Investigating Newton's Second Law

Force and Acceleration

Aim:

You are investigating how the force applied on an object affects the acceleration



Method:

- 1. A trolley of a known mass is placed on a track. Keep the mass unchanged.
- 2. A force is applied to the trolley normally this is a small mass on a string over a pulley at the end of the track
- 3. Release the trolley from the start of the track. Record the time taken to reach the end and the final velocity recorded by the light gate.
- 4. **Acceleration = change in velocity/time.** Calculate this and enter it in your results table
- 5. Repeat this step two times and calculate an average acceleration.
- 6. Now adjust the force on the trolley and collect three new accelerations.
- 7. You should have data for at least five different applied forces.

Prediction:					
What effect of the control of the co	do you think t	he applied f	orce will hav	e on the ave	rage acceleratio
Results:					
Mass of	Force	Acceleration (m/s²)			Average
Trolley (kg)	applied (N)	Trial 1	Trial 2	Trial 3	Acceleration (m/s²)
Analysis:					
Plot a graph	to show your	results. Plot	the Average	accelerati	on (m/s²) on the
axis and the	Force applie	d (N) on the	vertical axis		
What relation	nship betwee	n Force and	Acceleration	n does you	r graph show?
How does th	is compare w	ith your pre	diction?		
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