NAME _____ DATE _____

Scenario

Blake, Carlos, and Dominique are given an ideal spring that can expand or be compressed and access to other equipment commonly available in a school physics laboratory.

Experimental Design

The spring constant has already been found by an experiment the students performed earlier. Now the students need to put together an experiment to demonstrate the conservation of mechanical energy. They need to show that when all the mechanical energy of a system is initially in the form of elastic potential energy, all this energy is transformed into another form of mechanical energy. The students are given a cart with bearings of negligible friction, a track that exerts negligible friction, and a wooden block and have access to other commonly available equipment.

PART A: Draw a diagram of an experimental setup that could be used to show conservation of mechanical energy and give a list of equipment to be used. Outline a procedure whereby the student could make measurements to show the conservation of mechanical energy. Specifically explain how the procedure includes methods of reducing experimental error.

What Needs to Be Measured and Algebraic Symbols	Procedure:

Labeled Diagram of the Setup	Procedure:

Data Analysis

PART B: Explain how the measurements taken can be used to determine whether mechanical energy was conserved. Be sure to state specific types of energy and the systems to which those types of energy belong.

PART C: If the spring constant turns out to be larger than they initially measured it to be, how would that affect their results from the conservation of energy experiment?