**Car Design Worksheet – Sample**

**Problem**

You need to design a car that will roll down a track at the fastest possible speed.

**Constraints**

Your car must be designed to roll down a specified track (which limits the maximum size of your car). You only have **$700** to purchase supplies to construct your car. You may only use the materials listed below, purchased for the cost shown.

**Material Costs**

|  |  |
| --- | --- |
| **Item** | **Cost per Item** |
| Lifesaver Mints | $75 per mint |
| Straw | $100 per straw |
| Popsicle Stick | $50 per stick |
| Masking tape | $50 per 12” section |
| Notebook Card | $25 per card |
| Paper Clips | $25 per clip |

**Imagine**

Brainstorm several ideas you have for building a really fast car. If needed, use a piece of scratch paper to draw pictures.

Students will provide drawings of individual components of the car here. These could involve how the axles of the car will be formed, the overall look of the car and other specific details. This may not be a complete design.

**Design**

Draw out your car design and label each of the different materials used (mints, tape, straw, etc.).

Students will draw the best car design they can come up with as a group. Each group member should complete this process. This ensures that all group members are involved in what is going on. This design should include several different viewpoints (in order to give a complete picture of the car design) and should include labels which detail where all materials will be used.

**Build**

List how much of each material you will need to build your car. Multiply the amount you need by the cost of the material and then add all of the amounts together. How much is the total cost of your car? Do you have enough money?

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| --- | --- | --- | --- | --- |
| **Item** | **Cost per Item** | **Number Purchased** | **Number x Cost** | **Total Cost of Purchase** |
| Lifesaver Mints | $75 per mint | 4 | 4 x $75 | $300 |
| Straw | $100 per straw | 2 | 2 x $100 | $200 |
| Popsicle Stick | $50 per stick | 0 |  | 0 |
| Masking tape | $50 per 12” section | 2 | 2 x $50 | $100 |
| Notebook Card | $25 per card | 0 |  | 0 |
| Paper Clips | $25 per clip | 2 | 2 x $50 | $100 |
| **Total Spent** | **$700** |

**Test**

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| --- | --- | --- | --- | --- |
| **Group Name** | **Time (1) in seconds** | **Time (2) in seconds** | **Distance Jumped (1) in cm** | **Distance Jumped (2) in cm** |
| The Jumpers | 1.8 | 1.5 | 50 | 51 |
| The Speedsters | 1.9 | 2.3 | 35 | 31 |
| The Racers | 1.5 | 1.8 | 45 | 42 |
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How fast was your car compared to all of the other cars? Student answers will vary.

Did it jump farther than any of the other cars? Student answers will vary.

What are two things you would change about your car to make it work better? Student answers will vary.

**Graphing**

Answers will vary depending on the specific car and track. The shape of the graph should be similar to below.

