Name Date Class

Note-taking Worksheet

Electricity

Section 1 Electric Charge

A. Electricity begins at the _____ level where protons and electrons have electric charge.

1. _____ carry a positive change.

2. Electrons carry a _____ charge.

3. _____ form when atoms lose or gain electrons and become positively or negatively charged.

4. Electrons can move from object to object; _____ is the buildup of electric charge on an object.

5. A flow of charge can be caused by ions moving in a _____.

B. All objects exert an _____ _____ on each other; it can be attractive or repulsive.

1. Like charges repel, unlike charges _____.

2. Electric charges exert a force on each other at a distance through an _____ _____ which exists around every electric charge.

C. _____—material which does not allow electrons to move easily; _____—material that allows electrons to move easily; metals are the best conductors.

D. _____ _____—rapid movement of excess charge from one place to another; lightning is an electric discharge.

E. _____—provides a pathway to drain excess charge into the Earth; lightning rods provide grounding for many buildings.

Section 2 Electric Current

A. _____ _____—flow of charge through a conductor

1. In solids the flowing charges are _____; in liquids the flowing charges are positive or negative ions.

a. _____—closed conducting loop through which electric currents continuously flow

Meeting Individual Needs

Note-taking Worksheet (continued)

b. Current _____ can do work in an electric device; it carries electrical energy through wire.

c. _____—measure of how much electric energy a battery can provide

d. Electrons move in a circuit and have millions and millions of _____.

2. The voltage of a battery depends on the amount and type of _____ used to create the chemical reactions in a battery.

3. Batteries _____ when the original chemicals are used up and the chemical reactions in the battery stop.

B. _____—measure of how difficult it is for electrons to flow through a material

1. Insulators generally have much _____ resistance then conductors.

2. The amount of electric energy that is converted into thermal energy _____ as the resistance of wire increases.

3. The length and _____ of a wire affect electron flow.

Section 3 Electric Circuits

A. The amount of current is determined by the _____ supplied by a battery and the resistance of the conductor.

1. As the resistance in an electric current increases, the current in the circuit _____.

2. _____—current = voltage/resistance

3. When the voltage in a circuit increases, the _____ increases.

B. There are _____ kinds of basic circuits: series and parallel.

1. A _____ **circuit** has only one path for the electric current to follow—if path is broken, the current will no longer flow and all devices in the circuit stop working.

2. A _____ **circuit** has more than one path for the electric current to follow.

C. For safety, circuits in homes and buildings have _____ or circuit breakers that limit the amount of current in the wiring.

Note-taking Worksheet (continued)

D. _____ _____—rate at which an appliance converts electrical energy to another form of energy

1. Power = current × voltage
2. The unit of power is the _____.
3. Electric companies charge customers for the number of _____ they use in a month.

E. Electricity can be _____.

1. Current can enter your body and shock you when your body accidentally becomes part of an electric circuit.
2. Lightning can be deadly; if caught outdoors near lightning use a lightning-safety position — squat on the balls of the feet with hands on knees.