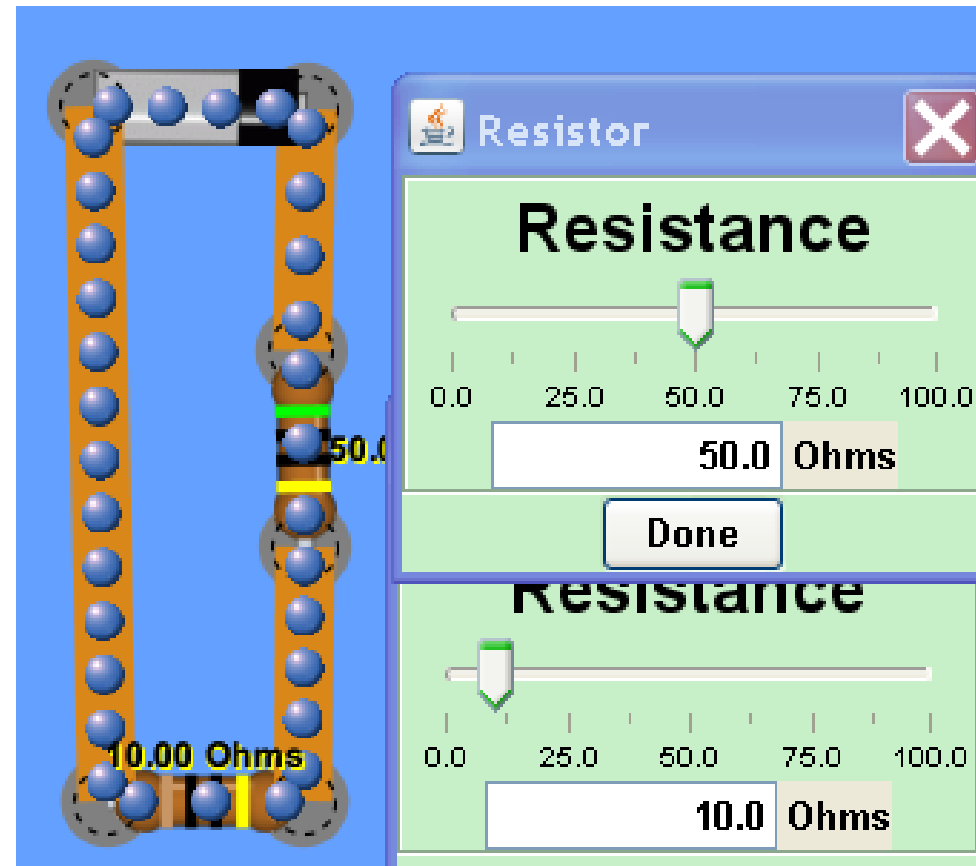


7. Which resistor will have the greatest current?

A. $50\ \Omega$

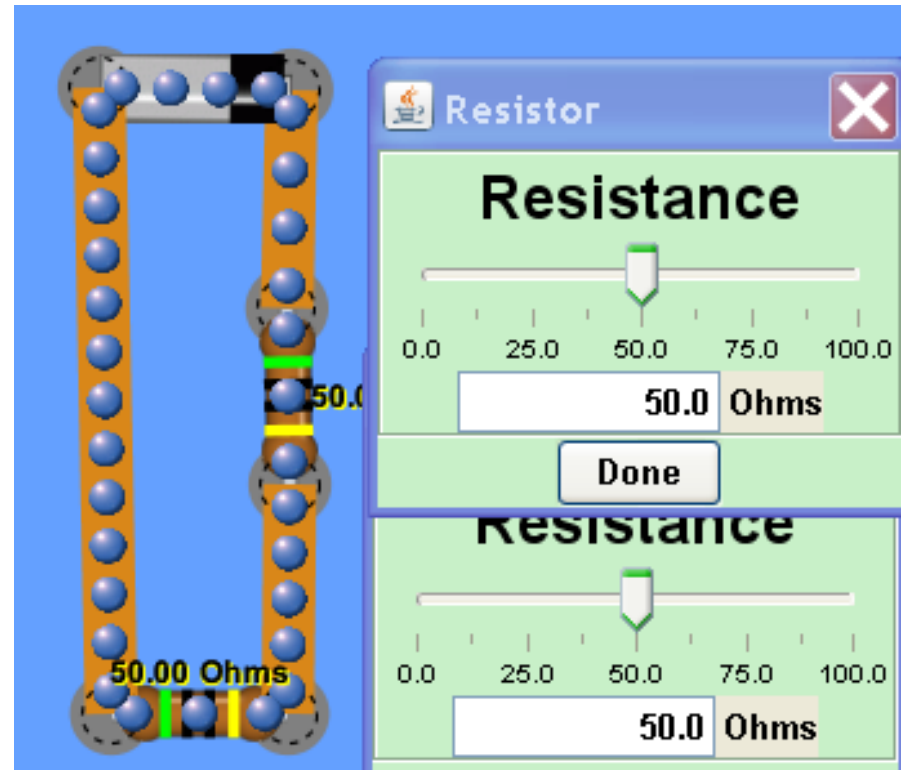
B. $10\ \Omega$

C. They have the same current



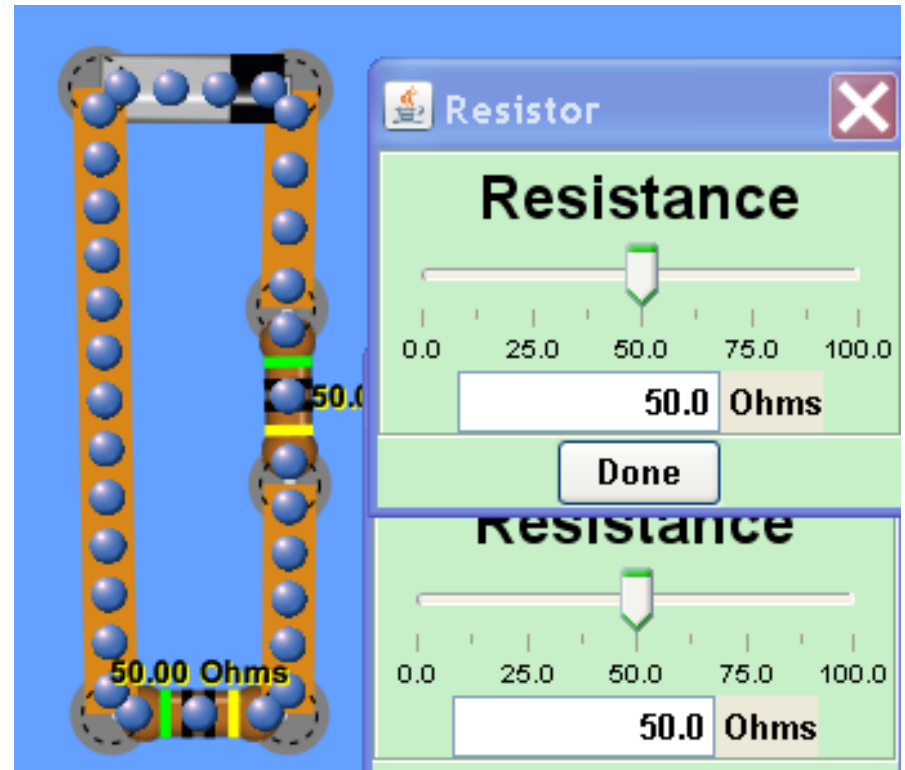
