A Cool Coal Story

Within the sun, hydrogen nuclei run into each other through nuclear fusion to create helium. In the process, energy in the form of heat and light is created and travels through space to Earth.

A long, long time ago before even the dinosaurs roamed the Earth, the sun shone in the sky and giant plants grew in swampy forests. Just like plants today, these ancient plants used the sun's energy to create glucose through photosynthesis and stored the energy in the bonds of the glucose molecules. However, like all living things, these plants died. And more plants grew and died. This happened over and over for millions of years—plants grew and died and fell into the swamp. The plants on the bottom got squished—really, really squished. After millions of years of being really squished those plants turned into COAL. Now the coal is buried in the ground. Big machines—giant bulldozers and steam shovels— dig it up. The machines load the coal onto trains and barges to take it to the power plant.

Inside the power plant there is a giant tub of water with a big oven (boiler) in the middle. The coal is put into the big oven and burned. Inside the oven it gets really hot. So hot, the water in the tub boils and turns into steam. The oven is called a boiler because it boils the water and turns it into steam.

That steam comes roaring through a big pipe and turns a giant pinwheel, called a turbine. The middle of the pinwheel has coils of wire wrapped around it. On the blades of the pinwheel are big magnets. When the magnets spin around the wire, it makes electricity. That is amazing!

Now, we can't go down to the power plant to buy a bag of electricity. So, the electricity comes to us. A wire from the turbine runs out of the power plant and up a tall, tall pole. The electricity flows up the wire to the top of the pole. It flows through high-power lines from pole to pole until it gets to our town.

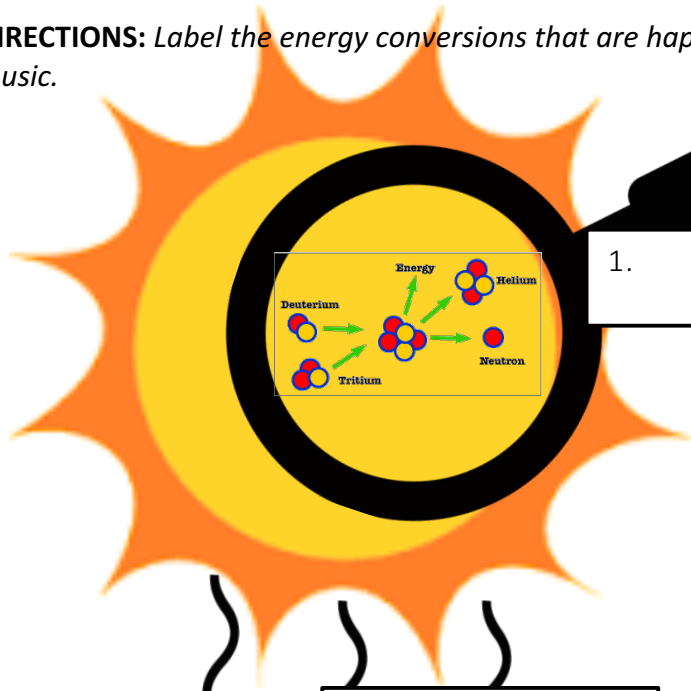
Then it flows into lots of small wires to our houses. Inside our houses—hidden in the walls—are lots of wires. They go to all the switches and all the outlets all over our house and the electricity flows through them.

When we flip on a light switch, the electricity flows into the light bulb and makes light. When we plug a radio into an outlet, we get music. The electricity flows through the cord to make it work. Electricity runs our washers and dryers, TVs, and video games. In the case of cell phone chargers, the electricity is used to charge batteries which store the energy to be later used by the phones when we use them.

Name:_____ Date:_____ Hr.:_____

Cell Phone Energy Conversions

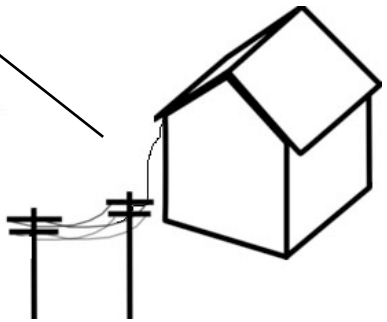
DIRECTIONS: *Label the energy conversions that are happening in the conversion of energy in the sun to energy of your cell phone battery to play music.*



1.

8.)

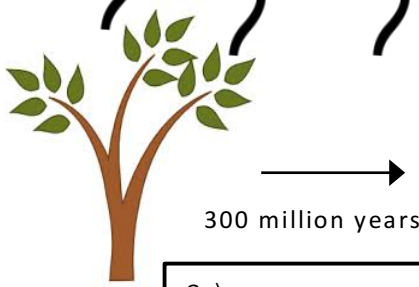
7.)



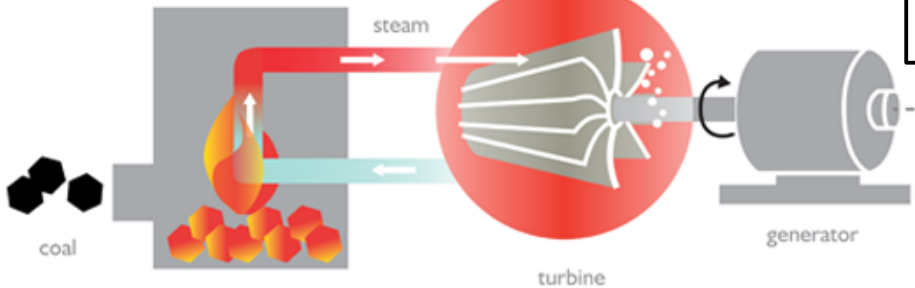
6.)

2.)

5.)



300 million years



3.)

4.)