**YEAR 11 PHYSICS UNIT 2 – AOS 3: PRACTICAL INVESTIGATION**

**PLANNING PROFORMA**

**Instructions**

* Record your plan in this proforma and submit it to your teacher.
* Delete and replace the text in the white boxes. The boxes will resize automatically.

**Name**

Thomas Clemow

**Title**

Effect of mass of stationary glider on velocity

**Background Theory**

Sticky collision is a in regard to a transfer of motion when after the collision the two objects remain in contact with each other and travel at the same relative velocity, the velocity is found by:

Where v is the final velocity, u is the initial velocity.

M is the mass of the moving glider

**Research Question**

Does the mass of a hit object affect is final velocity during of sticky collision?

**Variables**

|  |  |
| --- | --- |
| **IV (include units and expected range)** | **Mass of hit (stationary) glider, grams (g), 5g -> 500g** |
| **DV (include units and expected range)** | **Velocity of hit gliders, meters per second (m/s2)** |
| **CV list** | **Mass of colliding (moving) glider, Velocity of colliding glider,** |

**Hypothesis**

As the mass of the hit (stationary glider increases) the velocity because of the collision between the two gliders would be lower as force transferred from the incoming glider remains the same whilst the mass of the stationary glider increases. Newton’s second law of motion (F = m\*a) would show that as a result the acceleration of the glider would be lower resulting in a lower speed.

**Materials**

* Air track
* Labeled weights
* Gliders x2
* Speed gate
* Paper for recording