**Fast Stop Car Semester 1 Final Paper**

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| **Category** | **A** | **B** | **C** | **D** | **F** | **EARNED** |
| Experimental process  /40 | -Explains how your thinking process changed from the first attempt of the marshmallow challenge through each of the other challenges (cards, bridge, planes, car) - why the process you used for the fast stop car is better than where you started  - what you can continue to do to improve your process for the future projects  -Focuses on the thinking process behind decision making and information processing.  -Includes the thought process on how you approach problems, determining what the most important problems are. | Above C and below A level | - does not address that the experimental process as something that is being iterated between the challenges.  - does not address the “WHY” aspect of what is effective/not effective in your experimental process | - relies heavily on narration of the product development.  - does not include much thought process | Below the D level | /40 |
| Notebooking process  /40 | -How has notebooking for you change from card houses through to fast stop car.  - what worked and what didn’t work. **WHY?**  **-why** did you make the changes that you made.  - **how can you make notebooking more useful / more convenient in the future** (physical changes but also how you use your notebook)  - how are you thinking about the notebook to use it to guide your decision making, have you been? How can you more effectively utilize your notebook. | Above C and below A level | - does not address that the notebooking process as something that is being iterated between the challenges  - does not address the “WHY” aspect of the effectiveness of your notebooking process. | - relies heavily on narrating what was written in the notebook | Below the D level | /40 |
| Research process  /40 | - what changes did you make to your research process from bridge building to fast stop car.  - What process did you do to make your research effected your experimentation? What about it worked, what didn’t? **WHY?**  - how did you decide what to research. Why was that effective or why was it not effective.  - how can you improve your research process for the next challenge? | Above C and below A level | - Does not address the research process as something that is being iterated between challenges.  - does not heavily explain the “why” aspect of the “A” level research process | - relies heavily on narrating what was researched | Below the D level | /40 |
| Science content learned  /40 | - includes a work cited  - Includes in text citations  - uses research learned to explain why their design worked / didn’t work with these topics  + gravitational potential energy + kinetic energy  + friction (application, reduction, importance) + momentum + your power source method | Above C and below A level | - includes adequate aeronautics understanding and concepts  - work is not cited  - does not explain why content effected success/failure of plane | Does not include enough concepts | Below the D level | /40 |
| Total |  |  |  |  |  | /160 |