FLINN SCIENTIFIC

Name_____

Friction Blocks Worksheet

Data Table A

Object	Tested Block Surface	Tested Surface	Static Frictional Force (N)	Sliding Frictional Force (N)
Wood Block, without mirror	Flat	Tabletop		
Wood Block, without mirror	Edge	Tabletop		

Data Table B

Object	Tested Block Surface	Tested Surface	Static Frictional Force (N)	Sliding Frictional Force (N)
Wood Block, with mirror	Wood side	Tabletop		
Wood Block, with mirror	Mirror side	Tabletop		
Wood Block, with mirror	Wood side	Sandpaper		
Wood Block, with mirror	Mirror side	Sandpaper		

Data Table C

Weight added to Wood Block	Static Frictional Force (N)	Sliding Frictional Force (N)
0 Newtons (initial)		

Data Table D

Position of Mirror/ Sandpaper Piece	Prediction	Observation
Mirror-Side-Down, Wood Block in Contact with Sandpaper		Static Frictional Force (N):
Mirror-Side-Up, Wood Block in Contact with Mirror		Static Frictional Force (N):

Friction Blocks Worksheet (Cont.)

Analysis

Part A: Frictional forces versus surface area

1. Does it take more force to start an object sliding over a surface or to keep it sliding at a constant speed?

2. How do the frictional forces between the two different experiments compare? What influence does the surface area have on the frictional force? Why?

Part B: Frictional forces versus different surfaces

3. Which surfaces in contact with each other produced the largest frictional force?

4. What influences the frictional force between the sliding objects?

Part C: Frictional forces versus Normal force

5. On a separate sheet of graph paper, draw a graph of static frictional force versus Normal force, using the information in Data Table C. Draw a "best fit" line through the data points.
6. Does the data produce a straight "best fit" line? If yes, what does the slope of the line represent?

Friction Blocks Worksheet (Cont.)

7. On the same sheet of graph paper, draw a graph of the sliding frictional force versus Normal force, using the information in Data Table C. Draw a second "best fit" line through this data. Use a different color pen or pencil to distinguish between the two sets of data.
8. Does this data produce a straight "best fit" line? If yes, what does the slope of this line represent?

9. Determine the coefficients of static friction and sliding friction between the wood block and the tabletop from the corresponding graphs. Refer to Equation 1.

Part D:-Additional frictional force experiments and predictions

10. For the first experiment, what is the static frictional force between the mirror and the tabletop? What is the static frictional force between the sandpaper and the wood block? Are these two values the same? Why or why not?

11. What is the static frictional force between the mirror and the wood block? How does this value compare to the maximum value of static friction between the sandpaper and the tabletop?