NaRiKa

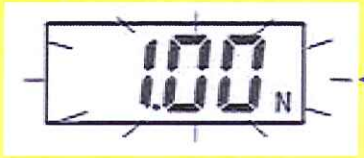
# NEWTON METER

## GN-1

A05-4065-W0

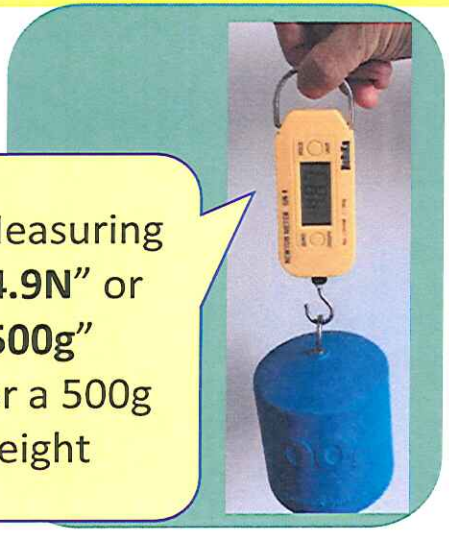

## *Measuring force became so quick & precise!*

- **Digital display** meter instead of traditional spring balance scales
  - ✓ Two modes ➔ Newton (N) / Weight (g)
  - ✓ Measurement range ➔ +- 19.99N / +- 1,999g
  - ✓ Resolution ➔ 0.01N / 1g
- Zero point adjustment function
- Hold function to obtain measured value at each moment
- Measuring both forces used in Pulling and Pushing





Remove the hook to measure pushing force



Measuring "**4.9N**" or "**500g**" for a 500g weight

Use multiple meters for the experiment of addition & resolution of force with hold function at ease

# Addition and Resolution of Forces

## *Resolving Forces into Components using "NEWTON METER"*

**Experiments in textbook are easy to conduct by students' group instead of using traditional spring balance scales!**

- **Measured value shown on digital display up to 20N**
  - Covering the measurement range for 4 - 5 types of spring balances in one product
- **Hold function for measured value**
  - Reading measured values more promptly and precisely in comparison with traditional spring balance

### Experiment 4a Addition of forces

1 Set up the apparatus as shown (Fig a). The rubber band is fixed to point

2 Pull the rubber band to the centre of the protractor $O$ using the spring balances. Record the readings of the spring balances. Also record the angles $a$ and $b$.

