

# Final Test Course

**Directions:** Complete the following worksheet as you test your vehicle on the Final Test Course

- 1) In the space provided below, diagram the test course from the side view. Label where potential and kinetic energy will be the least and the most.

- 2) Explain what happens to the kinetic energy of the vehicle as it goes up an incline.

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- 3) Explain what happens to the kinetic energy of the vehicle as it goes down a decline.

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- 4) In your own words, describe the relationship between kinetic and potential energy.

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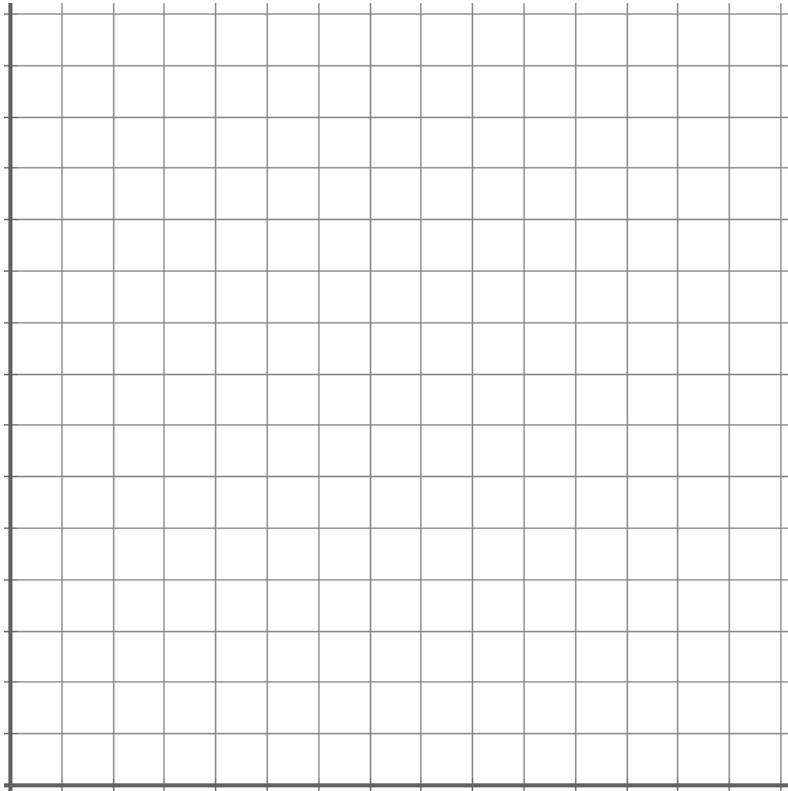
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Record your three fastest trials and graph them below.

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 of your three trials 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?

5) Reflect on your build process and the investigations you conducted, what changes would you make to your vehicle? Explain.

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## Write up

Over the last several weeks we have designed, built, tested, and revised a vehicle in order to complete a series of challenges and ultimately build a vehicle for the approval of the city of Los Angeles. In order to convince the city that your vehicle is the best one for the job you must compile all of your data and come to a conclusion as to how your car performed.

Address the following 5 criteria by creating a pamphlet, poster, or an essay.

- 1) Gather all of your investigations and data that you have collected, including graphs, questions, diagrams and write ups.
- 2) Based on all of your observations and data collection describe how you would classify your vehicle. Is it built for speed, to carry as many people as possible, or for safety? Explain your answer using the data from all of your investigations.
- 3) Explain the building process and the materials that you used.
- 4) Explain how your vehicle can impact the city of Los Angeles.
- 5) Reflect on the entire investigation, what did you enjoy, what was challenging, what would you change about the building process, were there any problems, how would you solve them?

## Rubric for write up

	4	3	2	1
Overall completeness	Students addressed all 5 criterion as stated in the directions	Student addressed 3-4 of the criterion that was stated in the directions	Student addressed 2-3 of the criterion that was stated in the directions	Student addressed 1 of the criterions that was stated in the directions
Claims supported with data	All claims and conclusions are supported by data	Most claims are supported by data	Some claims are supported by data	Few claims are supported by data
Description of the build process	Student includes an in depth explanation of methods and materials used	Student includes the major aspects of the build process but skips some minor details	Student includes some of the major aspects and none of the minor details	Student does not talk about the build process
Implications for the future	Student answers how the vehicle may or may not impact the city and supports with detail	Student answers how the vehicle will impact the city with some support	Student answers how the vehicle will impact the city with no support	Student does not answer the prompt
Reflection	Student includes a thoughtful reflection on the entire investigation providing feedback and suggestions for a future build	Student includes a reflection that answers how he or she enjoyed the activity with some suggestions for future build	Student includes a reflection that answers how he or she enjoyed the activity with little to no suggestions	Student does not adequately reflect