# Force analysis of a moving vehicle

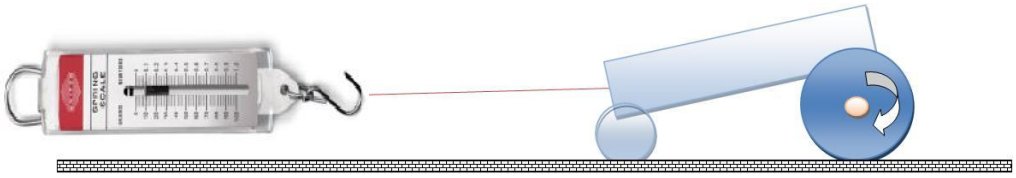
Name: _____

**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 static friction? Explain scientifically, i.e., give example and show it with a formulas that describe the example

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



**Lab Instructions:**

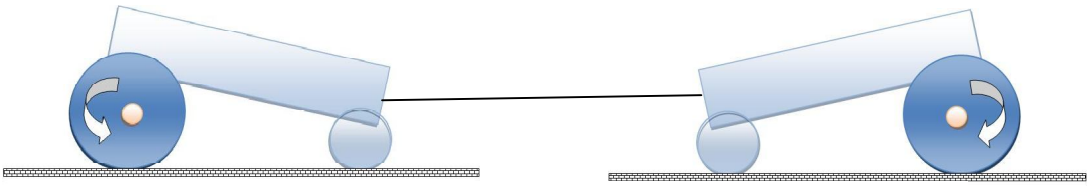
1. Measure the Mass of the vehicle using weight scales
2. Determine the Weight of the vehicle
3. Determine the Normal Force that acts on the vehicle that rests on the solid surface
4. Determine the coefficient of kinetic friction for the solid surface.
5. Calculate the Force of Friction on the moving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

**Data Collection:** Show all work, i.e. derivations, eqution, reasoning.

| | Show calculations here | Final value | Units |
|---|---|---|---|
| Mass of the car | | | |
| Weight of the car | | | |
| Normal Force | | | |
| Coefficient of kinetic friction for the surface | | | |
| Force of Friction on the moving car | | | |
| Pulling Force of the moving car | | | |
| Force generated by the motor of the car | | | |

**Post Quiz:**

1. Based on diagram below, car A weights 50kg and car B has 55 kg mass. Assume that both vehicles move on the same type of surface. Who will win the tag of war game?



Car A Car B

2. Draw a diagram showing all the forces acting on the cars tugging each other in opposite directions.