**Homework Menu Grid: Electricity and Magnetism 2**

Complete some of the tasks from the grid below to reach a total of points over this unit of work. Try and cover a variety of tasks over the unit so that you’re practising different skills. Once you’ve completed a task, colour that box on the grid to keep a record of your points. Can you get the highest point score this unit?

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| **Topic** | **1 Point** | **2 Points** | **4 Points** | **6 Points** | | **10 Points FGF** |
| **Static electricity.** | What are the charges on protons, neutrons, and electrons? | Define static electricity. | Explain what happens to an object when it gains or loses electrons. | Miss Cooper has a pair of shiny trainers. Draw a storyboard showing why she keeps getting an electric shock. | | Upload a photo onto our science twitter page showing a balloon sticking to a wall and an explanation underneath.  Use #ILTFGF |
| **Generating electricity.** | What does generate mean?  Name the different energy resources and group them into renewable and non-renewable. | Describe of electricity is generated in a power station.  For a bonus point, describe each energy transfer that is taking place. | Compare how electricity is generated in a nuclear and gas fired power stations.  You must include the similarities and differences. | Design a double-sided poster or PPT presentation evaluating 3 sources of energy.  For 10 points, this must be presented to the class without just reading off the page/ slides. | | |
| **The national grid.** | Define the national grid.  What is the voltage of our mains electricity? | Describe the importance of step-down transformers. | Explain the importance of step -up transformers. | Higher power lines are more efficient and safer if they are dug below group.  Explain why you think they are not. | | Make a model of the national grid.  Tweet your model  Use #ILTFGF |
| **Resistance** | What is the definition of resistance?  What are the units for resistance? | What is the equation to calculate resistance?  Calculate the resistance when:  Voltage is 3V and current is 5A  Voltage is 230V and current is 0.3A  Voltage is 2.89KV and current is 450mA | Calculate voltage when:  Current is 5A and resistance is 300Ω  Current is 30mA and resistance is 1KΩ  Current is 0.1mA and resistance is 3.2KΩ | Write a method for how to measure the resistance of a wire with different lengths. You must include all the variables. | | Draw a cartoon sketch to model what resistance is. |
| **Electrical safety** | Label this plug | Explain the importance of each part of the plug you labelled. | How would you fix this plug ? | Mr Rimmer touched a high voltage electrical wire. What might happen to him and why? | Design a suit to keep a power line engineer safe.  Tweet your design  Use #ILTFGF | |

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