

Name: \_\_\_\_\_

Number: \_\_\_\_\_

Date: \_\_\_/\_\_\_/\_\_\_

## **Unit 6: Newtonian Mechanics –Circular and Rotational Motion**

### **LAB: Angular Momentum**

Learning Objective 3.F.3.3: The student is able to **plan data collection and analysis strategies** designed to test the relationship between torques exerted on an object and the change in angular momentum of that object.

Learning Objective 4.D.1.2: The student is able to **plan data collection strategies** designed to establish that torque, angular velocity, angular acceleration, and angular momentum can be predicted accurately when the variables are treated as being clockwise or counterclockwise with respect to a well-defined axis of rotation, and refine the research question based on the examination of data.

Learning Objective 4.D.2.2: The student is able to **plan a data collection and analysis strategy** to determine the change in angular momentum of a system and relate it to interactions with other objects and systems.

Learning Objective 4.D.3.2: The student is able to **plan a data collection strategy** designed to test the relationship between the change in angular momentum of a system and the product of the average torque applied to the system and the time interval during which the torque is exerted.

What is your hypothesis?

In short, you need to create an angular impulse and measure its effect on angular velocity, angular acceleration, and angular momentum. Be sure test whether angular impulse equals change in angular momentum.

Equipment:

- Available options: pulleys, masses, string, tape, meterstick, video recording equipment

Safety: Take care that masses do not fall on people, the floor, or equipment.