

Didactical game „Physical size clock”

6th Grade

Physical sizes studied within the topic: density, size, volume

The characterization of a physical size according to the scheme:

1. Name
2. Symbol
3. Unit of measurement in I.S
4. Measurement instrument
5. Calculation formula

Define the characteristics of the physical size by arranging properly the clockwork!

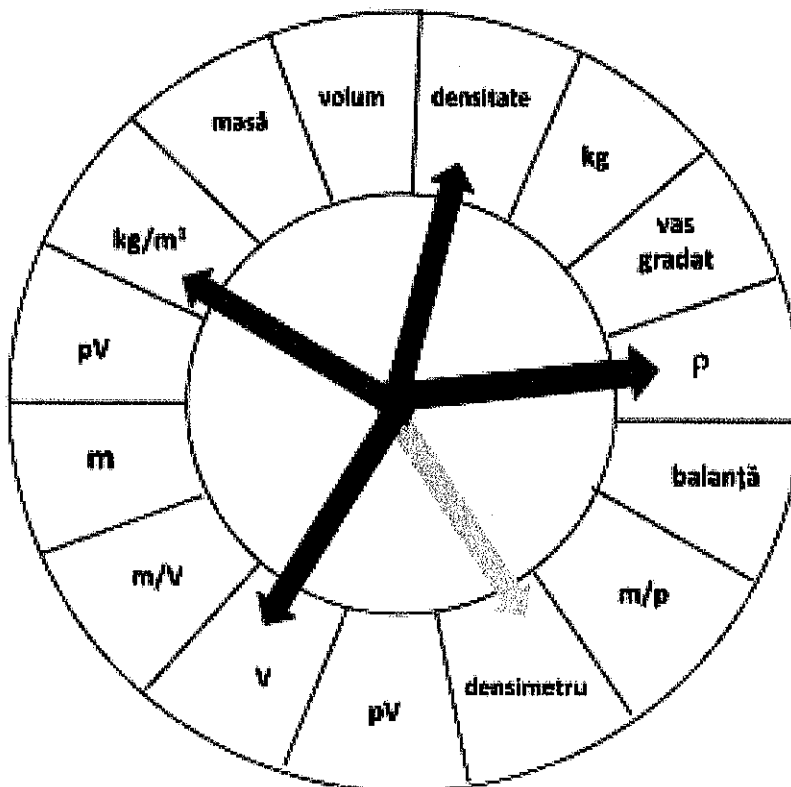


Fig 1. Physical size clock

Didactical game "The swamp of measurement units"

Physical sizes studied within the topic: pressure – 7th grade

Size – 6th grade

The game is dedicated to developing the skills of solving transformations of measurement units.

In order to cross the swamp successfully, you must step only on the solid places, that is to solve correctly the transformation; on the contrary you will be swallowed by this.

