Wk 4 Year 8F (100 mins)

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| **Goal:**  Understanding that Energy efficiency  Understanding the calculation of percentage for energy efficiency  Understanding the flow of current  Understanding the conversion of unit of energy | | |
| **Student Outcome:**   1. Be able to define Energy efficiency 2. Be able to calculate percentage for energy efficiency 3. Be able to explain the flow of current as the flow of charge | | |
| **Teacher’s note:** | | |
| **Conservation of energy = energy cannot be created or destroyed.** |  | 1 min |
| **Sound energy**   * Is a kind of kinetic energy * Movement of air particles * **Depends on**[**Force**](http://www.acoustic-glossary.co.uk/definitions-f.htm#force)**x**[**Distance**](http://www.acoustic-glossary.co.uk/definitions-d.htm#displacement) **& medium it is travelling in** | Can you hear clearly under water? Why not?  Water molecules are larger and energy gets lost so the energy your ears receive is not enough to interpret the message. | 10 min |
| **What happens in Space?**  Light : Waves don’t depend on movement of particles  Heat : Radiation does not depend on movement of particles  Chemical: is not effected unless the reaction requires particular elements in our ozone  Elastic: Not effected  Gravitational: greatly affected  Kinetic: Keeps moving as no resistance  Sound: Does not exist no medium to travel in |  | 10 min |
| **Energy efficiency**  *What does it mean?*  The transforms most of its input energy into the most useful output energy. Is the calculation of the percentage of useful energy transformed.  The higher the percentage of conversion, the more energy efficient the device is.  *Give example of battery lighting light bulb*  *What is the energy form we want?* Light  *Is all the energy transformed into the energy form we want?* No  *Which other energy form occurs?* Heat  *How does this relate to energy efficiency?*  **Explain atomic structure and flow of charge in electricity and that proton and neutron are in the nucleus and can’t move.**  *How can we make it more energy efficient?*   * Reduce resistance in wire * Use a LED instead of a globe bulb = reduce transfer to heat   *How do we calculate percentage of energy transformation?*   * Energy converted/initial energy x 100 =   What is energy measured in?  **Joule is the unit for measuring energy. One kilo-joule is 1000 joules.** | It means that when energy is converted all the energy is transformed to the required form. | 5 min  15 min  5 min |
| *Activity 1: Experiment*  **Caution: Do not touch hot can** |  | 30 min |
| Independent completion of worksheet  Project intro |  | 20 min  5 min |