Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chapter 16: Electricity Vocabulary**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- A form of energy produced by moving electrons.
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- A magnet produced by coiling a wire around a piece of iron and running electricity through the wire.
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- A buildup of charge on an object (When you touch an object, you see sparks).
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- The flow of electrons (charges).
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- A kind of kinetic energy that flows as an electric current.
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- A material that carries electricity well (copper is an example of this).
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- A material that does not conduct electricity well.
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- The path an electric current follows.
9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- An electric circuit in which the current has only one path to follow.
10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- An electric circuit that has more than one path for the current to follow.

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chapter 16: Electricity Lesson 1: How are Electricity and Magnetism Related? P. 514-518**

**Strand:** 7.1.A.d.- Make suggestions for a reasonable improvements, or extensions of a fair test.

1. To understand electricity, you have to think about atoms. Recall that atoms contain charged particles. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has a positive charge, and an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has a negative charge. P. 514
2. An atom with more protons than electrons have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charge. Two positive charges \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (push each other apart) each other. P. 514
3. Atoms with opposite charges [(+) positive and (-) negative] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ each other (pull together). P. 514
4. The movement of electrons produces \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Electricity can be changed to other forms of energy. It can be used to run lights, traffic lights, electric motors, etc. P. 515
5. An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is made by coiling a wire around a piece of iron and running electricity through it. P. 516
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are useful because they can be turned off and on. They can be used to hold heavy fire doors open. Because they can be turned off, the magnets no longer work, allowing them to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, blocking the spread of fire. P. 516
7. Electricity can also be changed to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy. A motor contains a coil of wire that can spin inside the magnetic field of a permanent magnet. When the motor is switched on, electricity produces a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the coil of the wire. The poles of this electromagnet are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by the poles of the magnet. This causes the electromagnet to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 518
8. An electric motor has two main parts; a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 518

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chapter 16: Electricity Lesson 2: What are Static and Current Electricity? P. 522-526**

**Strand:** 7.1.C.b.- Use data as support for observed patterns and relationships, and to make predictions to be tested.

1. The atoms that make up matter are neutral. They have an equal number of\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. But, when one object rubs against another, electrons move from one atom of one object to the atoms of another object. The protons and electrons are no longer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The object becomes either\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or negatively \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The buildup of charges on an object is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 522
2. When objects with opposite charges get close, electrons sometimes jump from one negative object to the other. This evens out the charges, and the objects become \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The shock you feel when you pull off a sweater (or when you touch something) is sparks caused by electrons moving to balance the charges. These sparks are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 523
3. Lightning is also a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Collision of water droplets in a cloud causes the drops to become \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Negative charges collect at the bottom of the cloud. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charges collect at the top of a cloud. When electrons jump from one cloud to another, or from a cloud to the ground, you see \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 523
4. Earth can absorb lightning’s powerful stream of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ without being damaged, but lightning that strikes a tree or a house can start a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. If lightning strikes a beach, it can melt the grains of sand into\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Mystery page number-you find it).
5. Static electricity is a kind of\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy; energy that is stored when electrons move from one object to another. The potential energy becomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy when the electron moves in a static discharge. P. 524
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy of a static discharge can change to other forms of energy, such as electrical energy of lightning, changes in heat, light, and sound. A static discharge is a short burst of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy. P. 524
7. For electricity to be useful, it must be a steady flow of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. If electrons have a path to follow, the charge will move in a steady flow. This flow of electricity is called an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Electricity that flows in this way is a kind of kinetic energy called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 524
8. To keep the charges flowing, a constant supply of\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is needed. P. 524
9. Electrical pressure is measured in \_\_\_\_\_\_\_\_\_\_\_\_\_. One lightning strike can have more than one billion volts of energy. P. 525
10. The rate at which electric current flows is measured in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 525
11. The amount of electrical energy a device uses each second is measured in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 525
12. Electric energy companies bill people for the amount of electric they use. A watt is a very small unit, so electrical use is measured in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. One kilowatt is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ watts. P. 525
13. Electricity moves more easily through some kinds of matter that others. A material through which electricity moves well is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Most metals are conductors. Copper is a good \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 526
14. A material that conducts electricity poorly is an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Wood,\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are all insulators. P. 526
15. Insulators are important because they \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ you from electric current in the wire. If you touch a wire that is conducting current it could hurt you. Wires get \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when they carry electricity. A bare wire that touches paper or cloth could start a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 526

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**Chapter 16: Electricity Lesson 3: What are Electric Circuits? P. 530-534**

**Strand:** 7.1.E.a.- Communicate the procedures and results of investigations and explanations through drawings and maps

1. The path an electrical current follows is called an electric circuit. It needs two things for the current to flow: 1.) A source of current or electrons. Plugging a cord into the wall outlet gives you a source of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. And, 2.) It needs a complete circuit. If there is a break in the circuit the current \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 530
2. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and a light bulb form a complete circuit. This is a series circuit. P. 530
3. A switch can control the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of current by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the circuit. When the switch is on, the circuit is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. When it is off, a piece of metal in the switch moves,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the flow of current, and the light bulb will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. P. 530
4. In a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the current only has 1 path to follow.. The parts are connected one after the other in a single loop. Removing any part of the circuit breaks the circuit, and the current \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ flowing. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ aren’t used for most wiring in buildings. The only way for current to keep flowing is to have everything connected at the same time. P. 531
5. **Draw a Series Circuit.** P. 531

 **SERIES CIRCUIT**

 **SYMBOLS:**

Battery

Light Bulb

1. Instead of giving the current only one path, you can make a path for each device. A circuit that has more than one path for current to follow is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. In a parallel circuit, if one device is turned off or removed, the current keeps \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ along the loop for that device, but continues to flow through the rest of the circuit. Homes, schools and businesses are wired with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Each loop may have a switch on it. P. 532
2. **Draw a parallel circuit.** P. 532

**PARALLEL CIRCUIT**

 **SYMBOLS:**

 Battery

 Light Bulb

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chapter 16: Electricity Study Guide**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- The buildup of charges in an object.
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Electricity that flows along a path.
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- An electric circuit in which current has only one path to follow.
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- A material that doesn’t allow electricity to flow easily through it.
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- The form of energy produced by moving electrons.
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- A material that allows electricity to flow easily through it.
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- An electric circuit in which current has more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- A device that acts like a magnet when electricity is flowing through it.
8. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used to start and stop the flow of electric current in a circuit.
9. When a microwave oven timer begins, what kind of energy is electricity being changed to? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. A kilowatt is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ watts of electricity.
11. If you walk across a carpet, touch a doorknob, and feel a shock, what has happened? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a good conductor.
13. Plastic, glass, and rubber are good \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.