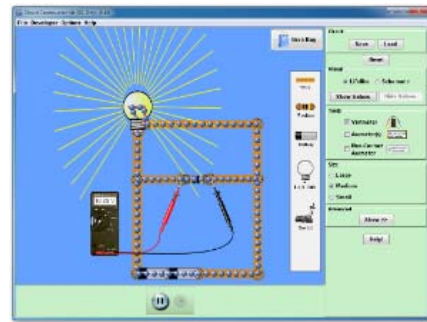


Circuit Construction Kit

Part 1: Simple Circuits

List the circuit components (found on the right side of the screen) and briefly describe the role each one plays.



- 1.
- 2.
- 3.
- 4.
- 5.

Use the circuit components to experiment with designing your own simple circuit. Don't just guess! Think about how the pieces need to fit together to create an electric current.

All scientists learn from their mistakes. Sketch a diagram of an electric circuit you built that didn't work the way you expected:

Analyze your results. What is happening in this circuit? Why do you think this circuit isn't working? What will you change before you build the next one?

Experiment with the tools on the right side of the screen. Think about what each tool is measuring. Why would this tool be important in real life? Pick one tool and answer the questions below.

Name of the tool: _____

Where did you use it in the circuit?

What is this tool measuring?

How could you use this tool in real life?

A good scientist is always asking questions and trying new challenges. After you have built a successful simple circuit, pick one of these challenges or design your own!

- Design a circuit that can light a bulb using at least 2 items from the grab bag. Can you do it with 3 items?
- Design a circuit that can light 3 bulbs simultaneously.
- Design a circuit with 2 light bulbs: one that is controlled by a switch while the other one is lit continuously.
- Design your own challenge:

Part 2: Series and Parallel Circuits

Using the simulation, build a series circuit and a parallel circuit. Record your designs below.

Series circuit	Parallel circuit

Use your designs to help you answer the following questions.

1. What are the similarities between your series and parallel circuits?

2. How are they different?

3. Based on your designs, which type of circuit do you think would be more useful for lighting things in your house? Why?

4. Which type of circuit do you think would be more useful for supplying electricity to electronics in your house? Why do you think this?

Build a circuit with 2 bulbs and measure the current. Which tool did you use? Record your answer.

Now, build a circuit with 1 bulb and measure the current using the same tool. How does this measurement compare to the circuit with 2 bulbs?

Why do you think there is a difference in the measurements?



Find a friend for this next challenge! Which one of you can design a circuit using the most bulbs without overheating the circuit and causing the battery to melt? The functioning circuit with the most light bulbs wins.