

# Road Testing

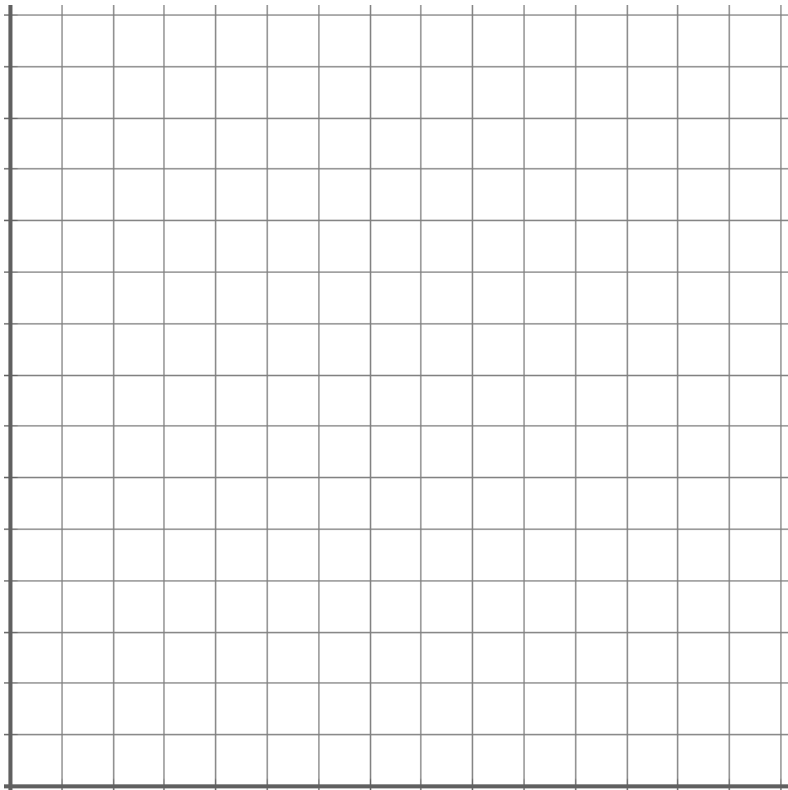
Another aspect of automotive engineering is not only evaluating the performance rating of a car, but also finding how your car will perform in the real world, this is called road testing.

**Directions:** Using your balloon car, you will test to see how fast your car will up and incline which will simulate the road conditions in the real world, in this case a hill. Make changes to your car as needed and once ready, record three trials of your car traveling on a level surface, up a slight incline, medium incline, and finally a severe incline.

## Speed of car on level surface (baseline or control experiment)

Trial Number	Time (X-Axis)	Distance (Y-Axis)
1		
2		
3		
AVERAGE		

Graph your results below: Each trial should have its own line, starting at the origin and going through the point generated by your data. Be sure to include the average as well.



### Analyze your graph

Which of your three trials has the highest speed?

What was the average speed of your car?

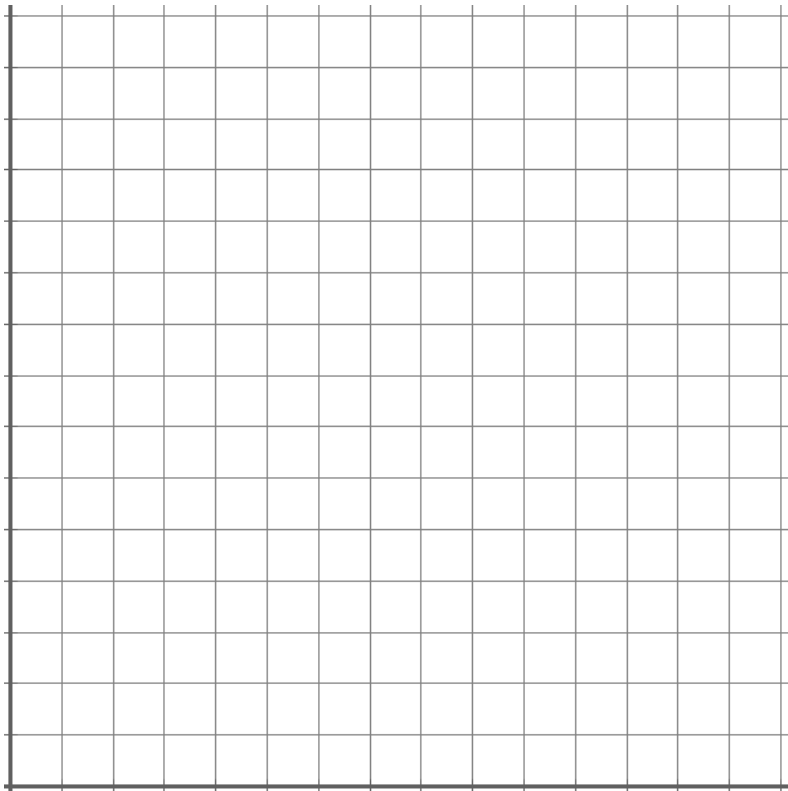
What was the furthest distance traveled by your car?

Did you notice any patterns in your data?

## Speed traveling on a slight incline

Trial Number	Time (X-Axis)	Distance (Y-Axis)
1		
2		
3		
AVERAGE		

Graph your results below: Each trial should have its own line, starting at the origin and going through the point generated by your data. Be sure to include the average as well.



### Analyze your graph

Which of your three trials has the highest speed?