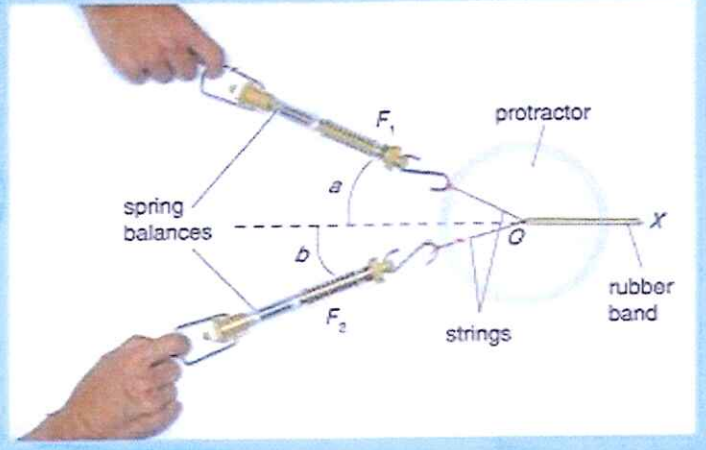


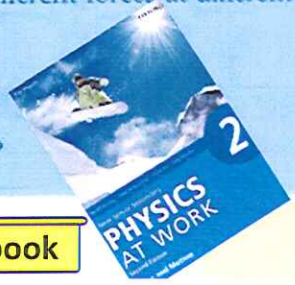

Fig a

3 Find the resultant of $F_1$ and $F_2$ using algebraic or graphical method.

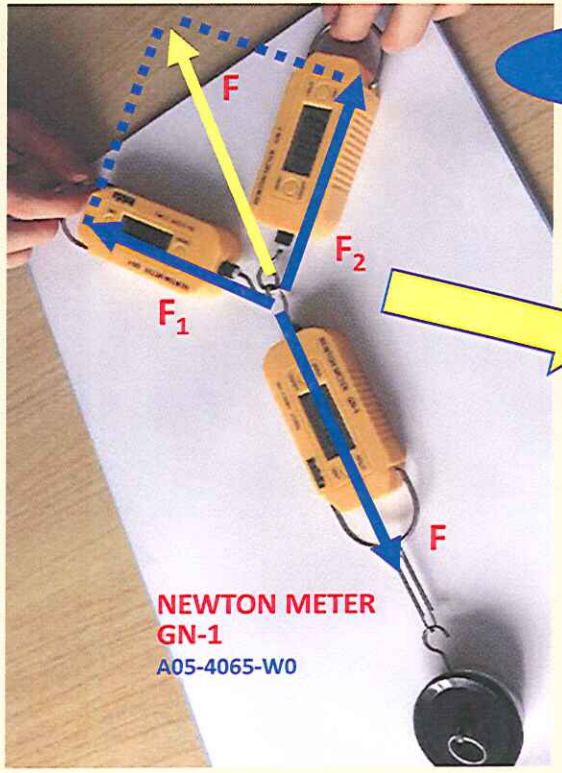
4 Repeat by pulling the rubber band to $O$ using different forces at different angles.

**Discussion**

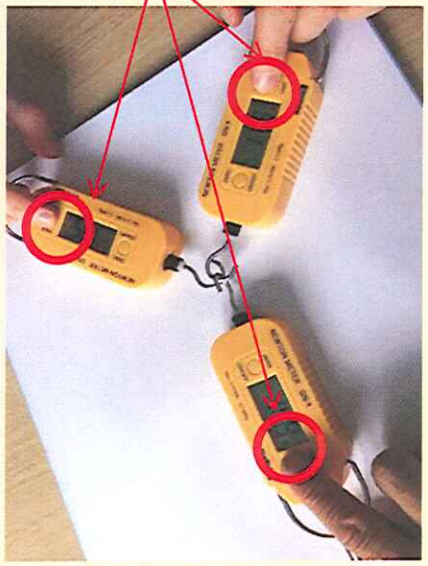
Is the resultant of $F_1$ and $F_2$ the same in every trial?




Science Textbook



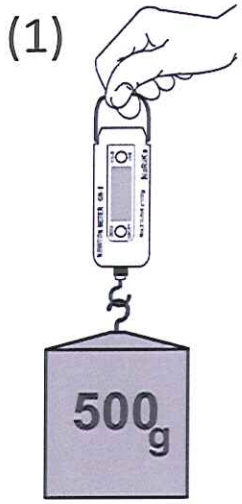

**Read each value using hold function**



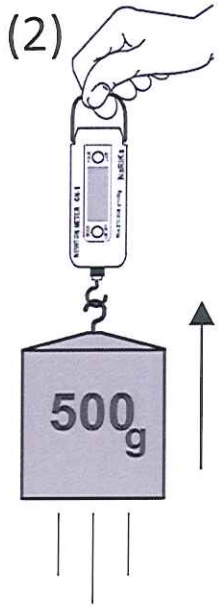
# Solve a Question with
# NEWTON METER GN-1 A05-4065-W0


## *Question:*

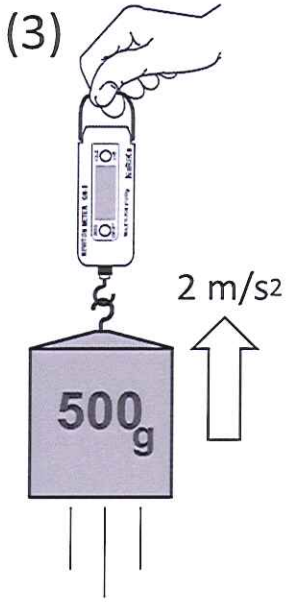
1. Move a mass of 500g (0.5kg) as shown below (1) – (4).
2. Compare (calculate) the applied **force** to hang the mass on the basis that "Gravitational Acceleration (g) = 10m/s$^2$".



