

Crash Barrier Design Summative

Criterion A: Inquiring and Analysing

Explain and **justify** the need for a solution to a problem

1. State the problem:
2. Explain why this problem must be solved:
3. Justify the need for the solution:

Present the main findings of relevant research

Summarize the information found in research to present your proposed solution to the problem.

Criterion B: Developing ideas

List of success criteria for your solution: (defined by teacher)

- Models should slow down the different objects in order to determine effectiveness of the crash barrier models. You should observe the movement of the water in the graduated cylinder.
- Models should be easy to replicate for multiple trials. You should take photos of the arrangement of the crash barrier or trace the outline of your barriers on a piece of paper under the materials.
- You should include how many trials you will complete. A minimum of three trials should be run.
- You should collect data in a table. The data should include the mass and speed of the object.

- Your analysis should include a drawing of your setup with labels indicating that the forces are balanced when the object is at rest and the forces are unbalanced when the object is in motion. The drawings should also contain force arrows that indicate the strength and direction of each force. Longer arrows indicate a stronger force.

List of design specifications for the solution. (defined by the teacher)

Dimensions- Maximum width 15 cms, Maximum Height 10cm

- Must be free standing
- Available Materials- cardboard, paper, hot glue, blue painters tape, craft sticks, pipe cleaners, packing peanuts, sand.

Present feasible design ideas, using an appropriate medium(s) & outline the key features, which can be correctly interpreted by others.

	Sketch including dimensions	Materials
Design 1 Pros: Cons:		
Design 2 Pros: Cons:		
Design 3 Pros: Cons:		

Present the chosen design **describing** the key features

Criterion C: Creating the solution

Follow the plan to **create** the solution, which functions as **intended** and is presented **appropriately**. **List the changes** made to the chosen design and plan when making the solution.

1. In colored ink, draw any changes you made to your design during the creation. *If you have several changes, number each change on your design
2. List the number of each change here and explain why you made each change.

Criterion D: Evaluating

Outline the success of the solution against the design specification based on **authentic** product testing

1. What were the results of each test/survey question?
2. Based on the results would you say your final solution was successful?
3. Do you think you solved the problem? Explain:

Outline how the solution could be improved

1. Based on your test/survey, how could you improve your solution?
2. Based on your experience and knowledge base, how could you improve your solution?