

Name: _____

Period: _____ Date: _____

GIANCOLI READING ACTIVITY**Section(s) 18-1 to 18-3**

1. Big Idea(s):
 - a. Objects and systems have properties such as mass and charge. Systems may have internal structure.
 - b. Interactions between systems can result in changes in those systems.
 - c. Changes that occur as a result of interactions are constrained by conservation laws.
2. Enduring Understanding(s):
 - a. Electric charge is a property of an object or system that affects its interactions with other objects or systems containing charge.
 - b. The electric and magnetic properties of a system can change in response to the presence of, or changes in, other objects or systems.
 - c. The energy of a system is conserved.
3. Essential Knowledge(s):
 - a. Electric charge is conserved. The net charge of a system is equal to the sum of the charges of all the objects in the system.
 - i. An electrical current is a movement of charge through a conductor.
 - ii. A circuit is a closed loop of electrical current.
 - b. The resistance of a resistor, and the capacitance of a capacitor, can be understood from the basic properties of electric fields and forces, as well as the properties of materials and their geometry.
 - i. The current through a resistor is equal to the potential difference across the resistor divided by its resistance.
 - c. Kirchhoff's loop rule describes conservation of energy in electrical circuits. The application of Kirchhoff's laws to circuits is introduced in Physics 1 and further developed in Physics 2 in the context of more complex circuits, including those with capacitors.
 - i. Energy changes in simple electrical circuits are conveniently represented in terms of energy change per charge moving through a battery and a resistor.
 - ii. The electric potential difference across a resistor is given by the product of the current and the resistance.
 - iii. The rate at which energy is transferred from a resistor is equal to the product of the electric potential difference across the resistor and the current through the resistor.
4. Learning Objective(s):
 - a. The student is able to make claims about natural phenomena based on conservation of electric charge.

- b. The student is able to make predictions, using the conservation of electric charge, about the sign and relative quantity of net charge of objects or systems after various charging processes, including conservation of charge in simple circuits.
 - c. The student is able to construct or interpret a graph of the energy changes within an electrical circuit with only a single battery and resistors in series and/or in, at most, one parallel branch as an application of the conservation of energy (Kirchhoff's loop rule).
5. Read section(s) 18-1 to 18-3 in your textbook.
6. Use the Cornell Notes system to take notes on the lesson material. You have the following options:
 - a. You can print multiple copies of one of the forms on the following pages of this document and handwrite your notes.
 - b. You can use the MS Word form supplied below and type your notes.
 - i. You can then print your work and submit a hardcopy, or
 - ii. You can upload your work to Focus. If you choose this option, you must use a filename in the format, "LastnameFirstinitialPerXAsgmtName". For example, "SmithKPer4ReadActT9-3.doc"
 - c. You can take notes on notebook paper using the Cornell Notes format and submit the hardcopy.
7. When using this form, remember the **Five R's of Notetaking**:
 - a. **Record** – the most important or emphasized information
 - b. **Reduce** – and synthesize information wherever possible, making it as concise as you can
 - c. **Recite** – read your notes out loud
 - d. **Reflect** – and consider how this information is connected to your personal experiences and what you already know
 - e. **Review** – look over your notes more than once
8. As a minimum, you must include notes on the following topics:
 - a. battery (not when you hit someone) and its components
 - b. current
 - c. circuit
 - d. voltage
 - e. resistance
 - f. Ohm's Law
9. Answers may be typed or neatly printed. You do not need to include this page of instructions with your assignment.
10. **Note: The following computer skills should be practiced:**
 - a. *Use Microsoft Equation to type any equations.*
 - b. *Drawings may be freehand, but try to make use of the 'Shapes', 'Insert Picture' or 'Insert Clipart' functions of MS Word.*

- c. A reading assignment may contain drawings that would be useful in your notes. If you have scanning capability, you should practice scanning pictures and inserting them into documents. As you prepare for college, you should consider investing in a desktop printer-scanner-copier.*
- d. Just remember that for formal reports you have to cite any images that you insert into your document. You don't have to cite scanned images for this exercise unless you use a source other than the textbook.*

CORNELL NOTES and the 5 R's

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Review – look over your notes more than once

Name:
Date:
Topic:

Questions/Key Points	Notes
SUMMARY:	

Name _____

Date _____

CORNELL NOTES

Topic _____

Questions/key points

Notes

Summary