

#Jenny



Finally I get this ebook, thanks for all these I can get now!

#Rio



Cool! I'am really happy

#Markus Jensen



I did not think that this would work, my best friend showed me this website, and it does! I get my most wanted eBook

#Hun Tsu



wtf this great ebook for free?!

#Che Salsa



My friends are so mad that they do not know how I have all the high quality ebook which they do not!

#Diego Butler



so many fake sites. this is the first one which worked! Many thanks


Electric Circuits Name: _____

Electrical Resistance

Read from Lesson 3 of the Current Electricity chapter at The Physics Classroom:
<http://www.physicsclassroom.com/Class/Current/Electric.html>
<http://www.physicsclassroom.com/Class/Current/Electric.html>

MPJ Content Area: Electric Circuits, sublevels 4 and 5

Physics Idea: As charge flows through an electric circuit, it encounters resistance. Resistance is a measure of the amount of hindrance to the flow of charge.



1. The cause of resistance to the flow of charge within an electrical wire is _____.
a. mobile charge carriers collide with atoms of the resistor
b. mobile charge carriers have mass (masses matter) which resist their motion
c. the electric field which causes charge flow diminishes with distance
d. charge is conserved and used up as it flows through the wire

2. Resistance is quantifiable (that is, it can be measured and calculated). The standard metric unit used to express the amount of electrical resistance is the _____.
a. Joule b. Watt c. Volt d. Amp e. Ohm

3. For the following pairs of wire descriptions, choose the wire which has the greatest resistance.
Resistance to charge flow will be greatest in ... (Circle the best answer.)
a. ... a wire which is thin ... a wire which is thick
b. ... a wire which is long ... a wire which is short
c. ... a wire which is made of copper ... a wire which is made of plastic
d. ... a wire which is made of copper ... a wire which is made of silver

4. The rate at which charge flows through a circuit is _____ to the resistance.
a. inversely related b. directly related c. not related

5. For the following pairs of circuit descriptions, choose the circuit which has the greatest current.
Given that all other factors are equal, the current will be greatest in a circuit which has ...
a. ... a high resistance ... a low resistance
b. ... wires which are long ... wires which are short
c. ... wires which are wide ... wires which are thin
d. ... 12 gauge wires (1/2" inch diameter) ... 18 gauge wires (1/4" inch diameter)
e. ... copper wiring ... silver wiring

6. Resistance is not the only variable which affects the current in an electric circuit. The current is also affected by the electric potential difference (ΔV) imposed across its ends. The electric potential difference is simply the battery voltage. As the battery voltage is increased by swapping in higher voltage batteries, the current is _____ (increased, decreased).

The relationship between electric potential difference (ΔV), resistance (R) and current (I) is given by the equation:

$$I = \frac{\Delta V}{R}$$

This equation, sometimes referred to as the Ohm's Law equation, is often written as ΔV = IR. Like all equations in physics, it can be used as a recipe for problem-solving and an equation to guide one's thinking about how an alteration in one variable affects another variable.

© The Physics Classroom, 2009 Page 3

[Download PDF version of :](#)
Electrical Resistance The Physics Classroom Answers