

Welcome to the world of

ScienceSet

Science Bus & VR Experience



Conducting the experiments is both easy and straightforward, thanks to the detailed manual included in each kit.

Thanks to the Science Bus, students delve into the intricate principles of **Acoustics**, exploring the propagation of mechanical waves in the air, navigate the realms of **Biology** and **Anatomy** and unravel the complexities of **Electricity** through the construction of circuits with series and parallel resistors. They scrutinize foundational principles in **Electromagnetism** and **Mechanics**, probing levers, pulleys, inclined planes and more, and closely examine the principles in **Optics**, **Thermodynamics**, **Chemistry** and **Alternative Energy**.

Welcome to the world of the ScienceSet

Recreate 125 experiments of:



Acoustics



Electromagnetism



Electricity



Biology



Optics



Mechanics



Electrodynamics



Thermodynamics



Experiences on
Vacuum



Alternative Energy



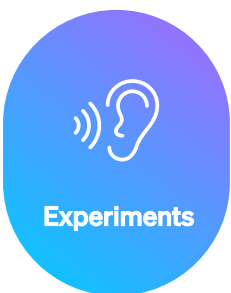
Chemistry

The experiments of

Acoustics

Students will analyze and closely observe the **fundamental principles of acoustics** by studying the **propagation of mechanical waves in the air** and **their impact on nearby objects**.

The kit includes **all essential instrumentation** and an **application manual** for conducting diverse experiments with the Science Bus, and to follow along with the **VR Experience Set**.



Wave Generator: The tuning fork
Propagation of sound waves
Frequency and intensity of sound
Phenomenon of acoustic resonance
The acoustic beat



