Acceleration

Organise the method used to obtain results on acceleration:

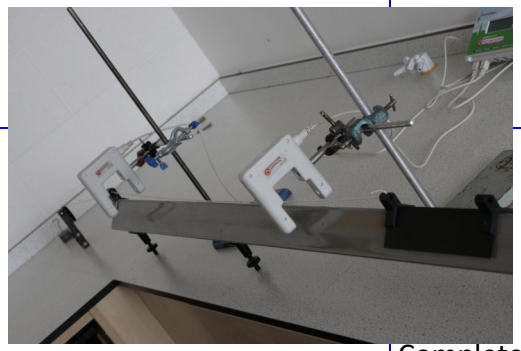
- Connect the light gates to the interface and computer. Start the software for timing, telling the computer the length of card.
- Place the air track on a bench and attach it to the vacuum cleaner, set on 'blow'.
- Tie a length of string to the glider. Pass the string over the pulley and attach the weight stack to the other end of the string.
- Make sure the string is horizontal and is in line with the air track.
- Clamp the two light gates horizontally. Position them above the air track so that the card passes through them as the glider moves.
- Switch on the vacuum cleaner. The glider should accelerate through the light gates as the weight falls to the ground.
- Place a glider with a piece of card attached on the air track and switch on the vacuum cleaner. The glider should lift up off the air track and be free to move.

Risk Assessment:

Suggest what the risks are in this experiment. Describe what you should do to minimise the risks.

1.

2.



Variables

In the experiment, suggest what the following are:

Independent Variable:

Dependent Variable:

Two Control Variables (include how they are to be controlled)

1.

2.

Acceleration

Formula
Acceleration = change in velocity/time

Complete the following calculations:

1. A mass accelerates from rest to 4 m/s in 8 seconds. What is the acceleration?
2. A mass accelerates from 2m/s to 8 m/s in 2 seconds. What is the acceleration?
3. A mass decelerates from 100 m/s to 50 m/s in 10 seconds. What is the deceleration?

Plan

Without turning over (!) write a step by step plan for measuring the acceleration of an object.

Looking for Correlations

Force (N)	Acceleration (m/s/s)
0.2 N	0.8 m/s/s
0.4 N	1.6 m/s/s
0.6 N	2.4 m/s/s
0.8 N	3.2 m/s/s
1 N	4.0 m/s/s

As the force increases…

Is the graph proportional?

What does this mean?

Complete the sketch graph