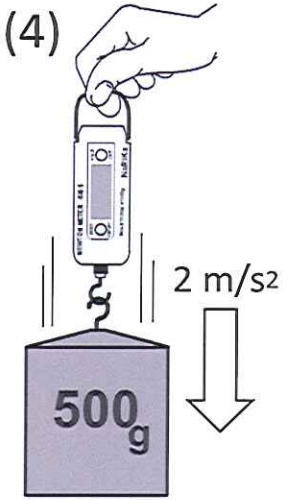

**Rest state**
**(No movement)**




**Lifting the mass**
**at a constant speed**




**Lifting the mass**
**at a constant acceleration**




**Lower the mass**
**at a constant acceleration**

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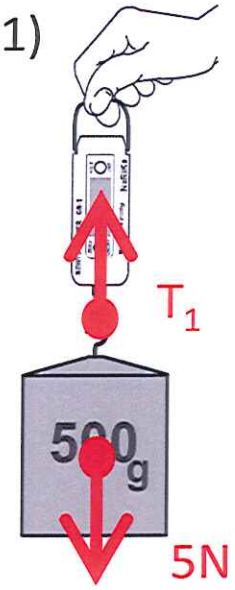
# Solve a Question with
# NEWTON METER GN-1 A05-4065-W0


**Answer:**
**(4) < (1) = (2) < (3)**

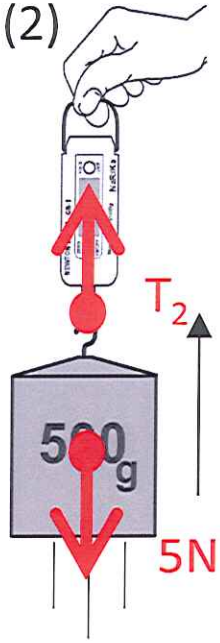
(1)




**Rest state**
**(No movement)**

ma
= 0.5Kg x 10m/s²
= $T_1 = T_2$
= 5N

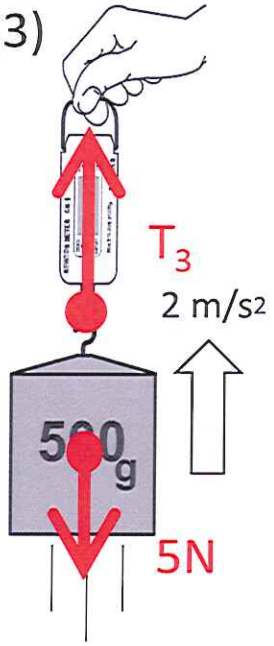
(2)




**Lifting the mass**
**at a constant speed**

ma
= 0.5Kg x 10m/s²
= $T_1 = T_2$
= 5N

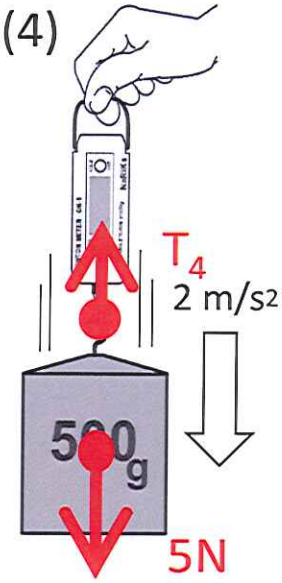
(3)




**Lifting the mass**
**at a constant acceleration**

ma
= 0.5Kg x 2m/s²
= 1N
= $T_3$ -5N
$[T_3 = 6N]$

(4)




**Lower the mass**
**at a constant acceleration**

ma
= 0.5Kg x 2m/s²
= 1N
= 5N - $T_4$
$[T_4 = 4N]$

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