

COOL CAR CRASH LAB



Goal: Use your knowledge of motion to predict where you must place two cars in order to crash.

Method: In the fall, you learned that two waves can occupy the same space at the same time in a process called interference. Matter does not have this feature. So, if two cars attempt to occupy the same space at the same time, we call that a collision. You must learn how your car moves including how fast and how straight, turn your car into me for safe keeping and then you will assigned to another group at random and you must work quickly with them to agree upon how to set up your respective cars in order for them to crash.

Rules:

1. One car will be placed 4 tiles from the crash intersection, you choose where the 2nd car is located.
2. The 2nd car must travel perpendicular to the first car
3. The crash must occur very near the crash intersection (the first car must move about 4 tiles before crashing)
4. Have the camera ready to take a picture in case they don't crash. If no crash occurs, the picture you take will be visual evidence if your car was "close" to crashing and may be analyzed later on to determine if "close" points are awarded.
5. You will have just one trial....good luck and happy crashing!

Point allocation: (8 pts total)

Your name _____

Your partner names _____

Your car's name (to get full sportsmanship points, this is required) _____

(2 pts) Sportsmanship, effort and using time wisely in class:

Do you think you deserve full points for sportsmanship, effort and using time wisely in class?

Do your partners deserve full points (did they do their share, or goof off?)...if not, who did not deserve full pts?

(2 pts) Successful crash took place:

Cars collided near/in the crash intersection (2 pts/2 pts). No interference took place after releasing the cars. Cars came "close" to colliding with picture evidence supporting it (1 pt/2 pts). This will be judged based on photographic evidence and teacher observation relative to all cars done in all classes.

(4 pts) Data, calculations done along with questions and they make sense (back of this sheet)

<u>Speed data</u>			<u>Direction data</u> You decide how to measure direction (does car move straight? If not, how much is it off so you can compensate for it?)
Δx	Δt	v	
		AVG:	

Team Questions:

Will speed alone determine if two cars crash?

Is it necessary to know velocity?

Is it necessary to know starting positions of both cars? Why?

Is it more useful to measure distance or displacement? Why?

What other team (car name) did you work with? _____

Show how you determined how to place the 2nd car, which car you chose to be 4 tiles back and how you CALCULATED the distance the crash would take place.