# ELC Science

## 3.5 Component 5: Physics, Energy, Forces and structure of matter, Outcome 2

Teacher Devised Assignment: Student writing frame

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Component** | **Skill Area A** | **Skill Area B** | **Skill Area C** | **Skill Area D** | **Skill Area E** | **Total mark** |
| **5** | **1/2/3** | **1/2/3** | **1/2/3** | **1/2/3** | **1/2/3** | **/15** |

**Investigative activity: which material will keep my cup of tea hot the longest?**

**Information**

* Some materials are good thermal conductors.
* Materials that are poor thermal conductors help to reduce cooling as their rate of energy transfer is lower.
* How fast something cools down depends on many factors, not just the material that the container is made of.



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| **What am I trying to find out?** |

**Skill Area A: Planning**

**Entry Level 1**

Tick (✓) which items of equipment you will need from the list below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| kettle |  | bubble wrap |  | laboratory stand and clamp  P:\1 - Find graphics by category - DO NOT USE (Under Construction)\Equipment\SI-6 Clamp stand.jpg |  |
| P:\1 - Find graphics by category - DO NOT USE (Under Construction)\Equipment\SI-2 Beaker.jpg  beaker |  | P:\1 - Find graphics by category - DO NOT USE (Under Construction)\Equipment\SI-4 Thermometer.jpg  thermometer |  | polystyrene |  |
| balance P:\1 - Find graphics by category - DO NOT USE (Under Construction)\Equipment\SI-2 Balance.jpg |  | marker pen |  | P:\1 - Find graphics by category - DO NOT USE (Under Construction)\Equipment\SI-3 Bunsen with small blue flame.jpg  Bunsen burner |  |
| sticky tape |  | heating gauze |  | P:\Locate images by category\4 - Standard equipment\SI-3 Stop clock.jpg  stop watch |  |
| tripod |  | aluminium foil |  | scissors |  |
| wooden splint |  | P:\Locate images by category\4 - Standard equipment\SI-5 Spatula.jpg  spatula |  | P:\1 - Find graphics by category - DO NOT USE (Under Construction)\Equipment\SI-4 Measuring cylinder.jpg  measuring cylinder |  |

**Any other equipment needed?**

**No / Yes** ……………………………………………………………………………………………….………

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| **How will I set up the apparatus?**: Draw diagram here (include any extra equipment) |

**Planning Skill Area A: Entry Level 2**

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| **What I’m going to do**: this can be bullet points or a flow chart.  ………………………………………………………………………………………………………………………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ……………………………………………………………………………………………………………… |

To make it a **fair test**,  
  
I am going to keep these things **the same:**

……………………………………………………………………………………………….

I am only going to **change**

…………………………………………………………………………………………………………………

I am going to **measure**  …………………………………………… using ……………………………….

**Skill Area A: Planning**

**Entry Level 3**

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| **What I think might happen**  I think the cup made of ……. …………………………..…….will be the best because……………….  …………………………………………………………………….............................................................………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………… |

**Skill Area B: Doing**

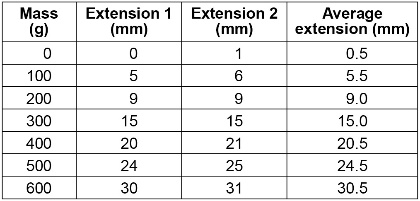
**Entry level 1 and 2**

**Skill Area B: Level 3**

I have used the equipment in an organised and safe way to get my results

I worked safely

|  |
| --- |
| I can trust my results because ………………………………………………………….......................................................................  ……………………………………………………………………………………………………………….  ………………………………………………………………………………………………………………….………………………………………………………………………………………………………………….…………………………………………………………………………………………………………  ……………………………………………………………………………………………………………… |

**Skill Area C: Recording data (my observations)**

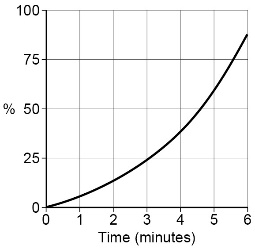
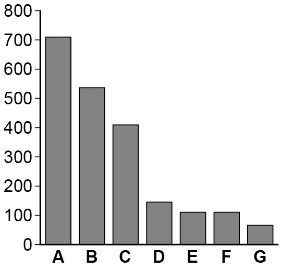
**Entry levels 1, 2 and 3**

|  |
| --- |
| **My results:**  Think carefully about your **variables** and **units** (what you are measuring?) |

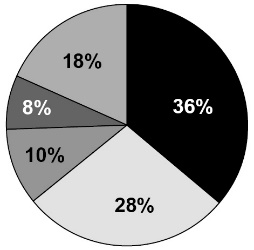
**Skill Area D: Processing and presenting data**

Showing patterns in my results

**Entry levels 1, 2 and 3**

****I am going to use a: **bar chart **

**line graph to show the results I collected**

****

**pie chart**

**other**

Show or attach your processed data here:

**Skill Area E: Interpreting and Evaluating**

**Levels 1, 2 and 3**

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| --- |
| **Conclusion : My evidence tells me that the best cup to keep my tea hot is made of:**  ………………………………………………………………………………………………………….……  …………………………………………………………………………………………………………….….………………………………………………………………………………………………………………..  **My evidence shows this because** (describe any patterns or trends in your results) ……………………………………………………………..……………………………………………..…  ………………………………………………………………………………………………………..………  ………………………………………………………………………………………………………………..  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………..………………  ………………………………………………………………………………………………………..………  …………………………………………………………………………………………………………..……  ………………………………………………………………………………………………………..……………………………………………………………………………………………………………..……… |

**Skill Area E: Evaluating**

**Level 3 only**

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| **How does my evidence match my prediction?**  ………………………………………………………………………………………………………………  ……………………………………………………………………………………………………….………  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  **Could I make my evidence even better?** Explain how you could improve what you did.  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ………………………………………………………………………………………………………………  ……………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………… |