BTEC Level 3

Subsidiary Diploma in Applied Science

UNIT 1: Fundamentals of Science

Assignment 3 – Energy For All: Investigate different types of energy and their transfers

***(P6, P7, M3, D3)***

Scenario

Due to the rapidly depleting supply of fossil fuels and the rising cost of electricity the government has set up an initiative to make young people more aware of energy and the importance of using it efficiently.

You work for a company the government is funding to create resources for local people, schools and manufacturers to advise them on Energy Transfers, Fuels used in energy and efficiency of appliances.

The government has approached your company and asked for a series of information posters and reports and presentations that can be presented at the Energy Fair and to be issued to schools, colleges, libraries and manufacturers of household appliances.

## Grading Criteria

* Describe different types of energy transfer (P6)
* Carry out a practical investigation into the calorific value of different fuels (**P7)**
* carry out a practical demonstration of a range of energy interconversions with appropriate explanations of the systems investigated (M3)
* evaluate the efficiencies of energy conversion systems (D3)

## When Do I Need to Hand It In?

* **Hand Out:** 2nd Feb. 2015
* **Hand In:** 16th Feb. 2015

## How Do I Do It?

You are working for a government funded Energy Company and asked to investigate different types of energy and their conversions. You must complete a portfolio which records the results of research carried out and practical investigations.

## What Do I Need To Include (Content)

Task 1: **Describe** different types of energy transfer

For P6, learners should create a presentation explaining the different types of energy, transfers for different sources of energy. Also produce a leaflet / brochure for a Health Spa explaining energy and metabolism of food and having a healthy diet and complete attached worksheet.

Task 2:**Carry out** a practical investigation into the calorific value of different fuels

Provide a results table for your supervisor identifying which fuel provides the most energy per gram, using your results and calculations to back up your conclusions.

Task 3: **Carry out** a practical demonstration of a range of energy interconversions with appropriate

explanations of the systems investigated.

For M3, learners must **show** energy interconversions displayed as a powerpoint / report for burning a candle and using immersion heater to measure change in temperature of water including risk assessment table.

Task 4: **Evaluate** the efficiencies of energy conversion systems

For D3, learners must use the practical investigations of burning candle and using immersion heater completed for M3 to **evaluate** on the **efficiencies of the energy conversion systems**. Each energy conversion system investigated should be individually evaluated with appropriate vocational examples of their applications in industry e.g. candle vs light bulb and related to fossil fuels, solar panels with conserving energy. Immersion heater vs boiler to heat water at home / industry.