8. Which resistor will have the greatest voltage?

- A. The top resistor**
- B. The lower resistor**
- C. They have the same voltage**



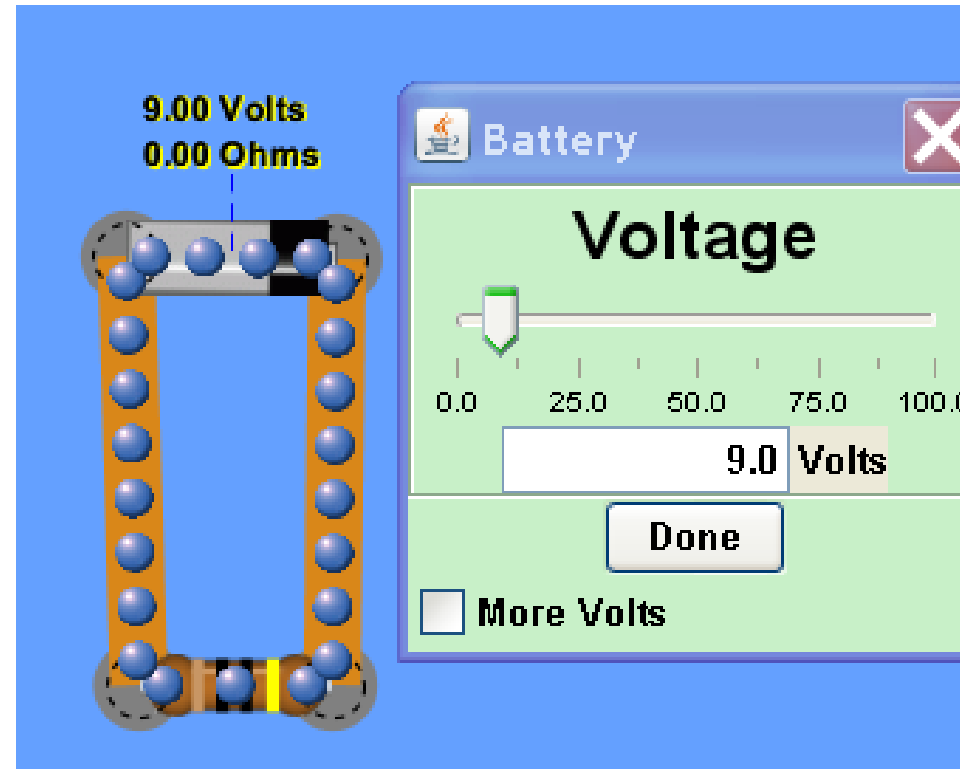
9. Which resistor will have the greatest current?