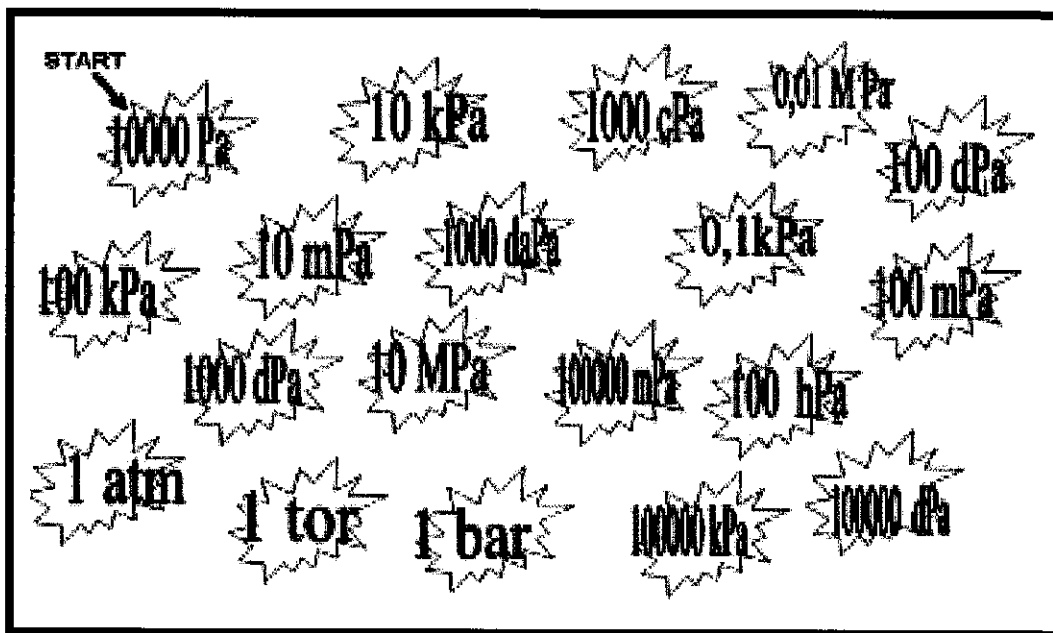
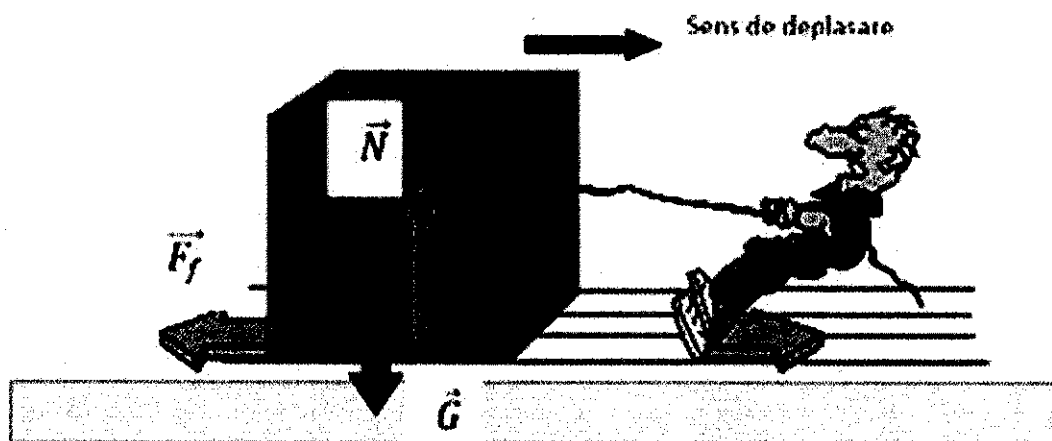


Fig. 2 The swamp of measurement units

Interactions/ Types of forces/ Measuring force by dynamometer

Types of forces: weight, friction force, normal force, traction force

(6th grade, 7th grade)



You have to move a body , on horizontal plane, on two surfaces which were differently polished.

Make the following measurements to complete the following table;

Mass (Kg)	Weight (N)	Friction force (N)
		$F_1 =$
		$F_2 =$

Compare the two traction forces and explain the difference!

Interaction / Simple mechanisms

(Qualitative description)

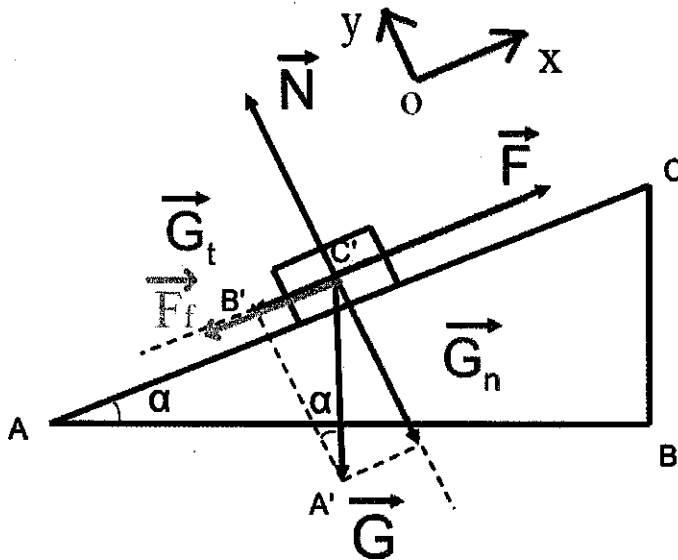
Types of forces: weight, friction force, normal force, traction force

(6th grade, 7th grade)

The decay of a force on two directions mutually perpendicular.