Experiments

The magnet and its poles

Magnetic field tracking

Magnetization of a ferromagnetic object

Interaction of magnets with other materials

Magnetic field lines

Operation of a compass

Integration between magnet and compass

Magnetic field scope

Configuration of magnets in series and parallel

Properties of a fractured magnet

The electromagnet

Electrification by friction

Interaction between magnets and ferromagnetic materials

Positive and negative electrification

The electrostatic pendulum



The experiments of

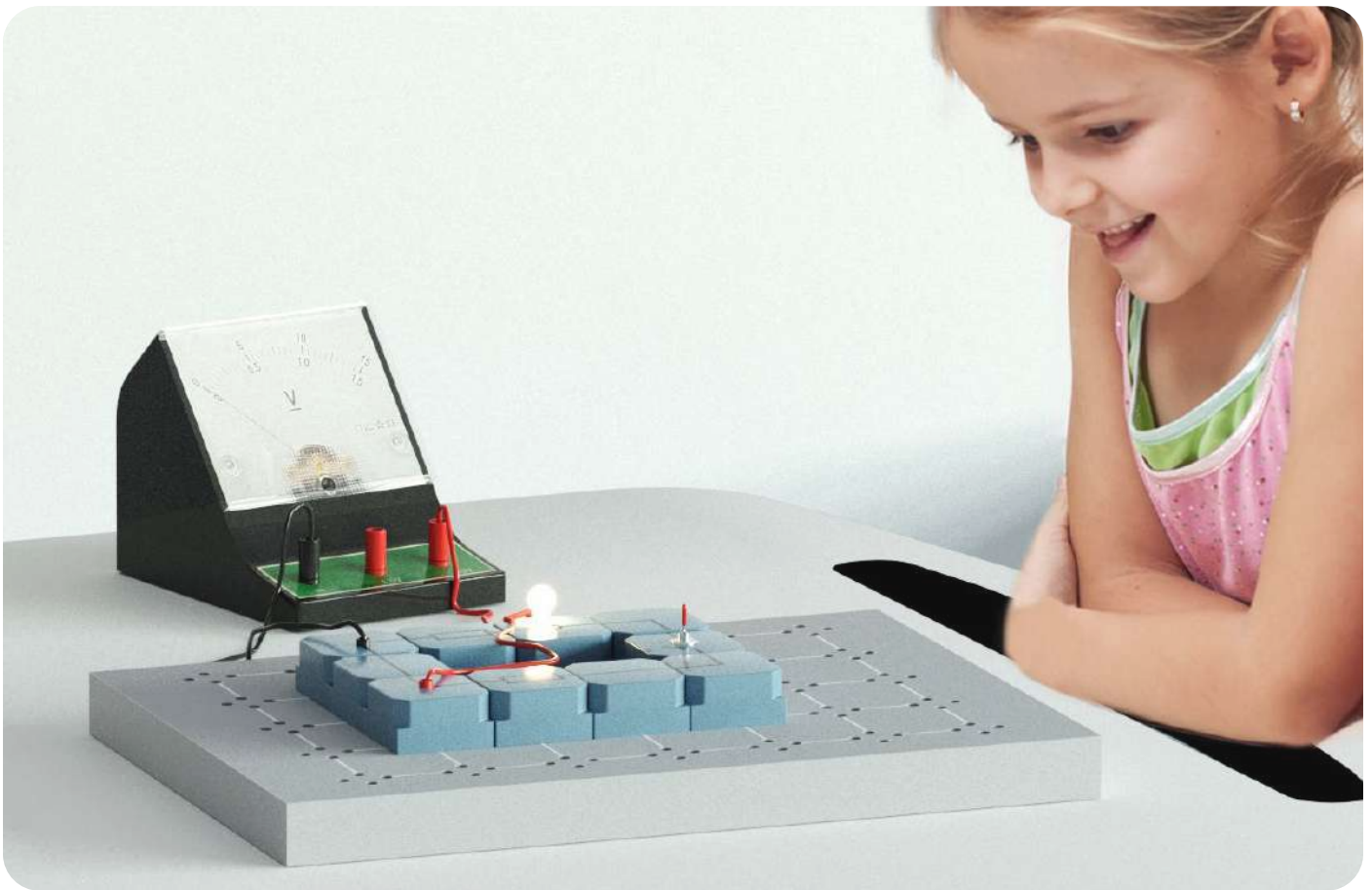
Electromagnetism

Students will analyze and closely observe **fundamental principles of electromagnetism**, exploring magnetic forces generated by permanent magnets, electromagnetic fields, and phenomena of attraction and repulsion of electrified bodies with accumulated surface electric charge induced by friction or rubbing.

The experiments of

Electricity

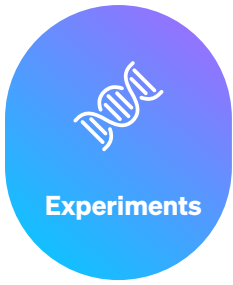
Students will analyze, observe, and experience firsthand basic principles of electricity by constructing circuits with series and parallel resistors, understanding basic electronic components, measuring current and voltage in circuits using a multimeter, and engaging in additional activities to deepen their understanding.



Experiments

- How to use a digital multimeter for electrical conductivity measurement
- Understanding resistors and their color code
- Ohm's Law basics
- Connecting resistors in series and parallel
- Circuitry with push-button switches
- Circuitry with lever switches

- Connecting users in series and parallel
- Building a battery stack with a lemon
- Building a battery stack with a tomato
- Connecting generators in series and parallel
- The voltage divider
- The current divider
- The short circuit



Comparison of plant cells
Extraction of plant DNA
Microscopic observation of
invertebrate microorganisms

Aliens under the microscope: the
tardigrades
Comparison between plant and
animal cells
Cells in mitosis



The experiments of

Biology

This kit aims to study and observe the cellular structure of living organisms,
and explore laboratory techniques for DNA identification.

