**Physical Science NCFE Guided Review 3.3**

**(Electricity and Magnetism)**

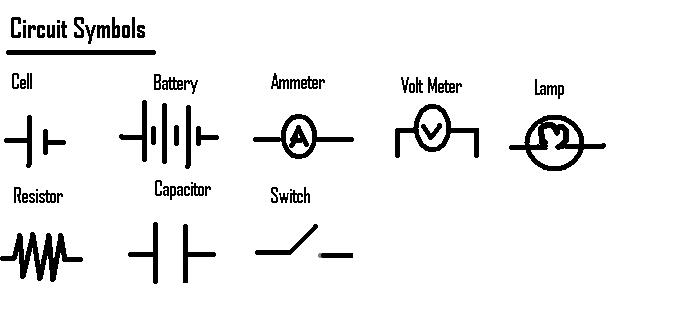
**3.3.1 Summarize static and current electricity.**

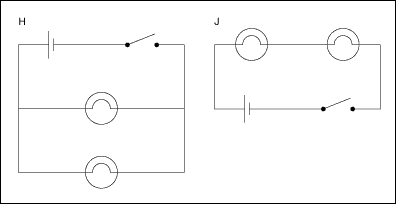
* Opposite charges \_\_\_\_\_\_\_\_\_\_\_, like charges \_\_\_\_\_\_\_\_\_\_\_\_\_
* 3 methods of charging:
  + Induction – objects get charged from being \_\_\_\_\_\_\_ a charged object (\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_)
  + Conduction – objects get charged by \_\_\_\_\_\_\_\_ a charged object (\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_)
  + Friction – objects get charged by \_\_\_\_\_\_\_\_\_ a charged object (\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_)

**3.3.2 Explain simple series and parallel DC circuits in terms of Ohm’s law.**

Ohm’s Law Equation:

Know these:

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**3.3.3 Explain how current is affected by changes in composition, length, temperature, and diameter of wire.**

* If the \_\_\_\_\_\_\_\_\_\_\_\_\_ of the wire \_\_\_\_\_\_\_\_\_\_\_, the \_\_\_\_\_\_\_\_\_\_\_ will \_\_\_\_\_\_\_\_ (Inverse relationship)
* Increasing length = \_\_\_\_\_\_\_\_\_\_\_ resistance, current will \_\_\_\_\_\_\_\_\_\_\_
* Increasing temperature = \_\_\_\_\_\_\_\_\_\_\_ resistance, current will \_\_\_\_\_\_\_\_\_\_\_
* Increasing diameter = \_\_\_\_\_\_\_\_\_\_\_ resistance, current will \_\_\_\_\_\_\_\_\_\_\_\_\_

**3.3.4 Explain magnetism in terms of domains, interactions of poles, and magnetic fields.**

* Like poles \_\_\_\_\_\_\_\_\_\_\_, opposite \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + North will \_\_\_\_\_\_\_\_\_\_ North
  + North will \_\_\_\_\_\_\_\_\_\_\_ South
* Magnetic Field around a wire/wire coil:
* Strength of an electromagnet will increase with:

**3.3.5 Explain the practical application of magnetism.**

* Generators – change \_\_\_\_\_\_\_\_ energy to \_\_\_\_\_\_\_\_\_\_\_ energy (uses electromagnetic induction)
* Motors – change \_\_\_\_\_\_\_\_\_ energy to \_\_\_\_\_\_\_\_\_\_ energy
* Other practical applications:

**Sample Questions**

1. A student noticed that a woolen sweater was clinging to a silk scarf. Why would these pieces of clothing be clinging together?

1. The static charge of both pieces of clothing is the same.
2. The static charge of both pieces is positive.
3. The static charge of both pieces is negative.
4. The static charge of one piece of clothing is positive and the other is negative.

2. The leaves of a neutral electroscope move apart when a negatively charged object is brought near. Which statement explains why this occurs?

* 1. Electrons moved downward to the leaves of the electroscope.
  2. Electrons moved to the top of the electroscope.
  3. Protons moved toward the top of the electroscope.
  4. Protons moved downward to the leaves of the electroscope.

3. What is the current in a circuit that has a potential difference of 120 volts and a resistance of 2 ohms?

* 1. 240 amps
  2. 60 amps
  3. 40 amps
  4. 0 amps

4. A section of copper wire has a set resistance. Which of the following changes would provide less resistance?

* 1. a longer copper wire of the same thickness
  2. a thinner copper wire of the same length
  3. a thicker copper wire of the same length
  4. increase in temperature of the wire