

Due: Wednesday Sept 24

**Essay 1, 10 points**

Discuss how the number of batteries in a series circuit affects the current in the circuit. Be careful to discuss how the direction and the placement of the batteries affects the current. Describe the evidence that supports this conclusion.

**Essay 2, 10 points**

Discuss how the number of bulbs in a series circuit affects the current in the circuit. Describe the evidence that supports this conclusion.

**Essay 3, 10 points**

In the models that you came up in homework 1, for circuits, discuss what components play the roles of a bulb, electrons, and current. How is the introduction of “extra bulbs” changing the behavior of the “current” in the circuit? Try to use your own model. If you were not satisfied with your model, then you can use the model discussed in class.

**Problem 1, 10 points**

Describe the brightness of the bulbs in the following circuits, in terms of “battery equivalents”, in other words, if you had a series circuit with batteries all in the same direction and just one bulb in the circuit, how many batteries would you need to get the same brightness?

