Homework: Tassomai - 4 daily goals each week

**Physics Unit 1 - Energy**

| **Learning intention** | **Key learning** |
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| What are energy stored and how are they transferred? | Different forms of energy stores.  The 4 forms of energy transfer. |
| How is ‘work done’ and ‘energy transfer’ linked? | Calculate work done  Real life examples of the relationship between work done and energy transfer. |
| How do you calculate the gravitational potential energy store of an object? | Understanding what gravitational potential energy is.  Understanding the difference between mass and weight.  Calculating gravitational potential energy using the equation and learning how to rearrange equations. |
| How do you calculate kinetic energy? | Understanding what kinetic energy is.  Calculating kinetic energy using the equation and learning how to rearrange equations. |
| What happens to gravitational potential energy and kinetic energy when an object falls? | Understanding the relationship between gravitational potential energy and kinetic energy and how energy is conserved within a system. |
| How do you calculate the elastic potential energy of an object? | Understanding what elastic potential energy is.  Calculating elastic potential energy using the equation and learning how to rearrange equations. |
| What are thermal conductors and insulators? | Understand what conductors and insulators are.  Understand why metals are good conductors and gases are good insulators based on the particle model. |
| What is specific heat capacity? | Understanding what specific heat capacity is.  Calculating specific heat capacity is using the equation and learning how to rearrange equations. |
| Required practical: specific heat capacity | Learn the method to investigate specific heat capacity.  Present data in a table.  Suggest improvements to the practical method. |
| What is power? | Learn what power is in relation to energy.  Learn how to calculate power. |
| How do we calculate efficiency? | Learn how the efficiency of a system can be calculated.  Learn how energy can dissipate to surrounding and how we can increase the efficiency of a system. |
| What are renewable and non-renewable energy resources? | Know examples of renewable and non-renewable energies.  Compare and contrast different forms of energy.  Suggest which energy resources can be used in different scenarios or countries. |
| Assessment | Review of learning to date with feedback given. |

**Biology Unit 1 - Cell biology**

| **Learning intention** | **Key learning** |
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| Eukaryotic cells: Animal and plant cells | Structure of plant and animal cells.  Comparing the structures of plant and animal cells. |
| Microscopes and magnification | How to use a microscope.  How to calculate the magnification of an object. |
| Required practical 1: using a microscope | How to write a method to prepare a microscope slide.  How to draw a biological drawing. |
| Prokaryotic cells - bacteria | Structure of a bacteria cell.  Comparing the structure of bacteria to plant and animal cells. |
| Cell differentiation and specialisation | Learn examples of specialised cells and describe how they are adapted for their function.  Understand how cells become specialised and why this is important. |
| Mitosis and the cell cycle | Learn what the cell cycle is and how a cell divides.  View stages of mitosis with a microscope. |
| Cancer | Learn how the cell cycle can get out of control and cause cancer.  Know the different types of cancer and how they can be treated. |
| Stem cells | Learn what a stem cell is and how adult stem cells and embryonic stem cells differ to each other.  Learn the ethical issues associated with using embryonic stem cells. |
| Breathing and gas exchange | Learn what the structure of breathing system is.  Learn how gases are exchanged in the alveoli of the lungs. |
| Factors affecting diffusion | Learn what the adaptations of the alveoli are and how this relates to diffusion. |
| Osmosis | Understand what osmosis is and define the process. |
| Required practical: osmosis | How to write a method to investigate the effect of solution concentration on osmosis in a potato.  Present data in a table and calculate the percentage change in mass. |
| Osmosis and graphs | Interpret data for osmosis in graphs.  Understand how to find out the concentration of a tissue using a graph. |
| Active transport | Understand what active transport is and how it compares to osmosis and diffusion. |
| Assessment | Review of learning to date with feedback given. |