

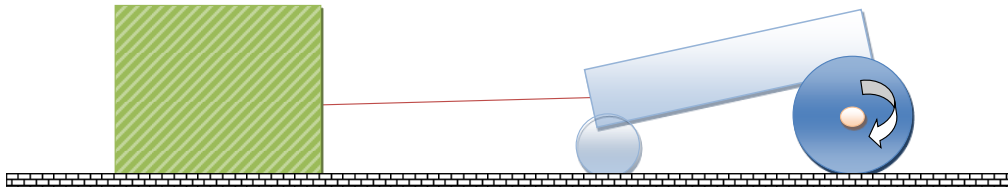
How to Pull Something Heavy Worksheet

Objective: Determine all the forces acting on the moving object.

Do now:

1. What is the connection between the weight of the object and the force of friction?
Give an example or describe it using appropriate concepts and formulas.

2. Draw a diagram showing all the forces acting on the car and the block.



Lab instructions:

1. Measure the mass of the vehicle using weight scales.
2. Determine the weight of the vehicle.
3. Determine the normal force that acts on the vehicle that rests on the solid surface.
4. Determine the coefficient of kinetic friction for the solid surface.
5. Calculate the force of friction on the moving vehicle.
6. Using a Newton spring scale, measure the pulling force of the moving car on a given surface.
7. Calculate the force generated by the motor.

(Fill in the table on the next page.)

Name: _____ Date: _____

Data collection: Show all work (that is, derivations, equations, reasoning).

	Show Calculations Below	Final Value	Units
1 mass of the car			
2 weight of the car			
3 normal force			
4 coefficient of kinetic friction for the surface			
5 force of friction on the moving car			
6 pulling force of the moving car			
7 force generated by the motor of the car			

Analyze: Would the pulling force of the LEGO car be enough to pull over a wooden block that weighs 2 Newtons? Assume that the block rests on the same surface as the car.