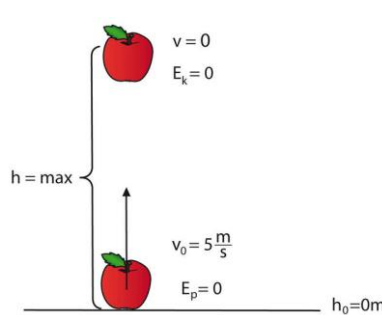


SCENARIO	
<b>Title</b>	The law of conservation of energy
<b>Summary</b>	Energy in an isolated system cannot arise or disappear automatically, at most it can be transformed into other forms of energy, but its total value must remain constant.
<b>Author/s</b>	Kristina Višnevskienė, Pavel Mechovicus <span style="float: right;">Date: 25/03/2020</span>

Didactic objectives	
To develop students' ability to understand the law of energy stability and apply it in practice	
Physics <input checked="" type="checkbox"/>	Mathematics <input checked="" type="checkbox"/> Information Technology <input checked="" type="checkbox"/> Robotics <input type="checkbox"/> Programming <input checked="" type="checkbox"/>
Education Level:	10-12 years <input type="checkbox"/> 12-14 years <input checked="" type="checkbox"/>

Problem Statement	
Know how kinetic and potential energies are calculated, calculate Full body energy. Know what parameters the kinetic and potential energy depends on.	

BOM (Bill Of Materials needed)	
Computer, program Scratch.	

Activity description	
The following steps are programmed using Scratch:	
1. Basic work scheme	
	
2. Total mechanical energy $E = E_k + E_p$ , $E_k$ - kinetic energy, $E_p$ - potential energy, $E$ - total energy.	
3. When $h_0=0$ , then $E_p=0$ , because $E_p=mgh$ , $E_{k0}=\max$	
<b>m- Body weight, h - height, g- acceleration of free fall <math>g = 9,8m/s^2</math>.</b>	

$$E_{k0} = \frac{mv^2}{2}, \text{ where } m\text{- body weight, } v\text{- speed.}$$

4. On the height  $h=\max$ ,  $E_p=\max$ ,  $E_k=0$ ,  $E_p = E_{k0}$
5. You can calculate the height at which the apple will rise.  $h = \frac{E_p}{mg}$ ,
6. By changing  $v_0$  i  $m$  changing  $E_{k0}$ , the height  $h$  is calculated each time.

### Resources

1. To analyze the obtained experimental results.
2. .Draw conclusions: what determines the law of conservation of energy?

### Students' Evaluation

The first level of achievement.

With the help of a teacher, he performs a study, measures mass and velocity, and calculates kinetic energy, potential energy, total energy.

The second level of achievement.

Independently conducts research, concludes, and explains the results. It is able to express thoughts clearly in writing.

Third level of achievement.

Students are able to formulate an answer, properly use meaningful concepts (speed, altitude, kinetic energy, potential energy). Able to perform calculations well and lay out units.

### Bibliography

Handbook for 8 class

### Scalability

Mathematics: Understand and use tables and formulas.

Information technology: Scratch program.

### More information

This topic can be used to calculate mechanical energy, to determine the acceleration of free fall