

Science 30	Unit C: Physics
Lesson 8 - Chapter Review	84 mins

Science 30 - Lesson 32 - Unit C - Review 1

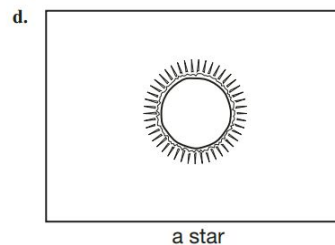
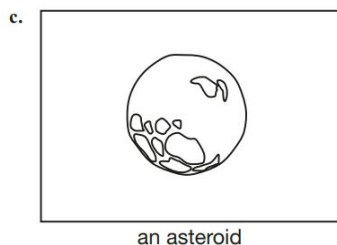
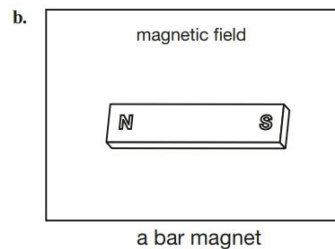
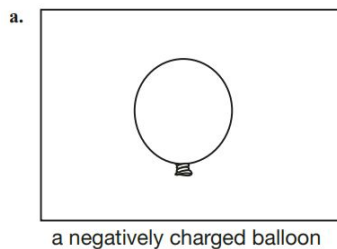
Name: _____

1. In this chapter you investigated three kinds of fields: gravitational fields, electric fields, and magnetic fields. Complete the following table in your notes to summarize the key features of each kind of field.

Type of Field	General Description of Source(s)	General Description of Test Bodies	Equation That Describes Strength of Field	Example of How Field Assists You In a Task or Activity
gravitational field				
electric field				
magnetic field				

2. Refer to your answer to question 1 as you answer questions 2.a. and 2.b.
- Compare and contrast gravitational fields with electric fields.
 - Compare and contrast electric fields with magnetic fields.
3. The concept of a field is a fundamental idea that has been referred to throughout Chapter 1. Distinguish between the following pairs of terms that all relate to the concept of a field.
- force and field
 - field lines and field strength
 - source of field and test body

4. Sketch the field lines associated with each object below.



Use the following information to answer the next question

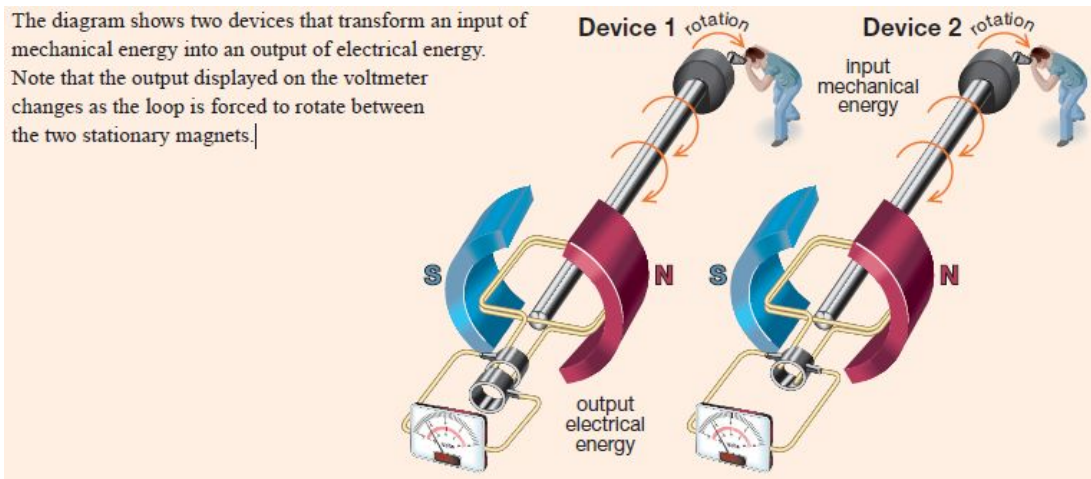
A student uses the following equipment to complete a Science 30 lab activity:

- 3 resistors (500 Ω , 1000 Ω , and 1500 Ω)
- 6.0-V battery pack
- several leads for connecting the components of circuits
- digital multimeter capable of measuring volts, amperes, and ohms

These materials can be used to build either a series circuit or a parallel circuit.

- 10.** The first task is to build a circuit that will incorporate all three resistors and use the minimum amount of electrical energy from the battery pack.
- Sketch a schematic diagram of this circuit. Be sure to include how the meter would be used to measure the current through all three resistors and the voltage across each of the three resistors.
 - Using the data provided, calculate the total resistance for the resistors in your circuit.
 - Use your answer to question b. to calculate the current that would flow through all three resistors.
 - Use your answer to question b. to calculate the electrical energy that would be used by this circuit if it were allowed to operate for 10.0 min.

Use the following information to answer the next 2 questions



11. Carefully examine the illustration for Device 1.

a. Identify the proper name for this device.

b. Sketch a graph of voltage versus time to describe the output from this device.

c. The number of rotations the loop is forced to make every minute can be increased. Sketch a graph of voltage versus time to show the output from the device under these circumstances.

12. Carefully examine the illustration for Device 2.

a. Identify the proper name for this device.

b. Sketch a graph of voltage versus time to describe the output from this device.

c. The number of rotations the loop is forced to make every minute can be increased. Sketch a graph of voltage versus time to show the output from the device under these circumstances.

13. The doorbell of a home requires 10.0 V to operate. A transformer is used to connect the doorbell to a 120-V circuit within the home. The doorbell transformer has 500 turns on the primary coil and supplies the doorbell with 900 mA of current.

- a. Determine whether the transformer features a step-up or step-down design.

- b. Calculate the number of turns on the secondary coil.

- c. Calculate the current that is drawn from the 120-V household circuit to operate the doorbell.

Use the following information to answer the next question

Comparison Shopping

The following data was collected for two 22-cubic-foot refrigerators with top-mounted freezers.

Refrigerator	Model A	Model B
Cost to Purchase	\$1699.99	\$1200
Annual Energy Consumption	435 kW·h	545 kW·h
Life Expectancy of Refrigerator	17 years	17 years

14. Use 9.3¢/kW·h to calculate the following costs.

- a. the lifetime operating costs for Model A

- b. the lifetime operating costs for Model B