



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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