

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## 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.

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**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?

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
<b>Total Spent</b>				<b>\$700</b>

**Test**

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

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.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Graphing

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

X - Variable (Angle in Degrees)	10	20	30	50	60
Y - Variable (Time in seconds)	6	3.25	1.8	1.25	1.2

