

Newton's Second Law

Name _____ Date _____

Source Notes:

This lab was modeled after the "Force and Acceleration" lab and "Mass and Acceleration"

"Laboratory Physics", Murphy Doyle, Merrill, 1990.
ISBN 0-675-02477-3

Jim Haine - Wissahickon High School, Ambler PA.
1997(?)
Modified 2010

Teacher Notes:

Modifications:

This was designed to use the Pasco Data Studio Software. Other measuring tools could easily be used.

Grade

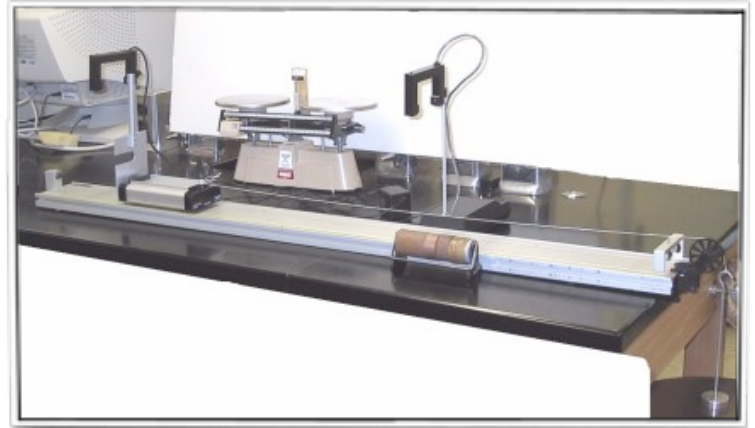
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Procedure Notes:

For the first 6 trials, do not change the **hanging** mass. Change the mass of the car by adding mass for trails 2 to 6.

For the next 6 trials, do not change the **total** mass. Masses removed from the hanger must be placed onto the car for each trial.



Data and Observations

| | Hanging Mass (kg) | Car Mass (kg) | Total Mass (kg) | Pulling Force (N) | Acceleration m/s ² |
|----|----------------------|------------------|--------------------|----------------------|----------------------------------|
| 1 | _____ | | _____ | _____ | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | _____ | _____ | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |

Grade _____

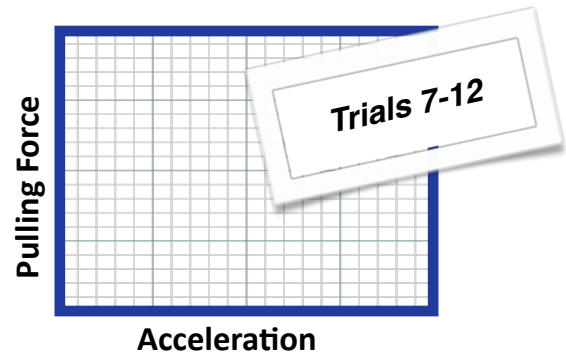
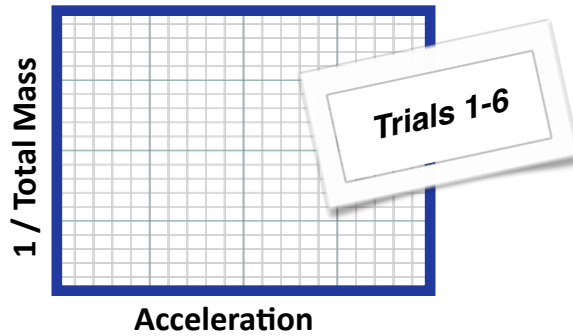
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Calculations:

Use Data Studio again to “enter data”.

Submit two graphs for your group.



Describe each relationship.

Use the “fit” tool to find the slope of the graph.

What is shown by each slope?

What are the percentages of error for your experiment?

Grade