

· Falling of a magnet in an aluminium tube;

Verification of the action-reaction law;

Uniform motion with Atwood machine (code 1437)

In order to realize the third experience of the uniform motion is necessary to have the product code 1437.

Equipment supplied



Newton's cradle

1113



It is composed of five steel balls of equal mass, lined up and in contact with each other. Raising the first ball and then releasing it, its energy are trasmitted to the last ball. This phenomenona doesn't happen if you place a disk of deforming material between the balls.



Gyroscope

It has a metallic wheel. If you turn this wheel, using a string, you can study angular momentum conservation. Applying a perpendicular force to a rotation axe, you can observe precession motion, in other words the gyroscopic effect.

1435



Two-dimension collision apparatus

1325

A steel ball rolls down a track to finally fall freely, leaving a trace on the fall plane thanks to a carbon-paper sheet.

It is possible to do calculations on energy conservation and on motion composition by changing the free fall height and by measuring the range.

With two balls, it is also possible to verify the conservation of the motion quantity and of the kinetic energy. The item is supplied with 3 steel balls. Dimensions: 400x100x20 mm.





Apparatus for the verification of the principle of mechanical energy conservation 1439

All the natural phenomena taking place in an isolated system are governed by a property that, until today, has had no exceptions: there is a magnitude whose value remains the same throughout the course of a phenomenon; this magnitude is named as energy.

Thanks to this kit, the student can study the concept of energy and go into the meaning of its conservation.

Topics

- Isolated systems
- What energy is?
- Principle of mechanical energy conservation
- Why mechanical energy is preserved?



PHYSICS - Inertia- Collisions - Two-dimension motion



An historical quest

A hunter wants to shoot a monkey hanging from a tree branch, hence he aims his blowpipe at the animal. As soon as the monkey sees the arrow, it loosens the grip to avoid being shot. The hunter, as the monkey jumps, thinks he missed the target; shortly thereafter, however, he can see with great surprise the arrow hit the free falling animal.

It is possible to demonstrate that the monkey would be hit in all cases, whatever the velocity V_0 at which the arrow moves, provided that its value is such as to allow the arrow to hit the animal before it reaches the ground.

At the very instant in which the projectile exits the cannon, the photocell positioned on the muzzle sends a signal, deactivating the electromagnet which holds the polystyrene ball used to simulate the monkey. If the condition mentioned above is satisfied, while falling, the polystyrene ball will be hit by the projectile in any case. The apparatus we offer you is particularly sturdy. Moreover, the anodised aluminum cannon can be rotated and is characterised by a thick high pressure bilaminates base. This apparatus was entirely realised in our factory, from the production of its components to mounting.





<image>

Precession motion

This equipment allows students to study the precession motion thanks to the laws of classical mechanics applied to rigid bodies using simple devices as the spinning top and the gyroscope.

Equipment supplied

1 Gyroscope 1 Fold 1 Giant Gyroscope 1 Laur 1 Spinning top

1 Folding ruler 1 Launching motor

By the giant gyroscope, you can also perform a quantitative test of the report that provides the value of the angular momentum precession as a function of mechanical momentum and angular momentum of rotation. The teaching guide as well as a theoretical explanation of the phenomenon, provides instructions for a correct execution of the experiences.



1432