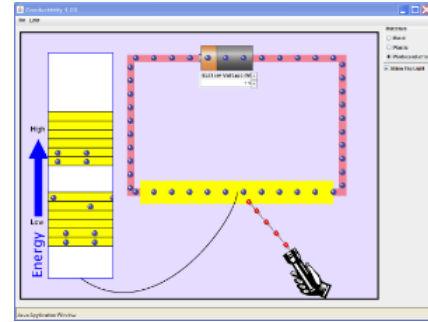


Conductivity

Complete the following statements:

A *conductor* is a material that _____

while an *insulator* is a material that _____



On the right hand side of the screen, choose **metal** and set your battery voltage to 1.0. Describe what happens:

Now increase your battery voltage to 2.0. What happens as the battery voltage increases?

What do you think will happen when you shine the flashlight on the metal? Explain your prediction using scientific terms.

Now, test your prediction by shining the light on the metal. Describe what happened. Were you surprised by the results?

Based on your experiments, do you think metal is a conductor or an insulator? Explain your thinking.

Now change your materials to **plastic**. Observe the electrons and explain what you think is happening.

Adjust the battery voltage. What happens? _____

Now shine the light on the plastic. Based on your experiments, do you think plastic is a conductor or an insulator? Explain your thinking.

Using what you now know about metals and plastics, consider the design of a power cord that plugs your computer into the wall. Describe the materials that are used in a power cord and explain why you think these materials were chosen.



Now switch your materials to **photoconductor** and adjust the battery voltage. Describe what happens.

What happens to the electrons when you shine the light on a photoconductor?

Give a real-life example of a photoconductor. Why would it be important for a photoconductor to be both an insulator *and* a conductor?

Analyze the data you have collected and describe the relationship between battery voltage, energy, materials, and movement of electrons.
