Friction Lab

Name _____

To determine how friction can change in various settings.

Materials

Spring Scale	Waxpaper
Bricks (2)	Straws

Procedure

1. Using the formula (L x W), calculate the area for each brick position. Record in the data table.

2. Place the cord and spring scale around the brick as shown in the drawings above.

3. Practice sliding the brick approximately one meter. Get a feel for reading the force needed to keep the brick in motion.

4. Position the brick as in drawing A. Pull the brick across the lab table. Record the force in the data table.

5. Position the brick as in drawing B. Pull the brick across the lab table. Record the force in the data table.

6. Position the brick as in drawing C. Pull the brick across the lab table. Record the force in the data table.

7. Repeat steps #4, 5, 6 adding a few straws underneath the brick that act as "wheels". Record the amount of force needed to pull the brick across the lab table.

8. Repeat steps #4, 5, 6 adding a small piece of wax paper underneath the brick. The wax paper will act as a lubricant. Record the amount of force needed to pull the brick across the lab table.

9. Finally, go back to step 4. Place another brick on top of your brick. Pull the brick across the table, with wheels, and with lubrication. Record the force in the data table.

Data Table

		Sliding Friction	Rolling Friction	Sliding with Lubrication
	Area of Sliding Surface	Force To Pull	Force To Pull	Force To Pull
Diagram A ….Flat Brick				
Diagram B ….Brick on Side				
Diagram C ….Brick on end				
2 Brick Flat				

Questions

1. Describe how much force was needed to move the brick as the position changed….going from position A to position B to position C

2. Compare the force needed to pull one flat brick and two flat bricks. Explain why it is different.

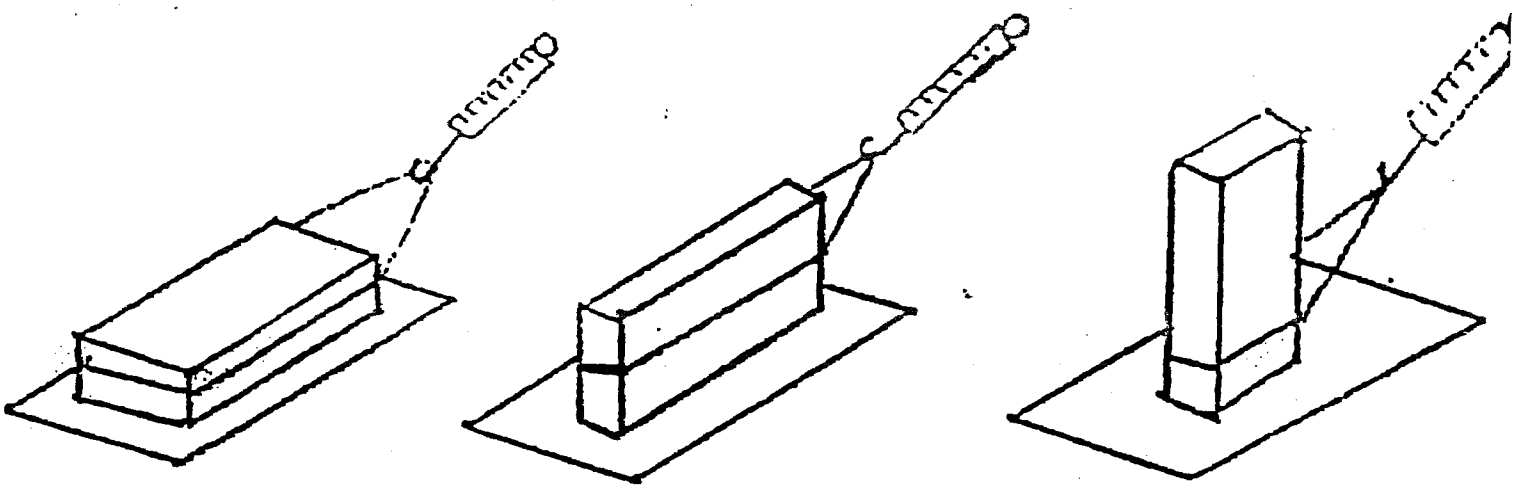
3. Compare the force needed to pull the brick when sliding, rolling and sliding with lubrication.
   a. When is the force greatest? _____
   b. When is the force least? _____

4. Why is oil used in a car engine?

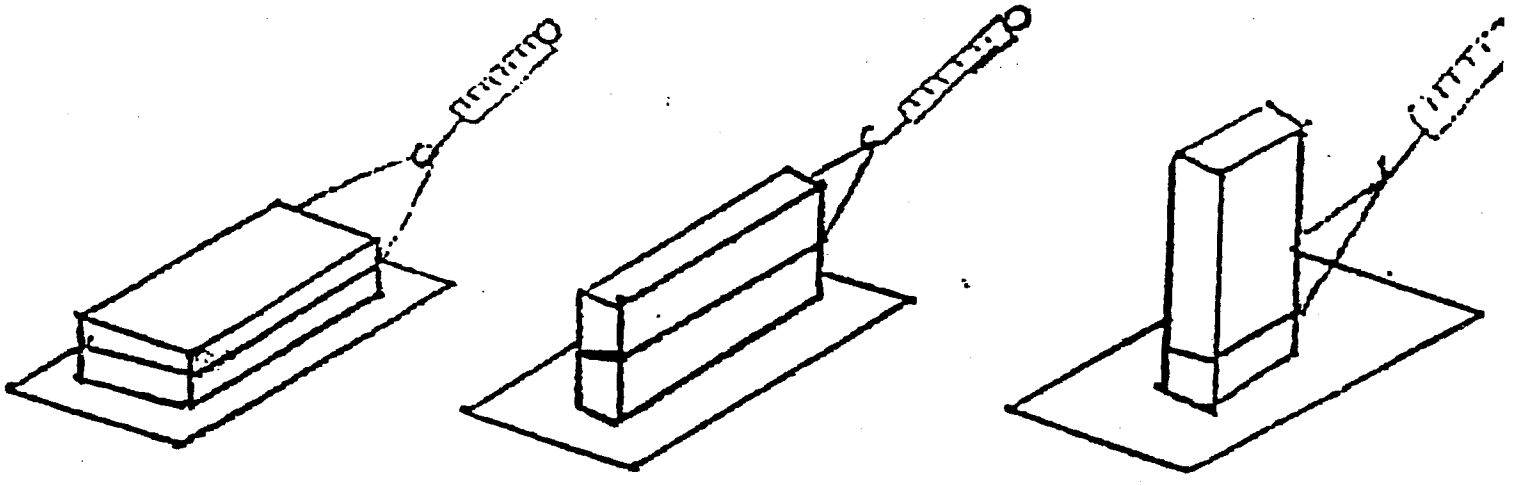
5. Why shouldn't you oil the brake pads on your bike?

6. In general, if an object is placed on "wheels", the force needed to pull the brick will be (greater / lesser).

   In general, if an object is "oiled", the force needed to pull the brick will be (greater / lesser).



A B C



A B C