*BTEC Firsts (Level 2) in Applied Science*

*UNIT 2 - Energy and Our Universe*

*ASSIGNMENT 1 – Investigating Energy Transformations and Communicating this Information to Customers*

***Student Name: Teacher:***

***Date assignment issued: Final Completion Date:***

**Introduction**

In order to finish this unit you need to complete an assignment. To make sure you finish on time and meet all your deadlines the assignment has been broken down into tasks and will be spaced over the course.

Each task will start with the part of the grading criteria that the task relates to, example P1, P2. It will finish with a deadline for the task to be completed by.

**The learning outcomes for this assignment:**

* Be able to investigate energy transformations

**Brief :**

You are an energy conservation technician within an energy supplier company and have been asked to investigate ways of transforming energy, including calculating the efficiency of conversion and the environmental impact. The outcomes are going to be communicated to customers.

Task 1

a)- Investigation

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| --- | --- | --- |
| **Working on P1**  Carry out practical investigations  that demonstrate how various  types of energy can be  transformed | MC900287131[1]Produce a poster of the 9 energy types    For each type of energy give an example of it.  Give 6 machines that convert energy, state the input energy and the output energy identify any waster energy types.  You are going to carry out two investigations into efficiency in energy transformations.  1. Investigate how high a bounced ball will return to, when dropped from measured height. You will be provided with a worksheet explaining the method.  **MC900432459[1]**  2. Investigate the efficiency of different foods (rise in water temp compared to calculated energy on food packet). You will be provided with a worksheet explaining the method.  You need to write a report of your findings for each experiment. You must consider the validity and reliability of the data collected in each case. | **Deadline for Task 1a:** |

b)- Results & Efficiency calculations

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| --- | --- | --- |
| **Working on P2**  Calculate the efficiency of energy  transformations**MC900290015[1]** | You are going to use your results from the 2 investigations in P1 to calculate the efficiency.  For each investigation you will need to calculate the efficiency of energy transformations.  You also have to calculate the efficiency of various energy uses too. All the equations and extra values you will need will be given to you on the worksheets.  **Refer to M1 too!** | **Deadline for Task 1b:** |

c)- Diagrams

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| **Working on M1**  Describe the energy  transformations and the efficiency of the  transformation process in  these investigations | For your two investigations in task 1b   1. Construct energy transfers diagram. 2. Construct energy sankey diagram.   sankey | **Deadline for Task 1c:** |

d)- Presentation/leaflet

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| --- | --- | --- |
| **Working on D1**  Explain how energy  losses due to energy  transformations in the  home or workplace can be minimised to reduce the  impact on the environment | Using the knowledge you have gathered during the assignment and other research produce a Power point presentation / information leaflet to show/give out to customers.  In your presentation or leaflet you need to include:   * The main areas where energy is lost from the home; what are the energy transformations involved? * Explain the negative impact of energy loss on the environment (hint! power stations) and ways to reduce it; illustrate modern methods of reducing energy loss in new houses.   MC900282322[1]MC900437819[1]MC900185706[1] | **Deadline for Task 1d:** |

**Self Assessment Checklist**

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| --- | --- | --- |
| **Task** | **What you will have produced** | **Deadline** |
| **1a linked**  **to P1** | * List of 9 energy types * Results table from experiment with conclusion including comments on validity and reliability of data   **(REPORT, OBSERVATION RECORD FROM YOUR TEACHER)** |  |
| **1b linked**  **to P2** | * Calculations of the efficiency of energy transformations   **(CALCULATIONS)** |  |
| **1c linked**  **to M1** | * Energy Transfer diagrams for the two investigations. * Sankey diagrams for the two investigations.   **(DIAGRAMS)** |  |
| **1d linked to D1** | * Presentation/leaflet about reducing energy losses at home and the workplace and their impact on the environment.   **(PRESENTATION/LEAFLET)** |  |

**Final things:**

* + Page number your portfolio (make sure it is all in the correct order)
  + Include a bibliography stating all your sources
  + Use appendices to store any additional information e.g. your screen dumps or newspaper articles
  + Make sure you create your own front cover with your name, the BTEC details and the unit details plus your teacher’s name.