**Conceptual Physics**

**Week 1 – Assignment 1**

Week 1 vocab – Electricity and Powering society

Define the following words/phrases using either your textbook, dictionary, or online resources.

**Atom:**

**Proton:**

**Electron:**

**Charge:**

**Conduction:**

**Induction:**

**Polarization:**

**Static electricity:**

**Electric current:**

**Voltage:**

**Magnetism:**

**Resistance/Resistor:**

**Electric circuits:**

**Conceptual Physics**

**Week 1 - assignment 2**

Answer the following questions in full and complete sentences. If turning in digitally, just type directly into this document. If using a paper packet, please answer on a separate sheet of paper.

Questions 1 – 6 are from ch 32

1. Read the “science, technology, and society” excerpt on page 503 of the textbook and answer the critical thinking question.
2. In a normal atom, how many electrons are there compared with protons?
3. If two positive charges are placed next to each other, what will happen?
4. If a positive and a negative charge are placed next to each other, what will happen?
5. Electrical force is over 100 billion billion times stronger than the gravitational force, but normally we do not feel the force from our electrical equipment while we always feel gravity, despite it being weaker. Why is this so?
6. Why is a good conductor of heat also a good conductor?

Questions 7 – 12 are from ch 33 - 34

1. Can you have very low current, but also very high voltage? Can a person survive an interaction of this kind? Give an example when humans see high voltage but low current.
2. What is meant by the term “potential” in reference to electricity? What is meant by “potential difference”?
3. Write Ohm’s Law. Define each variable.
4. What is the unit for electrical power? Ex: meter is the unit for distance and Newtons is the unit for force.
5. Do an ampere and a volt measure the same thing, or different things? What are those things, and which is a flow and which is the cause of the flow?
6. Why are thick wires rather than thin wires used to carry large currents?

Questions 12 – 18 are from chapters 35 – 36

1. Why must there be no gaps in an electric circuit for it to carry current?
2. Sometimes you hear people say that an appliance “uses up” electricity. What is it that the appliance actually “uses up”, and what becomes of it?
3. What is the difference between a parallel and series circuit? If a lightbulb goes out in a parallel circuit, what will happen to all the other appliances wired into the circuit?
4. What is magnetism and what causes it? Describe the motion/orientation of atoms in a magnet.
5. What is the relationship between electricity and magnetism? What happens if I put a compass magnet next to a current carrying wires?
6. Describe how the Earth generates its own magnetic field. (pg 574 in the textbook)

**Week 1 is designed for 30 minutes a day. 30 minutes for vocab and 30 minutes per question set. This leaves 30 minutes on Friday for questions. Do not spend hours trying to answer 1 or two tough questions. Write me a note about your struggles and what you tried, and I will be compassionate towards your grades.**