

# MOUNT ANNAN HIGH SCHOOL

## ASSESSMENT TASK NOTIFICATION



<b>FACULTY</b>	Science		<b>COURSE</b>	Science - Stage 5	<b>YEAR</b>	9
<b>TASK NUMBER</b>	1	<b>TASK NAME</b>	Conceptual Model: Energy			
<b>TASK WEIGHT</b>	20%		<b>MARKS AWARDED</b>	30		
<b>DATE OF NOTIFICATION</b>	Thursday 16 <sup>th</sup> May 2024 (Term 2, Week 3)					
<b>DUE DATE</b>	<b>Thursday 30<sup>th</sup> May 2024</b> (Term 2, Week 5)					

### TASK DESCRIPTION / INSTRUCTIONS

Students will undertake a research-based design process to create a Solar Oven demonstrating the students' understanding of energy conservation, transfers and transformations applied in systems.

This Assessment is in the form of a booklet and model that students will individually complete in allocated lessons during class and at home with the final booklet and Solar Oven Model to be submitted on **Thursday 30<sup>th</sup> May 2024 (Week 5)** in your **Science lesson (Period 1)**.

**Booklet Part A- Applying the design brief (14 marks)**

Students will be required to develop a solar oven. This section is designed for students to plan their solar oven following a design process. Aspects of student understanding of energy transformations will be addressed through questioning.

**Booklet Part B- Assessing and testing your design. (16 marks)**

Students are to construct a solar oven to a set of specific criteria. This section involves students assessing their model by documenting the research and design processes they have conducted. The solar oven will be tested to the following standards.

#### Testing Specifications:

- Solar oven weighs under 2kg.
- Is made from at least **80 %** recycled /recyclable materials.
- Final product within volume maximum of 0.027m<sup>3</sup> (**L = 0.3m x W = 0.3 x H = 0.3m**)
- A minimum temperature increase of **10%** achieved when tested outside in the sun for 15 minutes.

### TASK SUBMISSION INSTRUCTIONS

The task must be submitted by 9.15am on **Thursday 30<sup>th</sup> May 2024 (Week 5)** in your **Science lesson (Period 1)**.  
Students will submit the booklet and the Solar Oven model that was constructed.

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### HOW DOES THIS TASK LINK TO MY LEARNING

Students will develop their skills to identify suitable equipment or resources needed to perform a task. Individually students will undertake a fair test with the aim of controlling variables to achieve energy conservation in a system through energy transfer and transformation.

### OUTCOMES

- SC5 -4WS** **Develops** question or hypotheses to be investigated scientifically.
- SC5 -5WS** **Produces** a plan to investigate identified questions, hypotheses or problems, individually and collaboratively.
- SC5 -8WS** **Applies** scientific understanding and critical thinking skills to suggest possible solutions to identified problems.
- SC5 -11PW** **Explains** how scientific understanding about energy conservation, transfers and transformations is applied in systems.

### FAILURE TO COMPLETE OR SUBMIT AN ASSESSMENT TASK

If you do not attend school on the Due Date of an Assessment Task to submit or complete the task in person you will be given a zero mark unless you comply with the following Assessment Guidelines:

- For the Assessment Task completed at home – you must submit the assessment task before school on the next day you attend.
- For Assessment Tasks completed at school – you must report to the relevant Head Teacher before school the next day you attend and discuss when you will complete a task missed or a substitute task.
- Complete a 'Misadventure Form' and provide relevant information and evidence to appeal the **zero mark** awarded. Other circumstances are outlined in the MAHS Assessment Booklet for the particular year. Evidence may include an in person medical certificate for illness or a letter outlining extenuating circumstances or other deemed reasonable reasons. An outcome of your 'Misadventure Form' will be provided by the Deputy Principal.

Students found guilty of **malpractice** which includes plagiarism will be awarded a **zero mark**. If a piece of work is incomplete at the time of submission, it should be submitted as is, and you will be given a mark on what has been completed.

As per our school Assessment Procedures outlined in the MAHS Assessment Booklet for the particular year, you must see your teacher and Head Teacher on the **first day you return** back to school. Please access our school website to access our assessment procedures for each year group and a 'misadventure form' -

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### MARKING CRITERIA - Part A: Quantitative analysis.