(7th grade)

Simple mechanisms : the inclined plane



$$(G_t = G \sin \alpha ; G_n = G \cos \alpha)$$

You have to lift the body m , from ground to the high h . Measure the body's weight and the necessary forces to lift it.

- Vertically (F_1)**
- On inclined plane (F_2)**

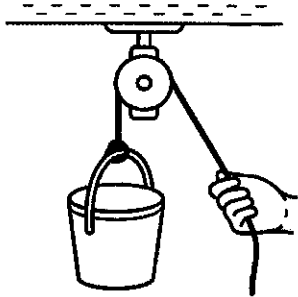
Compare the three forces!

$$G \quad F_1 \quad F_2$$

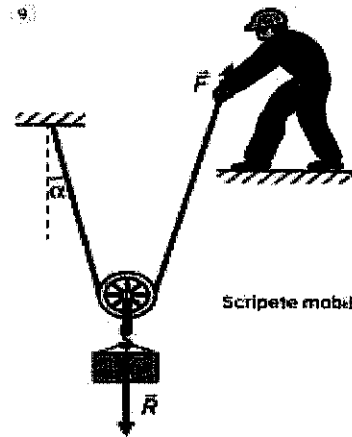
Interaction / Simple mechanisms

(Qualitative description)

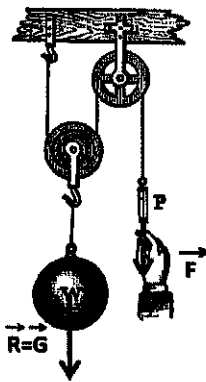
Simple mechanisms: the fixed pulley, mobile pulley and compound pulley (7th grade)



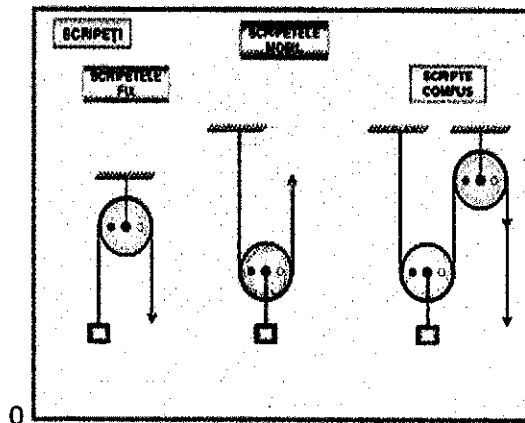
fixed pulley



mobile pulley



compound pulley



pulleys

Use the dynamometer:

- Pick up the body to an h high and mark the value of F_1 force
- Pick up the body with every type of pulley and mark the values of F_2, F_3, F_4

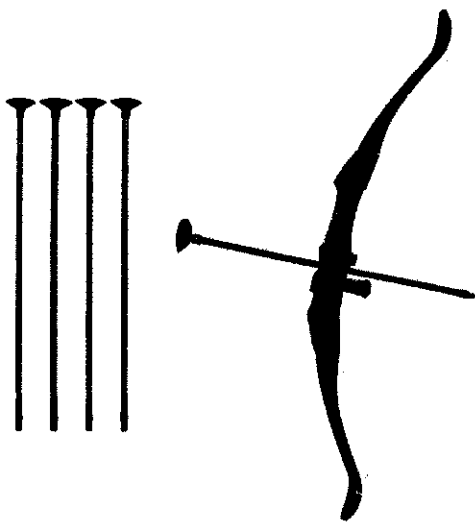
Compare the measured forces! F_1 F_2 F_3 F_4

Interactions/ Types of forces
(Qualitative description)

Types of forces: elastic force

The bow – (7th grade)

The slingshot – (6th grade / 7th grade)



The bow

The slingshot

Collect as many points on the targer with the help of the bow and your teammates!

Use a slingshot and take down as many elements from the pyramid!

Identify the force which helped you win , except your precision !