

Name: _____ Period: _____ Due Date: _____ E.N. ____

Force and Acceleration Lab

Prelab

1. What does it take to cause an object to begin moving from a state of rest?
2. Draw a diagram of the forces acting on the book(s).

Goals:

- Observe how changing the net force on an object affects its acceleration.
- Interpret data collection for several trials.

Procedure:

- a. tie string around the book and attach the newton spring scale .
- b. Use Table to record data
- c. Use a large scale to find the mass of the Physical Science book.
- d. Place the book in the floor of table top and hook the spring scale to the book.
- e. Pull the book across the floor at a slow but constant velocity. While pulling, read the force measured by the spring scale and record.
- f. Repeat procedure and try to accelerate or speed up slowly.
- g. Repeat procedure and try to accelerate quickly.
- h. Repeat the above steps with two books.

Data:

Physical Science book mass = _____ kg

	Trial	Force (N)	Mass (kg)	Observations about the Force: constant, increases, decreases...
One book	1			
	2			
	3			
Two books	1			
	2			
	3			

Lab questions:

1. What did you have to do to the book to get it to move?
2. How much net force is required to keep the book moving at a constant velocity?

3. Why is there no net force when the book is going at a constant velocity?

4. Draw and explain force diagrams for constant velocity

5. Organize the pulling forces from greatest to least for each set of trials. What is the relationship between the net force and the acceleration of the book?

6. What happens to the applied force as the books are accelerating? What about the net force?
Draw diagrams

7. What could the book be doing if the net Force is zero?