

Summer Solar Academy 2016

Summative Assessment

1. If you were asked to summarize your experience this summer in three sentences for your school website, what would you write? (5 points)

2. Match the unit with the electrical term (4 points)

- A. Watts
- B. Volts
- C. Watt-hours
- D. Amps

Voltage _____ Current _____ Power _____ Energy _____

3. Match the part of the suitcase to its use (7 points)

- A. Terminal block
- B. Circuit Breaker
- C. DC receptacle
- D. Battery
- E. Solar receptacle
- F. Yellow wires
- G. Blue wires

- These wires go from the solar receptacle to the charge controller _____
- You would plug in a phone charger here _____
- This is where the energy is stored and used to power loads at night time _____
- This is where the solar panel is attached _____
- These wires go from the charge controller to the loads _____
- This is used to connect wires and to allow electricity to flow in a number of different directions _____
- When the current gets too high this will open the circuit _____

4. Which of these waterfalls is equivalent to a higher voltage? Why? **Explain your choice**
(3 points)



Waterfall 1



Waterfall 2

5. Which of these rivers is equivalent to a lower current? Why? **Explain your choice**
(3 points)

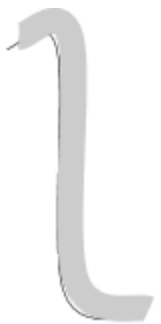


River 1



River 2

6. Which of these waterfalls is equivalent to the most power? Why? **Explain your choice**
(3 points)



Waterfall 1



Waterfall 2

7. At the school in Kenya where the solar suitcases are going, the girls want to charge a phone. This needs 4W of power for 2 hours (12 points)

A. How much current is powering the phone charger if the voltage from the suitcase is 12V? Show your work:

Answer:

Unit:

B. How much energy does charging the phone take? Show your work:

Answer:

Unit:

C. If the solar panel attached to the suitcase is a 60W panel and the sun hours for Kenya are 5, how much energy is available each day?

Answer:

Unit:

D. What advice would you give to the girls about the best time to charge their phones? What information should they look for on the charge controller?