- A. The top resistor**
- B. The lower resistor**
- C. They have the same current**



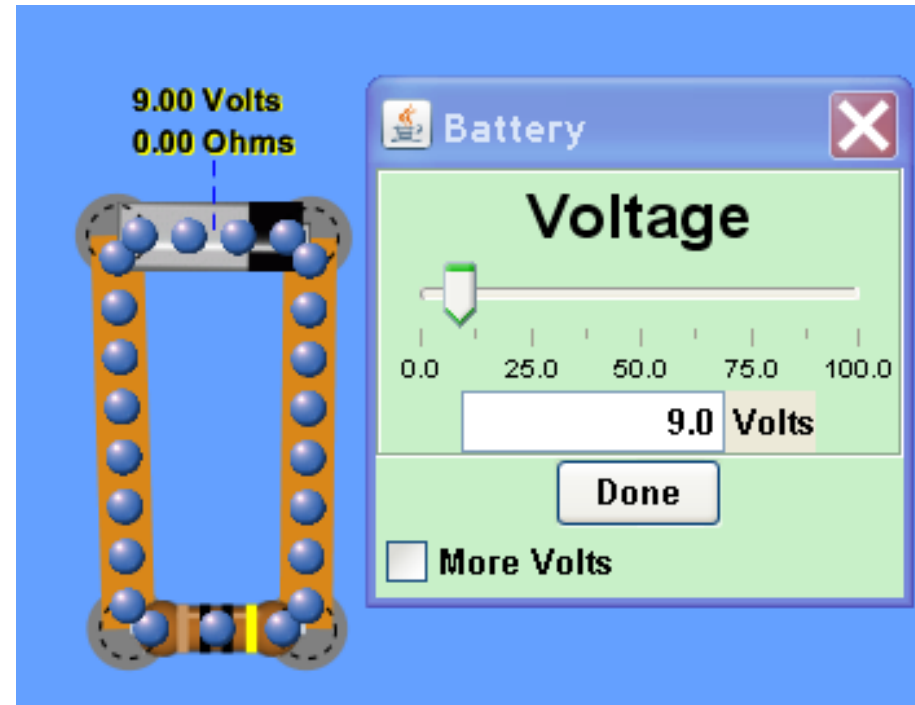
10. What will happen if the voltage of the battery is increased to 25 volts?

- A. The voltage across the resistor will increase**
- B. The voltage across the resistor will decrease**
- C. The voltage of the resistor does not change**



11. What will happen if the voltage of the battery is increased to 25 volts?

- A. The current through the resistor will increase
- B. The current through the resistor will decrease
- C. The current of the resistor does not change



Combo Circuit Lab

Learning Goals: Students will be able to:

- 1. Analyze the differences between real circuits and the ideal ones,**
- 2. Build circuits from schematic drawings,**
- 3. Use a multimeter to take readings in circuits.**
- 4. Provide reasoning to explain the measurements in circuits.**

12. What is the total resistance in this circuit?

- A. 6.4Ω
- B. 21Ω
- C. 38Ω
- D. 75Ω

10.0 Ohms 30.0 Ohms



13. What is the total resistance in this circuit?

- A. 6.4Ω
- B. 21Ω
- C. 38Ω
- D. 75Ω

