Torque

Torque is a motion that wants to twist something as opposed to pushing or pulling it. LEGO robots are subject to a variety of torques, from motors turning wheels to how the robot balances.

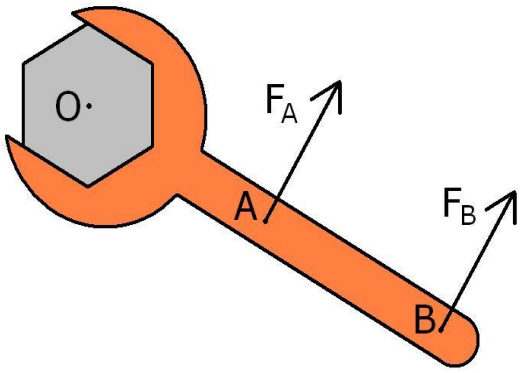

Illustration 2: Wikimedia Commons

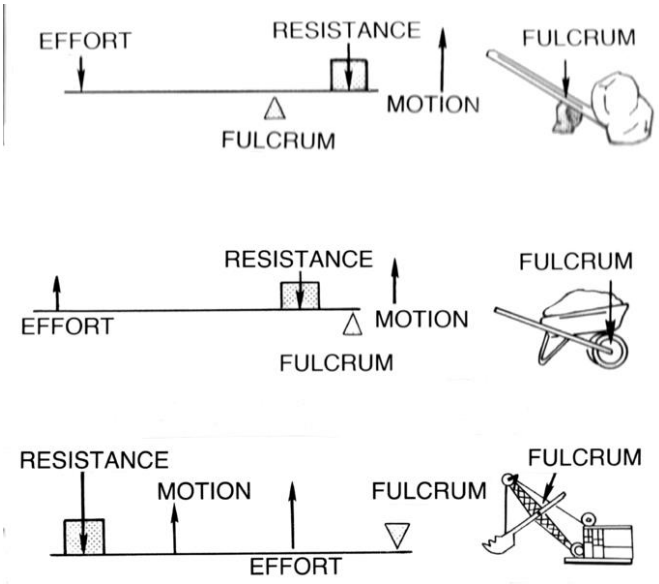

Illustration 1: Wikimedia Commons

Procedure:

1. Build the LEGO machine from Technic LEGOS using the instructions provided.
2. Follow the data chart to set up the number of nickels on one side along with putting the baskets in the correct place on the beam.
3. Add nickels to the empty basket until the beam balances.
4. Record the number of nickels it took to balance the beam.
5. Add two nickels to the weight to account for the weight of the basket.
6. Repeat this procedure for each row of the data chart.
7. Use the blank rows to try your own set up.
8. Use the recorded data to perform the calculations and determine the torque produced in balancing the beam.

Assemble the machine as listed below on one side and see how many nickels it takes to balance the torque it produces. Count the holes from where the beam pivots (where the axles sits). For weight, remember to add 2 nickels worth of weight to account for the basket.

Distance (holes)	Weight (nickels)	Weight with the basket (+2 nickels)	Torque (holes X nickels)	Distance (holes)	Weight (nickels +2)	Torque (holes X nickels)
15	3			9		
12	3			9		
12	4			6		
5	12			15		
8	6			12		