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National 5 Assignment  
Stopping Distance: Guide Sheet A

A close up of a toy

Description automatically generated

**Variation of stopping distance with speed of the vehicle.**

**Apparatus**

Runway, vehicle, light gate(s), interface and computer, mask (single or double), rule, protractor, tape measure /metre stick

**Instructions:**

* Organise the light gates and interface to measure the speed of the vehicle as the vehicle passes through the light gate. This can be using one light gate and a single mask.
* Set the runway up at an angle.
* Place the light gate so that the mask cuts the beam as the vehicle passes.
* Release the vehicle from near the bottom of the slope and record the speed as it passes the light gate.
* Let the vehicle run along until it stops at the bottom. Measure the stopping distance from the light gate to where the vehicle comes to rest.
* Release the vehicle further up the slope.

**Risk Assessment**

* Masses may be heavy so care must be taken to not drop them.
* Do an electrical safety check by observing all the wires.
* Make sure the vehicle cannot become a trip hazard or land on feet, toes etc.
* Be observant to those around you.
* Run the trolley away from students and not across the room.
* Do not block exits with the apparatus.
* **Mrsphysics takes no responsibility for any health and safety. It is the responsibility of the teacher and student to risk assess any practical activity they complete!**
* **Sept 2023**