Guided Inquiry - Electric Current - 13.3

1. Go to Mrs. Hudecki's junior science website. On the electricity page, open up the answers to Chapter 13 questions. Check your homework answers from yesterday. If you are confused about any of them, please ask!

   ☐   I checked my homework answers!

2. Read 13.1 in your text to enrich your understanding of electrical current and to answer following questions:
   a) Define: electric current _____

   Electric current -- symbol → (I)   -- units → amperes or 'amps'   (A)

   b) Define: ammeter: _____

   Now, electrons are VERY small. So we don't count individual electrons. We count a large bunch of electrons. Everyone knows that a 'dozen' eggs = _____ eggs.   In this same idea:

   1 Coulomb of electrons = 6.2×10^{18} electrons!!!

   or...   6 200 000 000 000 000 000   electrons!

   ☐   Circle or highlight the statement that says how many electrons are in a coulomb.

   So.... a current of 1 A (1 amp of current) means 1 Coulomb of electrons is flying by every second!

   ..or.... _____ electrons are flying by every second.

3. In space below, draw a circuit drawing of a series circuit with 2 lights, a 3 cell battery and a switch.

   .

b) Construct this circuit using the pHet Circuit Builder.   Show Ms. H   ☐

4. Now drag in an ammeter. You are going to connect it in series in different places and record the current.

   a) Connect just after the –ve end of battery.   Current = _____A

   b) Connect it between the 2 lamps.   Current = _____A

   c) Connect it just before the +ve end of battery   Current = _____A

   What do you notice? (trend) _____

                                        Show Mrs. H.   ☐

5. Human Body and Electrical Shock
   a) What parts of your body are a bit 'electrical' in nature? _____and _____

   b) How much current can do the following?
      _____A – gives a tingly feeling

      _____A - causes muscles to convulse and you can't let go!   'Let-go' threshold
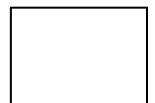
      _____ A – stops your heart | Remember! _____ kills! |

      _____ A – an outlet that powers a computer delivers this much current!!

6. In space below, draw a circuit drawing of circuit with 3 lights connected in parallel, a 3 cell battery and a switch to control the ENTIRE circuit.

                                                            .

   b) Construct this circuit using the pHet Circuit Builder.   Show Ms. H

7. Now drag in an ammeter. You are going to connect it in series in different places and record the current.
   a) Connect just after the –ve end of battery (shared line)   Current = _____A

   b) Connect after 1 of the lightbulbs, but on not on shared line. Current = _____A

   c) Connect after another lightbulb but not shared line.   Current = _____A

   d) Connect after another lightbulb but not shared line.   Current = _____A

   e) Connect just before the +ve end of battery (shared line)   Current = _____A

What do you notice? (trend) _____

                                                            Show Mrs. H.

Guided Inquiry Potential Difference 13.5

Define: Potential Difference = _____

      Potential Difference = voltage (ΔV) -- unit is volts (V)

8. Voltmeters are connected in parallel. Draw a <u>simple</u> circuit below. You design it.

   b) Now try to build it on pHet and insert a voltmeter.   Show MRs. H.
HOMEWORK - REREAD 13.3 AND 13.5