**The Report- typed or handwritten (neatly) in lab journal**

**Use the following outline to plan and write your report**

| **Component** | **Description** | **Draft of Ideas (what will I say); be specific and use your journal!** | **Value** |
| --- | --- | --- | --- |
| **Topic Sentence** | Restate the goals of the project using your own words and past tense | Our goal was to make the car go down the ramp and land at 1 meter or go past. | **5 points** |
| **Body Sentences 1 & 2** | Describe the research or experience that inspired your design. discuss how this specifically influenced your first prototype design.\* see rubric below for specifics related to research.  A written explanation shows a clear understanding of the technology design process. shows basic understanding of aerodynamics and speed. | First we researched aerodynamics and purchased everything that would be useful for our design. Next after getting a good idea we used tape, cardboard, wheels, and a bottle and made a prototype of our final design car. Our prototype with studying friction, velocity, and weight we managed to get the car at 4 meters. | **10 points** |
| **Body Sentences 3-7** | Describe the process of creating and editing prototypes. Why did you make changes? Why did you keep certain aspects of the design? | We added cardboard and many other things. For starters cardboard to the bottom, got rid of the bottom part of the sparkling water, and added the 3d printed item. These changes we thought would help our design but did not. We kept the wheels, fins, and bottle because they are the essentials. | **10 points** |
| What issues arose during testing of prototypes? What successes were achieved? Why? How were these linked to the design and research phase? | During the prototype we found the wheel to be actually broken so we struggled to find ways to make it better and we added too much weight so we had to make multiple changes. There were no real successes because it just kept getting worse. The only success we had was fun. The design listed off constraints that would happen and what velocity and friction we would need. | **10 points** |
| **Body Sentences Final 2-3** | Describe the final design- description of the car, measurements, and results of the test. Describe why you think the car performed this way. | The final design was with fins, skinny wheels, fat wheels (which one of them we changed to a cardboard wheel, 3d printed item, cardboard, and fins. The length was 27cm, the width was 8 cm, and the height was 13 cm. I think it preformed this way because we just kept making it worse by adding cardboard at the bottom, our wheel not working, a 3d printed item making our car slower, glue stopping our wheels, and we could have kept the original prototype and it would have gone 4 meters but we decided to make it one meter, actually. No. Less than that. | **10 points** |
| **Concluding statement** | What would you change and why if you were to redo the project with the same parameters? | I would have gone back to the original design and kept it that way because it went four meters and the final only went 31 cm. | **5 points** |

**For each area, you are being assessed for your use of evidence and reasoning:**

|  | **3**  **Proficient** | **2**  **Progressing** | **1**  **Beginning** |
| --- | --- | --- | --- |
| **Claim**  *A statement or conclusion that answers the original question/ problem.* | Makes a claim that is…   * Relevant (Directly & clearly responds to question) * Accurate (Consistent with evidence and scientific principles) * Complete (Complete sentence that stands alone) | * Makes a relevant and accurate but incomplete claim. | * Does not make a claim, or makes an inaccurate or irrelevant claim. |
| **Evidence**  *Scientific data that supports the claim. The data needs to be appropriate and sufficient to support the claim.* | Provides evidence to support the claim that is…   * Appropriate (Scientific data or information from observations, investigations, data analysis, or valid scientific sources) * Sufficient (Enough evidence to support the claim) | * Provides appropriate, but insufficient evidence to support the claim. May include some inappropriate evidence. | * Does not provide evidence, or only provides inappropriate evidence (Evidence that does not support the claim). |
| **Reasoning**  *A justification that connects the evidence to the claim. It shows why the data counts as evidence by using appropriate and sufficient scientific principles.* | Explanation provides reasoning that is…   * Clear (Clearly communicated and goes beyond repeating claim and evidence) * Connected (Explains why the evidence is important or why it is relevant) * Integrated (Links the evidence to important notes | * Provides reasoning that connects the evidence to the claim. May include some scientific principles or justification for why the evidence supports the claim, but not sufficient. | * Does not provide reasoning, or only provides inappropriate reasoning. |

The goal of this project was to create a car that shows how a car works and see what the best car was. First we had to figure out what materials we needed because there was a budget limit of a hundred dollars. We decided on sparkling water, a bottle cap for decoration (that we didn’t use at all, cardboard, a 3d printed item, skinny wheels, fat wheels,and straws. After we got our materials we started to make our prototype car. At first we used the sparkling water and use tape to add the wheels to it, then we created fins and added them to the car. We tested it down the ramp and it went 4 METERS, but we thought it had to go one meter, so we made changes. We added the straws onto the wheels because it was acting weird (which in two weeks we would figure out why it was broken) and cut them into precise shapes and then cut a hole in the back side of the sparkling water. After that we added cardboard into it and put cardboard where the wheels were and put the wheels back on it. After a few days on our next visit we noticed that one of the wheels was really causing problems and making the prototype go left and right. That caused it to only go one meter at tops. After a few more days our 3d printed item arrived and we were ready to find where it needed to be unfortunately the bottle caps main purpose was to fin in a little hole we made for the 3d printed item, but it didn’t, so we glued it onto the front without the bottle cap and noticed our car was starting to fall apart and become fragile. Then we started to hot glue everything together and get rid of the tape, but it couldn’t even go down the ramp. Backwards made it really fast but then when the final test day arrived it was so messed up that it only went barely down the ramp. We had a ten minute repair and improval time until the final test, so we switched the bad wheel for a cardboard wheel, but at that point we knew we had just screwed up and it would work. In the end we were right, but the project was fun and I would do it again and make different changes like keep the prototype. I am so glad I got to work on this project with my friends!