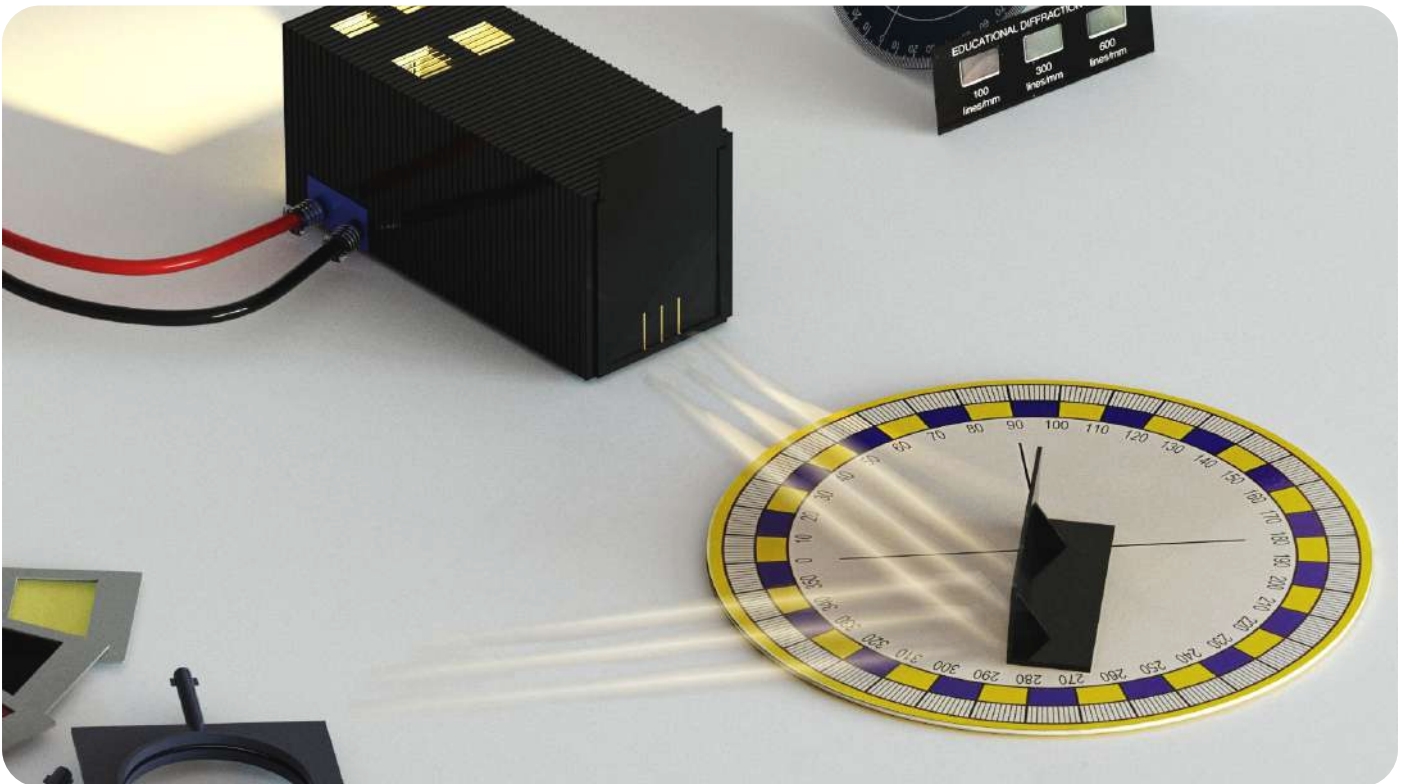
An optical microscope will facilitate accurate experimentation.

The experiments of

Optics

Students will closely analyze and observe many of the fundamental principles of geometric optics by studying phenomena such as the reflection and refraction of light, the behavior of lenses, and more.

The kit includes all necessary instrumentation for these experiments.



Experiments

The rectilinear propagation of light
Deflection of a light beam with a mirror

Focal point formation with a biconcave prism

Focal point formation with a plano-convex prism

Focal point formation with a biconvex prism

Deflection of a light beam with a triangular prism

Symmetrical deflection of a light beam with a trapezoidal prism

Counterclockwise phase shift of a light ray

Clockwise phase shift of a light ray

Total internal reflection and the critical angle

Optical system of prisms

Calculation of the focal length of a converging lens

Study of image magnification

Study of image reduction

Galileo's telescope



Experiments

What a gauge is and how to use it
Levers of the first, second, and third kinds
Springs and Hooke's Law
Working with a fixed pulley
The hoist: combining fixed and moving pulleys
Decomposition of forces
Friction on an inclined plane

Balance on an inclined plane
The simple pendulum
Mass and specific gravity of bodies
The principle of surface tension
Pressure in fluids
The principle of communicating vessels
The principle of the 'U' gauge
Stevin's law
The principle of Archimedes' buoyancy



The experiments of

Mechanics

Students will analyze, observe, and experience firsthand fundamental principles of Classical Mechanics by studying levers, pulleys, springs, the inclined plane, and more.

The kit includes all necessary instrumentation and an application manual for performing up to 15 experiments.

