



Function

Intended for experimental study, laboratory of natural sciences, physics, chemistry and biology to carry out experiments on: Matter and energy. The melting of ice, the change from a solid state of water to a liquid state. The general properties of matter. The specific properties of matter. Burning the candle produces light and heat. A simple machine called a fixed pulley. Force applied to a spring and the elongation suffered. The differentiation between force and pressure. The Magdeburg hemisphere experiment and atmospheric pressure. What is meant by Magdeburg hemispheres. Reducing internal pressure to the discs. Balancing the internal pressure of the discs with atmospheric pressure. The free surfaces of a liquid within communicating vessels. The thermoscope. The difference between thermoscope and thermometer. The difference between heat and temperature. The physical states of water. The solidification of water, obtaining colored ice. Boiling and condensation of water. The means of heat propagation. Kinematics. Reference, position, movement and trajectory. A simple machine called a movable pulley. Dynamics. Friction forces and Newton first law of motion. The helical spring and Hooke law. Association of helical springs in series. Determination of the elasticity constant of helical springs in series. Energy Conservation. Work and energy in a system of mass and oscillating helical spring, conservation of mechanical energy. . Static. The experimental determination of the mechanical advantage of the inclined plane. The balance of a piece of furniture on an inclined plane. Hydrostatic. Buoyancy, a vertical force, directed from bottom to top. Electricity. Electrical conductors and electrical insulators. Series, opposition and parallel connections between batteries. Associations of lamps in

series and parallel. Ohm law. Associations of resistors in series, parallel and mixed. The mesh laws and Kirchhoffs knot law. The potentiometer, a variable resistor. Measurements in mixed circuits, electrical power, direct current. The series RC circuit, direct current. Magnetism. Permanent magnets, temporary magnets and the electromagnet. Electromagnetism. The electrical voltage transformer. Wave. Main characteristics of waves in a spring. The propagation speed of a pulse in a spring. Mechanical waves. Remembering what a wave pulse is. The phenomenon of reflection and interference in a transverse wave in a spring and the standing wave. Chemical. Material properties. How to determine the density of a liquid using a pycnometer? Periodic table. The electronic distribution of chemical elements. The kinetic behavior of gases. Influence of temperature on the atomic and molecular movement of a gas. Separation of mixtures. How to separate heterogeneous mixtures through magnetic separation? How to separate homogeneous mixtures using paper chromatography? Chromatography. Adsorption is an interface phenomenon, surface phenomenon. Chemical bonds. How to relate the properties of substances through electrical conductivity? Chemical reactions. How does the double exchange reaction occur? Inorganic functions. How to identify the character of an acidic oxide? How do acids and bases behave in relation to different indicators? Organic chemistry. Construction of three-dimensional organic structures. Alcohol, water absorption. Biology. Are all circulatory systems the same? How to use the biological microscope? Genetics. Are we all the same? What is the probability? AND rule and OR rule in genetics. Genetic crosses, using a Punnett square. Vision defects, correction of hyperopia and myopia with lenses, with a laser flashlight, a beam, etc

Knowledge areas

Physics - Chemistry - Biology - Mathematics - Math & Science Fundamentals - Compact Kits

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