CLIL Project – Physics in English Anno scolastico 2013-2014

Newton's Laws
Force and Motion
Lecture 1

Classe 3^a A Linguistico Istituto Superiore "Marini-Gioia" - AMALFI

<u>Objective</u> - To translate English words and phrases into mathematical symbols and expressions.

- plus, add, increased by, sum, total more than, added to
- minus, subtract, decreased by, diminished by, difference, less less than, subtracted from
- times, multiply, product, ... of ..., twice (x2)
- divided, quotient

CALCULATIONS:

3+x	"3 plus x"
3+x	"add 3 and x"
3+x	"the sum of 3 and x"
3+x	"3 increased by x"

x+3 x+3 "3 more than x"

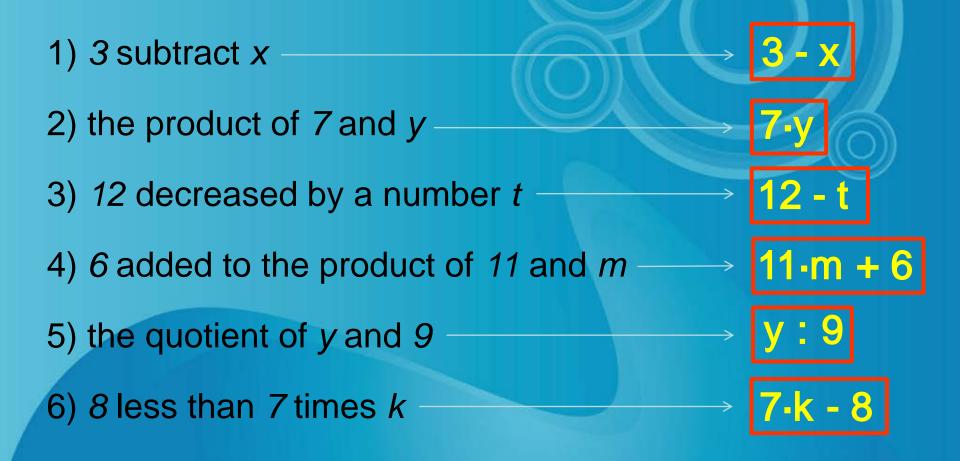
"3 added to x"

CALCULATIONS:

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3-x "3 minus x"
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x-3 "3 less than x"
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Translate each phrase into a mathematical expression



A special word in each column does not refer to the operation itself but to the outcome of the operation.

- plus, add, increased by, sum total more than, added to
- minus, subtract, decreased by, diminished by, difference, less less than, subtracted from
- times, multiply, product ... of ..., twice (x2)
- divide, quotient

Translate each phrase into a mathematical expression

4) the quotient of 7 and a number x less 2
$$\longrightarrow$$
 7 / (x - 2)

Match each phrase with its variable expression

- d. Twice the sum of x and 3
- e. Two less than the product of 3 and x
- b. Three times the difference of x and 2
- a. Twice a number x less 3
- c. Two more than 3 times a number x

$$c.3x + 2$$

$$d.2-(x + 3)$$

Define a variable to represent the unknown and write the phrase as a variable expression.

- 1) 10 Kmh faster than the Honda

 Let $x = the speed of the Honda \longrightarrow X + 10$
- 2) 7 centimeters shorter than Jill's brother Let $b = the \ height \ of \ Jill's \ brother$ \rightarrow b - 7
- 3) 5 square meters larger than twice the size of my lot Let k = the size of my lot 2k + 5
- 4) €7.50 times the number of people plus a €20 group registration

Let
$$y = the number of people \longrightarrow 7.5y + 20$$

Physical English terms

Vocabulary:

- the state or process of doing something or being active; operation, activity, <u>force</u>, or energy.
- Force: the push or pull upon an object resulting from the object's *interaction* with another object. Whenever there is an *interaction* between two objects, there is a force upon each of the objects. When the *interaction* ceases, the two objects no longer experience the force. Forces <u>only</u> exist as a result of an interaction.
- Net Force: The combination of all the forces that act on an object.
- Equilibrium: a state of rest or balance due to the equal action of opposing forces.
- Reaction: A reverse movement o tendency; an action in a reverse direction or manner

Physical English terms

Vocabulary:

- Static: the physical state in which all components of a system are at rest and the net force is equal to zero throughout the system
- Dynamics: changeable; active; in motion usually as the result of an external force.
- Inertia: the property of a body that resists any change to its uniform motion; equivalent to its mass.
- Physical Law: It is a theoretical principle deduced from particular facts, applicable to a defined group or class of phenomena, and expressible by the statement that a particular phenomenon always occurs if certain conditions be present.