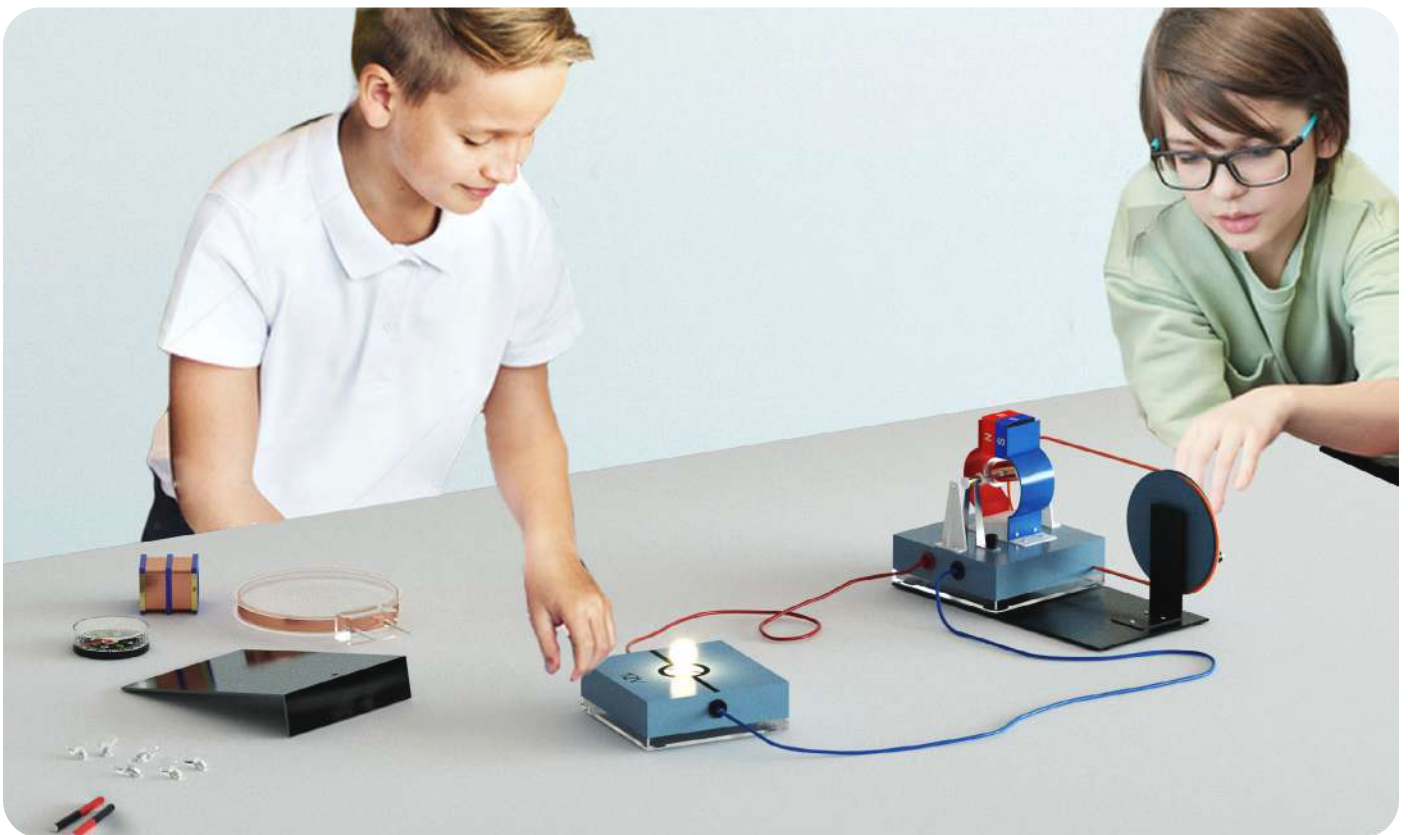
The experiments of

Electrodynamics

Students will explore the physical principles behind the formation of electromagnetic fields generated by moving charges and magnetic fields.

They will study the relationships between moving charges and magnetic fields through practical methods to identify the direction of electromagnetic fields.

Additionally, they will delve into the foundational laws of electromagnetism introduced by Faraday and Lenz.



Experiments

The magnetic field and lines of force

The direction of the magnetic field:
the right-hand rule

Natural magnetism: compass and
Earth's magnetic field

Basic principles: Faraday's and
Lenz's laws

Magnetic deflection

Basic principles: electric motor and
generator

DC motor

Series DC motor

Shunt DC motor

Electro-mechanical generator



Experiments

Measuring temperature: the thermometer

Heat and temperature

Heat transfer: conduction

Heat transfer: convection

Heat transfer: radiation

Thermal expansion of gases

Thermal expansion of liquids

Thermal expansion of solids

Boiling

The condenser

The distiller

Construction of an alcohol thermometer

The calorimeter and thermal insulation

Water equivalent of the calorimeter

Calculation of the specific heat of metals



The experiments of

Thermodynamics

Students will closely analyze and observe fundamental principles of thermodynamics by studying the expansion phenomena of various natural materials, evaluating thermal conductivity, and more.