What was the average speed of your car?

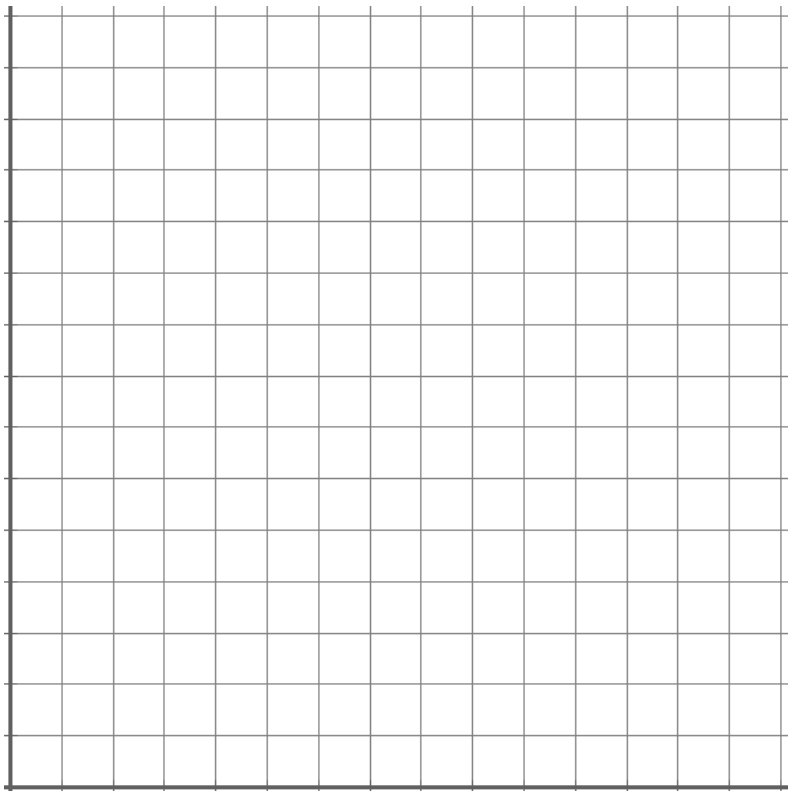
What was the furthest distance traveled by your car?

Did you notice any patterns in your data?

Speed traveling on a medium incline

Trial Number	Time (X-Axis)	Distance (Y-Axis)
1		
2		
3		
AVERAGE		

Graph your results below: Each trial should have its own line, starting at the origin and going through the point generated by your data. Be sure to include the average as well.



**Analyze your graph**

Which of your three trials has the highest speed?

What was the average speed of your car?

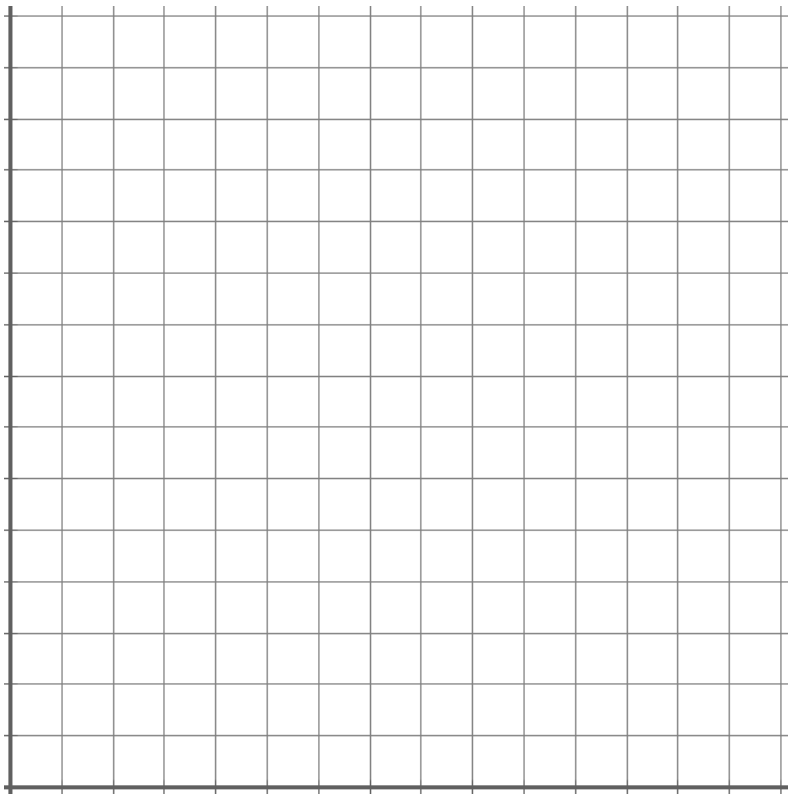
What was the furthest distance traveled by your car?

Did you notice any patterns in your data?

Speed Traveling up a severe incline

Trial Number	Time (X-Axis)	Distance (Y-Axis)
1		
2		
3		
AVERAGE		

Graph your results below: Each trial should have its own line, starting at the origin and going through the point generated by your data. Be sure to include the average as well.



**Analyze your graph**

Which of your three trials has the highest speed?

What was the average speed of your car?

What was the furthest distance traveled by your car?

Did you notice any patterns in your data?

Where did your car have the least amount of kinetic energy? The most kinetic energy?

Where did your car have the least amount of potential energy? The most potential energy?

Diagram the incline with the point of most kinetic energy and most potential energy.