Element H: Prototype testing and data collection

This entry would be likely to receive a score of 0 based on the EDPPSR. The entry is bare-bones (two sentences), and only minimally addresses one of the design requirements (ability to reach beneath the vehicle to scoop out snow) in a vague description of the testing that will be conducted. The data collection plan, minimal as it is, does not align with any of the design requirements identified earlier in the portfolio in Element C.

Engineering Design Process Portfolio Scoring Rubric
Component and Element Titles

Component I: Presenting and Justifying a Problem and Solution Requirements

- Element A: Presentation and justification of the problem
- Element B. Documentation and analysis of prior solution attempts
- Element C. Presentation and justification of solution design requirements

Component II: Generating and Defending an Original Solution

- Element D: Design concept generation, analysis, and selection
- Element E: Application of STEM principles and practices
- Element F: Consideration of design viability

Component III: Constructing and Testing a Prototype

- Element G: Construction of a testable prototype
- **Element H: Prototype testing and data collection plan**
- Element I: Testing, data collection and analysis

Component IV: Evaluation, Reflection, and Recommendations

- Element J: Documentation of external evaluation
- *Element K: Reflection on the design project*
- Element L: Presentation of designer's recommendations

Component V: Documenting and Presenting the Project

- Element M: Presentation of the project portfolio
- Element N: Writing like an Engineer

Please Note: Elements M and N require no submission from the portfolio author(s) and are intended to be scored based on the portfolio work as a whole from what has been submitted from Elements A through L

Element H: Prototype testing and data collection plan

5 The testing plan addresses all or nearly all of the high priority design requirements by effectively describing the conduct (through physical and/or mathematical modeling) of those tests that are feasible based on the instructional context and providing for others a logical and well-developed explanation confirmed by one or more field experts of how testing would yield objective data regarding the effectiveness of the design.

4 The testing plan addresses many of the high priority design requirements by describing in a generally effective way the conduct (through physical and/or mathematical modeling) of those tests that are feasible based on the instructional context and providing for others a logical and generally developed explanation confirmed by one or more field experts of how testing would yield objective data regarding the effectiveness of the design.

3 The testing plan addresses some of the high priority design requirements by adequately describing the conduct (through physical and/or mathematical modeling) of those tests that are feasible based on the instructional context and providing for others a generally logical and adequately developed explanation confirmed by one or more field experts of how testing would yield objective data regarding the effectiveness of the design.

2 The testing plan addresses a few of the high priority design requirements by at least partially describing the conduct (through physical and/or mathematical modeling) of those tests that are feasible based on the instructional context and providing for others an only somewhat logical and/or partially developed explanation confirmed by one or more field experts of how testing would yield objective data regarding the effectiveness of the design.

1 The testing plan addresses one of the high priority design requirements by describing at least minimally the conduct (through physical and/or mathematical modeling) of a test that is feasible based on the instructional context and/or providing for an at least generally logical and/or partially developed explanation of how testing would yield objective data regarding the effectiveness of the design; confirmation of that explanation by even one field expert may be missing.

0 Any testing plan included fails to address at least one of the high priority design requirements by describing at least minimally the conduct (through physical and/or mathematical modeling) of a test that is feasible based on the instructional context and/or providing for an at least generally logical and/or partially developed explanation of how testing would yield objective data regarding the effectiveness of the design; OR a testing plan is missing altogether.

Excerpt from the "Reflective Questions for Students" Document regarding Element F from the Innovation Portal Resources files;

"What is the plan to test the prototype design and how can I show others that the testing plan for each design requirement is a well thought out test and would yield believable /valid data?"

Snow Obstruction Displacement Device For Motor Vehicles - REDACTED

PROTOTYPE TESTING AND DATA COLLECTION PLAN H

We are going to build a "car" out of some lumber then see if we can scoop sand see if we can move snow with out damaging the "car".What data we plan to collect is the amount of force it takes to move 50g of sand