Performance Descriptors: <i>Part A: Applying the design brief - Outcome SC5-4WS, SC5-5WS, SC5-8WS</i>	Marks/Grade
<p><b>A comprehensive plan should demonstrate:</b></p> <ul style="list-style-type: none"> <li>● Comprehensively addressed method for the design of a successful Solar Oven.</li> <li>● Extensive evidence of the design process.</li> <li>● Accurate and relevant design sketches for the purpose of a valid project.</li> <li>● Evident throughout that extensive research has been conducted, with valid AND reliable information being apparent.</li> <li>● Incorporated scientific concepts that have been implemented in the design process for constructing an effective Solar Oven.</li> </ul>	<p><b>A</b></p> <p><b>12 – 14</b></p>
<p><b>An effective plan should demonstrate:</b></p> <ul style="list-style-type: none"> <li>● Effectively addressed method for the design of a successful Solar Oven.</li> <li>● In depth evidence of the design process.</li> <li>● Accurate and relevant design sketches for the purpose of a valid project.</li> <li>● Evident sound research has been conducted, with valid <b>AND</b> reliable information being apparent.</li> <li>● Incorporated scientific concepts with elements being implemented in the design process for constructing an effective Solar Oven.</li> </ul>	<p><b>B</b></p> <p><b>9 - 11</b></p>
<p><b>A sound plan should demonstrate:</b></p> <ul style="list-style-type: none"> <li>● A method for the design of a successful Solar Oven.</li> <li>● Evidence of the design process.</li> <li>● Relevant design sketches for the purpose of a valid project.</li> <li>● Research has been conducted with valid <b>OR</b> reliable information used.</li> <li>● Scientific concepts apparent in the design process for constructing a Solar Oven.</li> </ul>	<p><b>C</b></p> <p><b>5 – 8</b></p>
<p><b>A basic plan should demonstrate:</b></p> <ul style="list-style-type: none"> <li>● Processes for the design of a Solar Oven.</li> <li>● Evidence of some design processes.</li> <li>● A range of design sketches, with inaccuracies.</li> <li>● Research has been conducted for constructing a Solar Oven.</li> </ul>	<p><b>D</b></p> <p><b>3 – 4</b></p>
<p><b>A limited plan should demonstrate:</b></p> <ul style="list-style-type: none"> <li>● A limited plan for the Solar Oven.</li> <li>● Incomplete design processes with errors</li> <li>● A range of design sketches, with error.</li> <li>● Limited research has been conducted OR no information presented.</li> </ul>	<p><b>E</b></p> <p><b>1 - 2</b></p>
<b>Non Attempt – Non Submission – Non Serious Attempt</b>	<b>0</b>

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### MARKING CRITERIA - Part B: Data processing

Performance Descriptors: <i>Part B: Assessing and testing your design Outcome SC5-5WS, SC5-8WS, SC5-11PW</i>	Marks/Grade
<ul style="list-style-type: none"> <li>• Applies extensive scientific understanding and valid evidence of critical thinking skills to suggest possible reflective solutions to identified problems directly based on the solar oven design.</li> <li>• Project extensively adhered to <b>ALL</b> the specific criteria provided for the construction of the Solar Oven:               <ul style="list-style-type: none"> <li>- <b><i>Weights under 2kg</i></b></li> <li>- <b><i>Is made from 80% recycled/recyclable materials.</i></b></li> <li>- <b><i>Final product within volume limit of 0.027m<sup>3</sup> (L = 0.3m x W = 0.3 x H = 0.3m)</i></b></li> <li>- <b><i>Reaches a temperature increase of 100% or more.</i></b></li> </ul> </li> </ul>	<b>A</b>  <b>14 – 16</b>
<ul style="list-style-type: none"> <li>• Applies in-depth scientific understanding and valid evidence of critical thinking skills to suggest possible reflective solutions to identified problems directly based on the solar oven design.</li> <li>• Project effectively adhered to the specific criteria provided for the construction of the Solar Oven at a high standard:               <ul style="list-style-type: none"> <li>- <b><i>Weights under 2kg</i></b></li> <li>- <b><i>Is made from 80% recycled/recyclable materials.</i></b></li> <li>- <b><i>Final product within volume limit of 0.027m<sup>3</sup> (L = 0.3m x W = 0.3 x H = 0.3m)</i></b></li> <li>- <b><i>Reaches a temperature increase of 50 - 99%.</i></b></li> </ul> </li> </ul>	<b>B</b>  <b>11 -13</b>
<ul style="list-style-type: none"> <li>• Applies scientific understanding and evidence of critical thinking skills to suggest possible solutions to identified reflective problems based on the solar oven design.</li> <li>• Project adhered soundly to the specific criteria provided for the construction of the Solar Oven:               <ul style="list-style-type: none"> <li>- <b><i>Weights under 2kg</i></b></li> <li>- <b><i>Is made from 80% recycled/recyclable materials.</i></b></li> <li>- <b><i>Final product more than volume limit of 0.027m<sup>3</sup> (L = 0.3m x W = 0.3 x H = 0.3m)</i></b></li> <li>- <b><i>Reaches a temperature increase of 50 – 99%.</i></b></li> </ul> </li> </ul>	<b>C</b>  <b>8 - 1</b>
<ul style="list-style-type: none"> <li>• States a basic understanding and minimal reflective evidence for possible solutions to identified problems based on the solar oven design.</li> <li>• Project was basic in its adherence to the specific criteria provided for the construction of the Solar Oven:               <ul style="list-style-type: none"> <li>- <b><i>Weights under 2kg</i></b></li> <li>- <b><i>Is made from 80% recycled/recyclable materials.</i></b></li> <li>- <b><i>Final product more than volume limit of 0.027m<sup>3</sup> (L = 0.3m x W = 0.3 x H = 0.3m)</i></b></li> <li>- <b><i>Reaches a temperature increase of 10 - 49%.</i></b></li> </ul> </li> </ul>	<b>D</b>  <b>4 - 7</b>
<ul style="list-style-type: none"> <li>• States a limited reflective understanding of solutions or problems based on the solar oven design.</li> <li>• Project was limited in its adherence to the specific criteria provided for the construction of the Solar Oven:               <ul style="list-style-type: none"> <li>- <b><i>Weights under 2kg</i></b></li> <li>- <b><i>Is made from 80% recycled/recyclable materials.</i></b></li> <li>- <b><i>Final product more than volume limit of 0.027m<sup>3</sup> (L = 0.3m x W = 0.3 x H = 0.3m)</i></b></li> <li>- <b><i>Reaches a temperature increase of less than 10%.</i></b></li> </ul> </li> </ul>	<b>E</b>  <b>1 - 3</b>
<b>Non Attempt – Non Submission – Non Serious Attempt</b>	<b>0</b>