**Year 12 Physics Investigation**

**Circular Motion**

**Your Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date: \_\_\_\_\_\_\_\_\_\_\_\_**

# Aim:

# Hypotheses:

# Variables:

Part A:

|  |  |
| --- | --- |
| Independent |  |
| Dependent |  |
| Controlled |  |

Part B:

|  |  |
| --- | --- |
| Independent |  |
| Dependent |  |
| Controlled |  |

# Method:

Part A:

# Part B:

# 

# Diagram:

# Results: (Paste tables and complete calculations here)

**Paste prepared graphs here:**

# Graph: Part A: mac against velocity squared

**Graph: Part B: velocity squared vs 1/r**

# 

**Conclusion:** Summarise the findings of this experiment   
  
  
  
  
  
  
  
  
  
  
**Evaluation:** Comment on the accuracy, precision and design of the experiment.

# Evaluation: Critically analyse the design of this experiment including any modifications you may suggest.

**Questions:** Use the space below and the following page to answer these questions:

1. Calculate the slope of the graph of W against velocity squared
2. What does this slope represent?
3. Compare it to the value obtained using the mass of the stopper and the radius of revolution.
4. Does the fact that the string holding the stopper is not exactly horizontal affect the relation between the weight force and the centripetal force? Explain including appropriate equations.
5. Describe the relationship between velocity and radius that was investigated in Part B.
6. In some shopping centres there is a device which collects coins for charity using a funnel-like device. As the coin is inserted it into the funnel near the outer rim so that it rolls. As it does so it falls and begins to move in an inward spiral. What would happen to its velocity and the time for each “orbit” as it progresses? Explain using what you learnt in this investigation.