Lab 3: May the Force be with you

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Name: _____

Date: _____

Group Members: _____

_____

Objectives

- Understand and define force
- Calculate an object's force
- State and apply Newton's First and Second Law of Motion

A. Pre-lab Questions

1. What is force? Give three examples of a force being exerted.

A force is a push or pull upon an object resulting from the object's interaction with another object.

Examples: pushing a desk across the room, gravity, pulling a door open

2. What is the difference between an unbalanced and balanced force?

A balanced force does not cause an object to move. An unbalanced force will cause an object to move.

3. Write Newton's First Law of Motion.

An object at rest tends to stay at rest, and an object in motion tends to stay in motion with the same speed and in the same direction unless acted upon by an unbalanced force.

4. Write Newton's Second Law of Motion

The acceleration of an object as produced by a net force is directly proportional to the magnitude of the net force, in the same direction as the net force, and inversely proportional to the mass of the object.

B. Group Lab
In the last lab you watched two movie clips to determine an object's acceleration. You will use that data in this lab and apply it to Newton's First and Second Law.

Newton's First Law of Motion

Looking at your data from the last class, write down the forces exerted on the object.

How did these forces affect the object's acceleration?

Newton's Second Law of Motion

Calculate the force exerted at each acceleration using 2500 kg as your mass.

Gone in 60 seconds

Time (seconds)	Acceleration (m/s/s)	Force (N)

Fast and the Furious

Time (seconds)	Acceleration (m/s/s)	Force (N)

C. Analyze the Results

In a paragraph explain your results.