NEATH PORT TALBOT COLLEGE
COLEG CASTELL NEDD PORT TALBOT

School of Maths & Science
Science Practical

Specific Heat Capacity by an Immersion Method

◆ **Aim**

To determine the determine the specific heat capacity of a metal by adding a hot piece of this metal to some cold water.

◆ **Introduction**

You will determine the specific heat capacity of a metal by adding a hot piece of this metal to some cold water. A 100g mass of metal at a temperature of about 100 °C is available

◆ **Safety**

Control Measures

- You are reminded of the need of good laboratory practice in order to maintain a safe working environment.
- **Goggles and lab coats must be worn at all times.**

Hazards

General hazard.	Take care with heating apparatus and hot metal blocks.

◆ **Apparatus required**

Cold water, glass beaker, polystyrene cup, thermometer, hot metal block and top pan balance

◆ **Procedure**

1. Add cold water to the polystyrene cup until it is about half full. Use a top pan balance to measure the mass of water.

    mass of water = _____ g

2. Measure and record the Initial temperature of the water.

    initial temperature of water = _____ °C

3. Transfer the 100 g mass of metal from the watre bath of boiling water into the water in the polystyrene cup. Gently stir the water using the thermometer. Measure and record the maximum final temperature reached by the water.

    final temperature of water = _____ °C

4. Calculate a value for the thermal energy given to the water by the metal. You may assume that the specific heat capacity of water is 4200J kg^{-1} K^{-1}.

    thermal energy given to the water = _____ unit ____

5. Use the results of your experiment to determine a value for the specific heat capacity of the metal.

    specific heat capacity = _____J kg^{-1} K^{-1}

6. Write an evaluation of the procedure which you have followed to determine a value for the specific heat capacity of the metal. You should include some of the limitations of this procedure and suggest ways in which the experiment may be improved, giving reasons for your suggestions.

_____

_____

_____

_____

_____

_____

_____

_____