PHYSICS 2204
Unit 3: Work Power and Energy
Core Lab #2: Work Energy Lab

STUDENT NAME:_____

DATE:_____

GROUP MEMBERS:

_____ _____

PURPOSE: The purpose of this lab is to look at the relationships that govern the energy given to an object and how that energy will manifest itself in the object's motion

INSTRUCTIONS:

In this lab you will use your fire extinguisher to do different amounts of work to astronaut Wally.

1. Open a browser and go to:

https://www.thephysicsaviary.com/Physics/Programs/Labs/WorkToKELab/index.html

This link is also found on my website: www.mrfifieldcorner.weebly.com

2. You can also use the graphing program below to study your graphs

http://www.thephysicsaviary.com/Physics/Programs/Tools/Graphing/index.html

This link is also found on my website: www.mrfifieldcorner.weebly.com

3. For each trial, you are to determine Wally's speed as he passes between the two photogates that are 10 meters apart. You can control the mass of Wally, the strength of the force from the fire extinguisher, and the distance over which the force of the extinguisher is applied.

4. Create a procedure in which you will observe the impacts of each variable on work. Then, you will need to calculate the kinetic energy for each scenario. You will need to observe the impact of changing:

   PART 1: The mass of Wally.
   PART 2: The strength of the force from the fire extinguisher.
   PART 3: The distance over which the force of the extinguisher is applied.

5. For each variable, write a separate procedure. Identify which data will be collected and how the data will be collected. Make sure your steps include an object, action, instrument, and measurement.

6. Create a relevant data table for based on your procedure. You should include at least 7 trials for each variable shift.

7. Create a relevant graph that shows the impact of work on kinetic energy for each variable shift. Then, explain how each variable impacts kinetic energy and work. Your graph should include relevant scales, x- and y-axis titles, and an overhead title.

PART 1: WORK Verus MASS

Procedure:

Mass (m)	Work (J)	Kinetic Energy (J)

Use the Program Software and Sketch the Work Versus Mass Graph Produced:

PART 2: WORK Verus FORCE

Procedure:

Force (N)	Work (J)	Kinetic Energy (J)

Use the Program Software and Sketch the Work Versus Force Graph Produced:

PART 3: WORK Verus DISPLACEMENT

Procedure:

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DISPLACEMENT (m)	Work (J)	Kinetic Energy(J)

Use the Program Software and Sketch the Work Versus Displacement Graph Produced:

CONCLUSION: