NAME _____ DATE _____

Scenario

Consider a spring and a rubber band. Both have elastic properties, which means that as their lengths increase, they exert increasing amounts of force. Let "stretch length" represent the difference between the spring or rubber band's length while it exerts force and its length while it exerts no force.

Carlos suggests that both the spring and rubber band exert a force that is directly proportional to their stretch length.

Experimental Design

PART A: Describe a procedure that Carlos could perform to make measurements that would allow him to show evidence for his claim. Assume that Carlos has access to a spring, a rubber band, and equipment typically found in a school physics laboratory. Describe the measurements to be made and with what equipment. Include enough detail that another student could follow the procedure. Draw a diagram of the experimental setup.

What Needs to Be Measured and Algebraic Symbols Stretch length (ΔL) Applied force (F)	Procedure:
Labeled Diagram of the Setup	

Analyze Data

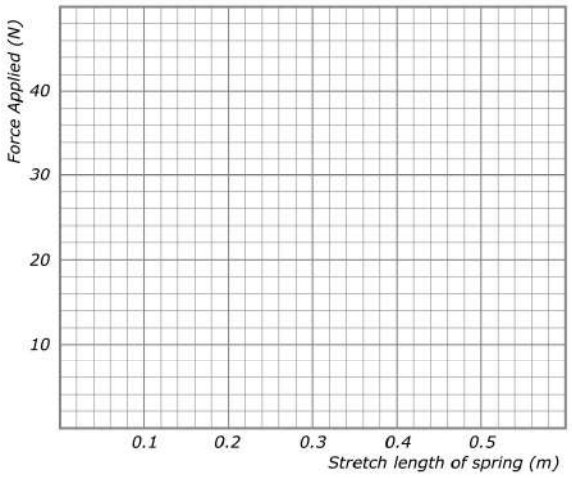
PART B: How would the measurements be analyzed in order to test Carlos's claim about the behavior of a spring and a rubber band?

PART C: Carlos collects the measurements shown below. Graph the data on the axis below.

Force Applied [N]	10	20	30	40	50
Stretch Length of Spring [m]	0.11	0.20	0.29	0.40	0.51
Stretch Length of Rubber Band [m]	0.10	0.14	0.17	0.20	0.22

Argumentation

PART D: Does the graph show evidence that supports Carlos's claim? Be sure to address both the spring's behavior and the rubber band's behavior.



Checklist:

_____ I answered the question directly.

_____ I stated a law of physics that is always true.

_____ I connected the law or laws of physics to the specific circumstances of the situation.

_____ I compared the situations (stated what was the same in both cases)

_____ I contrasted the situations (stated what was different in both cases.)

_____ I used physics vocabulary (force, mass, stretch).