**Energy Unit Study Guide**

**Test Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Please study the following every night to be fully prepared for your science test!**

* **Energy:** The ability to *cause* *a change*. The changes can be change in motion, chemical changes or change in shape.
* **Energy can be transferred through the following ways:**

**Thermal Energy:**

* **Conduction**: transfer of thermal energy by particles bumping into each other (pot touching the burner on an electric stove)
* **Convection**: transfer of thermal energy when warm matter moves from one place to another (fireplace)
* **Radiation:** bundles of energy that move through matter or empty space (sun)

\*\*Think about the experiment where we heated up water and placed it in different containers.

**Light Energy:**

**Travels in waves in a straight line!**

* **Reflection** – bouncing of light off an object
* **Refraction** – bending of light when it moves from one kind of matter to another

\*\*Think about the video we watched on the smart board and look at your interactive pictures

**Electrical Energy:**

* We can transfer electrical energy through hydropower
* Be able to describe how the process works, use our interactive picture and description to study

**Sound Energy:**

* **Waves:** sound energy travels in waves
* **Vibration:** help create motion from sound energy

**\*\***Creating a paper cup telephone. We watched the paperclip move as we spoke to each other.

* Energy cannot be created! It can only be transferred. When it says an object produces energy it is referring to energy being transferred in some way!
* Other types of energy:
  + Potential energy – stored energy
  + Kinetic energy – energy in motion
* Conductors and Insulators:
  + Conductors allow for the transfer of energy (thermal or electrical)
  + Insulators do not allow for the transfer of energy (thermal or electrical)

**Key Concepts to know:**

* The faster an object is moving the more energy it is using
* Heavier objects or objects with more mass require more energy to move
  + We were able to move the ping pong ball by bouncing it off of the golf ball. The golf ball had a higher mass or weight so we could not transfer enough energy to move the ping pong ball when it was under it
* Transferring energy from multiple sources allows for more motion and speed – read about our golf ball/ping pong ball experiment in your interactive notebook.
* Collisions change the speed and direction of an object

Please complete the slip below and return to school for bonus points on your test. Be sure to study every night!! You have worked very hard during our unit. I know you can do it!

Please see me if you have any questions before the test ☺

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

I studied for at least 20 minutes every night.

Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Parent signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_