NAME _____ DATE _____

Scenario

Dominique reads that race cars have wide tires because the increased area of contact between the tire and the road results in a stronger force of friction. She hypothesizes that the force of kinetic friction on an object is directly proportional to the area of the object in contact with the surface and wants to test this hypothesis.

Dominique and Blake take a long wooden plank and cut the plank into pieces that have different lengths but the same width and height. The students also have access to other equipment commonly available in a school physics laboratory.

Experimental Design

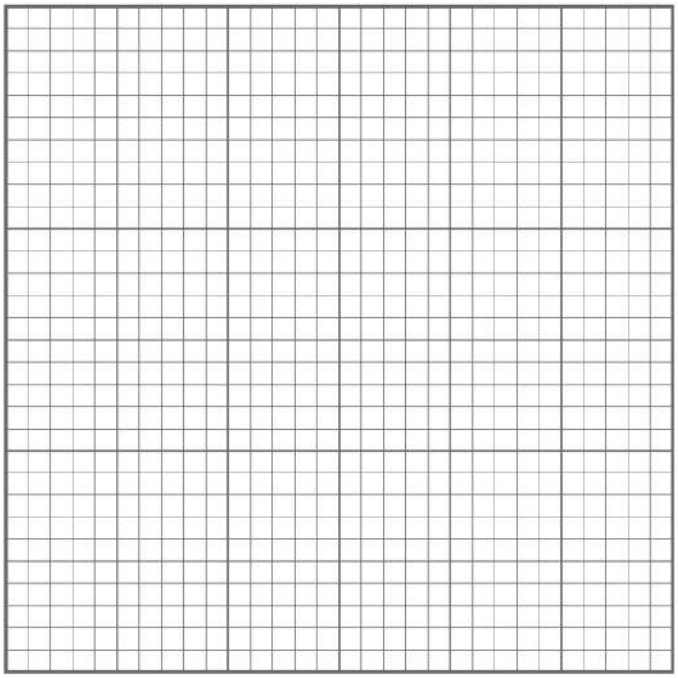
PART A: Explain how Dominique and Blake could determine the force of kinetic friction exerted on one of the wooden pieces.

What Needs to Be Measured and Algebraic Symbols	Procedure:
Labeled Diagram of the Setup	

Block	*A*	*B*	*C*	*D*	*E*
Area [m^2]	0.0025	0.0050	0.0075	0.0100	0.0125
Volume [m^3]	0.00005	0.00010	0.00015	0.00020	0.00025
Kinetic Friction Force [N]	0.11	0.19	0.31	0.39	0.50

Analyze Data

PART B: On the grid, plot a graph of the data that could be used to test Dominique's SPECIFIC hypothesis. Label both axes with quantities, units, and an appropriate scale. Draw a best-fit line to the data.



PART C: Does the graph itself support Dominique's hypothesis? Why or why not?

Argumentation

PART D: There was a flaw in the procedure that renders the conclusion invalid. Briefly explain what this flaw was.