

Water Tower Folio

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The Design Process (Mark / 2)

Describe the design process you followed for this project. Outline the key steps from initial brainstorming to final construction.

Project Limitations (Mark / 2)

Discuss the limitations and constraints that affected your design choices, such as material restrictions, weight limits, height requirements, and time constraints.

Initial Design Sketch & Annotations (Mark / 5)

Attach your initial design idea. Label key parts and explain why you chose this design.

Final Design Sketch & Annotations (Mark / 5)

Attach or draw the final version of your design. Label key features and explain any modifications made from the initial concept.



Project Photos / Video (Mark / 5)

Attach photos / videos of your project at various stages, including construction and final completion.

Load to Tower Mass Ratio (complete this after we test our towers)

(Mark / 5)

Calculate and record your load-to-mass ratio using the formula:

Load to Mass Ratio = Load Supported (kg) / Tower Mass (g)

Load Supported: _____ kg Tower Mass: _____ g

Load to Mass Ratio: _____

Group Performance Evaluation (Mark / 5)

Evaluate each group member's performance, including their contribution to the design, construction, and teamwork.

Group Member	Strengths	Areas for Improvement
1)	•	•
2)	•	•
3)	•	•
4)	•	•
5)	•	•

Short Answer Questions (2 - 3 sentences)

- 1) Why is structural stability important in the design of a water tower?
(Mark / 4)
- 2) How does the choice of materials affect the strength of the tower?
(Mark / 4)
- 3) What forces act on your tower when supporting a load, and how did your design counteract them? (Mark / 4)
- 4) Explain a challenge your group faced during construction and how you solved it. (Mark / 4)
- 5) How could you improve your tower design if given more time and resources? (Mark / 4)

- 6) Why is weight distribution important when designing a structure that supports a heavy load? (Mark / 4)

Long Response Question (Mark / 12)

- 1) Critically examine how your project will handle different amounts of weight. Discuss any potential weaknesses and assess how well your design choices help to prevent or reduce these issues.
- 2) Evaluate how effectively your tower design supported the weight during testing. What design features contributed to its success or failure, and how would you modify your design to improve its performance in future builds?

Your response should be well-structured and supported with reasoning based on your design, materials, and construction process.

Using the ALARM Matrix for Long Response Questions

The ALARM Matrix strategy can help structure your paragraphs effectively. Follow these steps:

- **A (Acknowledge):** Identify the main idea or issue.
- **L (Link):** Connect the idea to relevant knowledge or concepts.
- **A (Analyze):** Break down the key components and their impact.
- **R (Relate):** Compare with examples, experiences, or similar designs.
- **M (Make a Judgment):** Conclude with an evaluation of your design's likely performance.

This long response question should take you **4 - 8 paragraphs** to answer the question correctly.
