Ωhm CΩmfΩrts

LEARNING OUTCOMES FOR THE ELECTRICITY TOPIC.

You should know that:

Electrical Safety

1. *Electrical energy can be dangerous.*
2. *Recognise some of the dangers of electricity in the home and outside.*

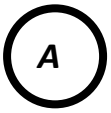
Atoms

3. *All objects are made up of small particles called atoms.*
4. *Inside each atom there are three small particles called neutrons, protons, and electrons.*
5. *A proton has a positive charge.*
6. *An electron has a negative charge.*
7. *A neutron is neutral or uncharged.*

How to make Electricity.

8. *Electric charge can be collected by rubbing two different surfaces together.*
9. *A Van de Graff Generator produces electric charges.*

Electric Current.

10. *When electric charge moves we call it an electric current.*
11. *Current is a flow of charge (or electrons) around a circuit.*
12. *Materials that allow current through them are called electrical conductors.*
13. *Materials that do not allow current through them are called electrical insulators.*
14. *We use the symbol I to represent current.*
15. *Current is measured in amperes or amps.*
16. *Current is measured using an ammeter.*
17. *Ammeters are connected in series.*
18. *The symbol for an ammeter is* 

19. *For electrons to flow there must be a complete circuit.*
20. *A multimeter can be set up to measure current, resistance or voltage.*
21. *When a multimeter is set up to measure current we call it an ammeter.*

Resistance

22. *Some materials have a high resistance and make it difficult for current to flow.*
23. *A continuity tester can be used to test for conductors and insulators.*
24. *Resistance is a measure of how difficult it is for the charges to move through an object.*
25. *The longer a wire the higher the resistance of the wire.*

Voltage.

26. *For most materials, as you increase the voltage the current increases.*

27. *Potential difference (p.d.) is often called voltage.*
28. *p.d. is the push that makes the charges move around a circuit.*
29. *Voltage is measured in volts.*
30. *Voltage is measured using a voltmeter, symbol V*
31. *Voltmeters are connected in parallel.*

Drawing Circuits.

32. *Circuit symbols are used to show how circuits can be built.*
33. *The circuit symbol for a cell, switch, bell, ammeter, voltmeter, lamp, power supply, resistor, wire, connected wire.*
34. *Make sure that you can draw circuits using the proper symbols and following the rules for drawing circuits.*

Series and Parallel Circuits

35. *The two types of circuit are called series and parallel.*
36. *In series circuits the current is the same all round the circuit.*
37. *In parallel circuits the current splits up and some goes down each branch.*
38. *In series circuits the voltage across the components adds up to give the voltage of the supply.*
39. *In parallel circuits the voltage is the same across each branch.*
40. *The current drawn from the supply increases the more components are connected in parallel.*
41. *When lamps are added in parallel the current drawn from the supply increases. This is because the overall resistance of the circuit is reduced.*
42. *I can help to design simple chemical cells and use them to investigate the factors which affect the voltage produced.*

Additional Learning Outcomes

43. *Using experimental evidence, I can place metals in an electrochemical series and can use this information to make predictions about their use in chemical cells. SCN 4-10a*
44. *Using a variety of sources, I have explored the latest developments in chemical cells technology and can evaluate their impact on society. SCN 4-10b*

The Effects of a Current

45. *The flow of electric current through a conductor produces several useful effects; heat, light, magnetism, and chemical effects.*

Ohm's Law-

46. *I can try the Ohms Law task, (a level 4 outcome and there is a sheet provided to help) This could form a Nat 4 or 5 outcome 1. V=IR (Voltage = current multiplied by voltage)*

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