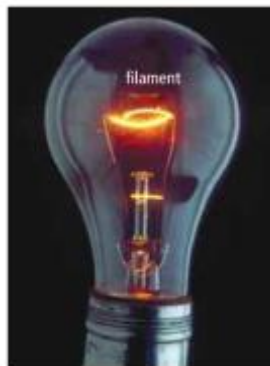


Resistance

- In our past mini-labs, we connected the wires to the batteries and lightbulbs and the voltmeter/ammeter. The last component of the circuit that we will investigate is

Resistance: _____

- Even in our wires, we have resistance. Different types of wires would give us different types of resistance.
- Resistance causes the electron's energy to be converted into _____ energy. This is actually exactly how a lightbulb works
- (Figure 8.15A)



Ohm's Law

- Like I mentioned back in Lesson 3, we will study 3 components of current electricity in a circuit, let's summarize:

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- A German physicist named George Ohm investigated how these 3 components were related to each other mathematically. As a result, he came up with the formula to which we refer to as “Ohm’s Law



Example 1:

What is the resistance of a flashlight bulb if there is a current of 0.75 A through the bulb when connected to a 3.0 V battery?

Example 2:

The current through a load in a circuit is 1.5 A. If the potential difference across the load is 12 V, what is the resistance of the load?

Example 3:

The resistance of a car headlight is 15 Ohms. If there is a current of 0.80 A through the headlight, what is the voltage across the headlight?

Example 4:

A 60 V potential difference is measured across a load that has a resistance of 15 Ohms. What is the current through this load?

Resistors

- Any electrical component that has electrical resistance slows down current and transforms electrical energy into other forms of energy.

Resistor: _____

- Resistors can be used to control current or potential differences in a circuit to provide the correct voltage and current to the other components of the circuit
- There are special codes to determining the resistance of a resistor:

Table 8.2 Colour Coding on Resistors

Colour	Numeric Value
black	0
brown	1
red	2
orange	3
yellow	4
green	5
blue	6
violet	7
grey	8
white	9