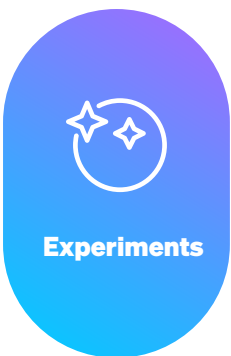
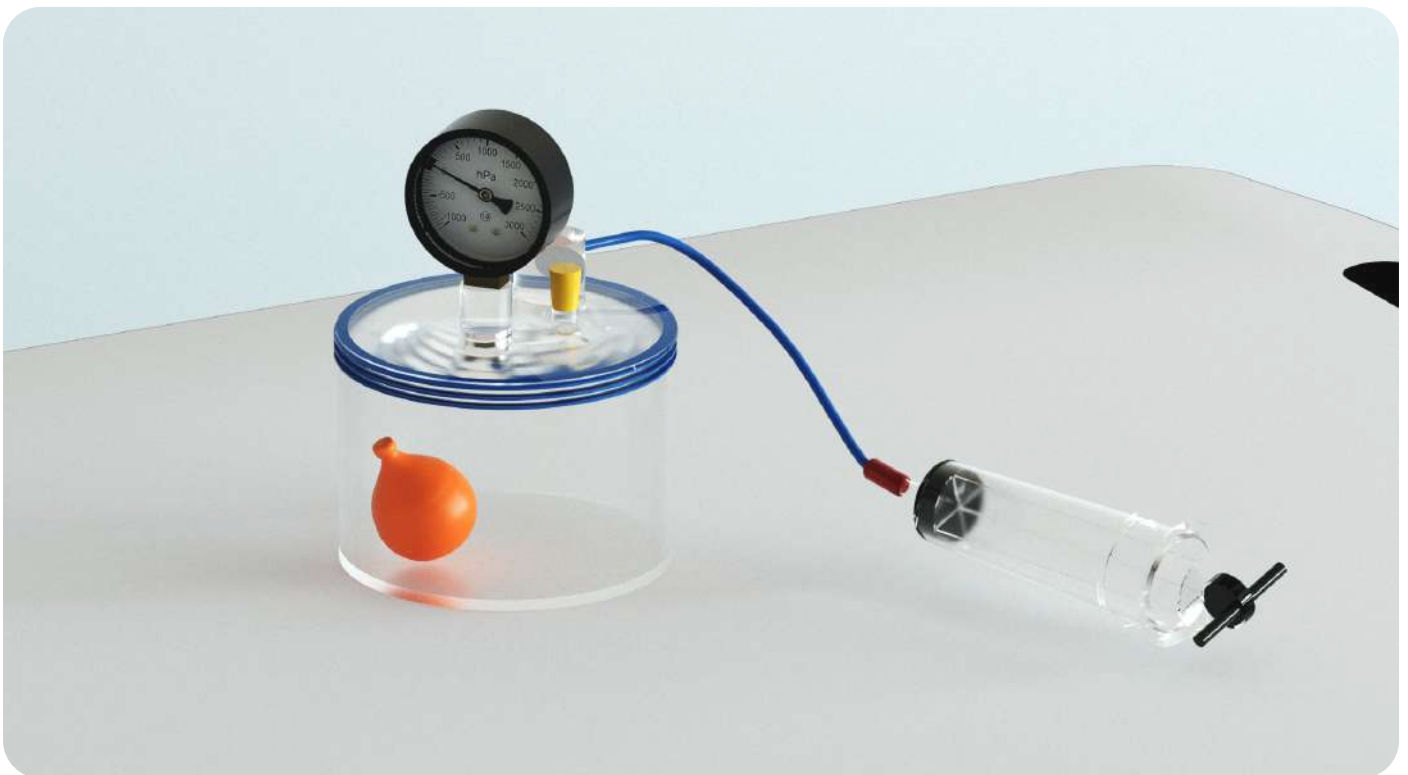
The kit includes all necessary instrumentation and an application manual for conducting up to 15 experiments.

The experiments of

Experiences on Vacuum

This kit aims to study and explore the principles behind the operation of systems for creating a high vacuum and their practical applications. Students will analyze the physical relationships between force and pressure, as well as between temperature and pressure.

The kit also covers the analysis and use of the most widely used pressure measuring instrument: the pressure gauge.



