

We are going to present a selection of simple physical experiments and explain them in terms of laws of physics. Most of the experiments are designed in a way allowing the student to repeat them at home. Calculations will be reduced to a strict minimum. However, we describe also phenomena that have much large scale (light years) or much smaller scale (nanometers).

Program:

1. Force and movement
 - 1.1 The basic concepts of mechanics
 - 1.2 Description and prediction of movement
 - 1.3 Matter and conservation rules
2. Vibrations and waves
 - 2.1 Periodic movement
 - 2.2 Resonators and waves
 - 2.3 Secrets of waves
3. Heat and molecules
 - 3.1 Temperature and molecules
 - 3.2 Engines
 - 3.3 Organisation of matter
4. Fields and currents
 - 4.1 Electricity
 - 4.2 Magnetism
 - 4.3 Electrons inside matter
5. Visible and invisible light
 - 5.1 Properties of light
 - 5.2 Emission and perception of light
 - 5.3 Optical instruments