- Thrust vacuum pump
- Magdeburg hemispheres
- Measuring pressure: the pressure gauge
- Relationship between force and pressure
- Effects of pressure difference

- Pressure and temperature: the pressure cooker
- Free-fall tube: effects of high vacuum
- Sound waves in a vacuum
- Boyle's Law
- Weight of air: experimental measurement



Experiments

Fuel energy: operation of the internal combustion engine

Electric generator: electricity generation and consumption

Electric propulsion: principles of electric mobility

Energy recovery: braking in electric cars

Wind turbine: harnessing wind energy

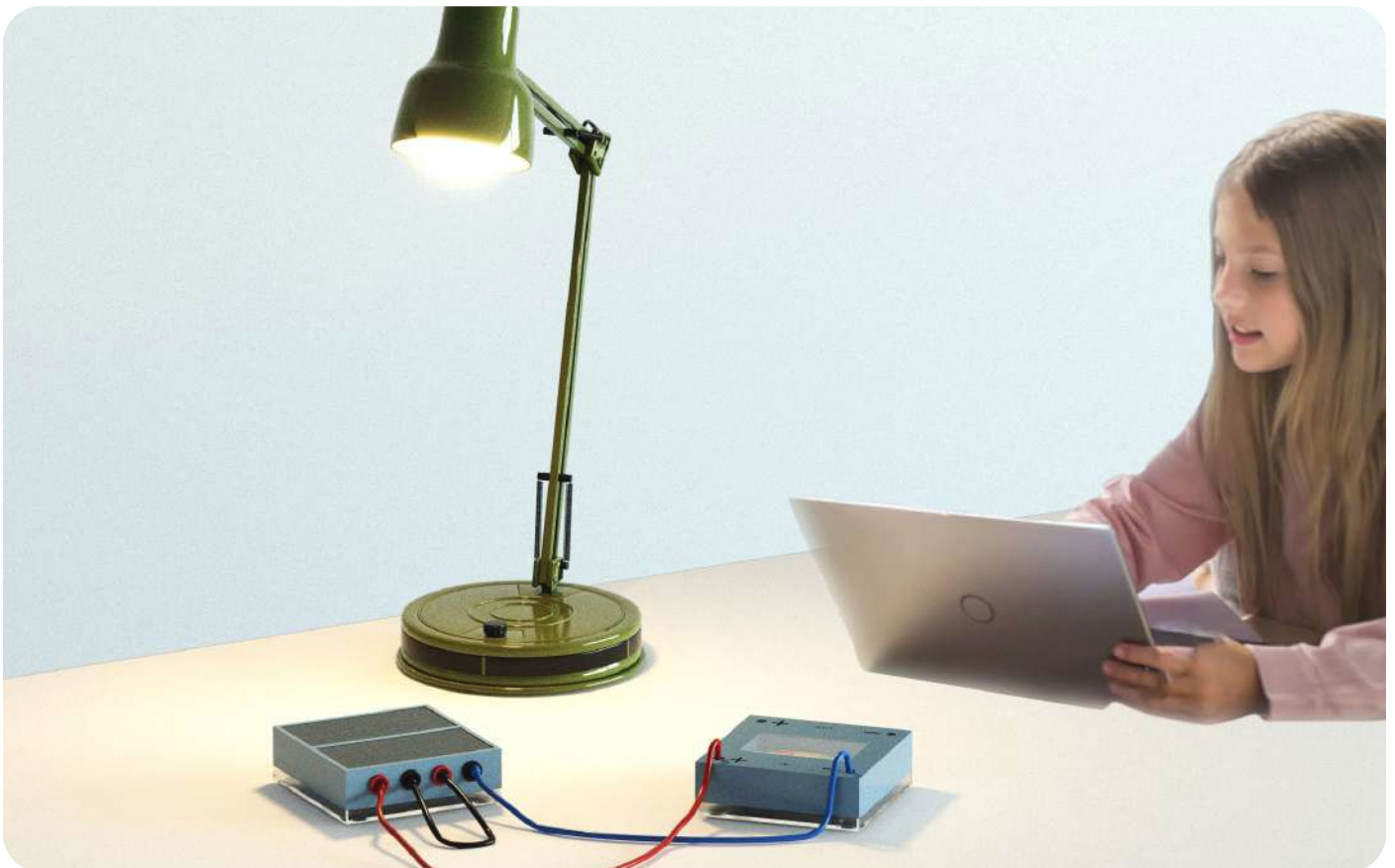
Hydroelectric generator: harnessing water energy

Electro-pneumatic generator

Photovoltaic generator: harnessing solar energy

Photovoltaic system: capacity and energy efficiency

Alternative energy storage and consumption



The experiments of

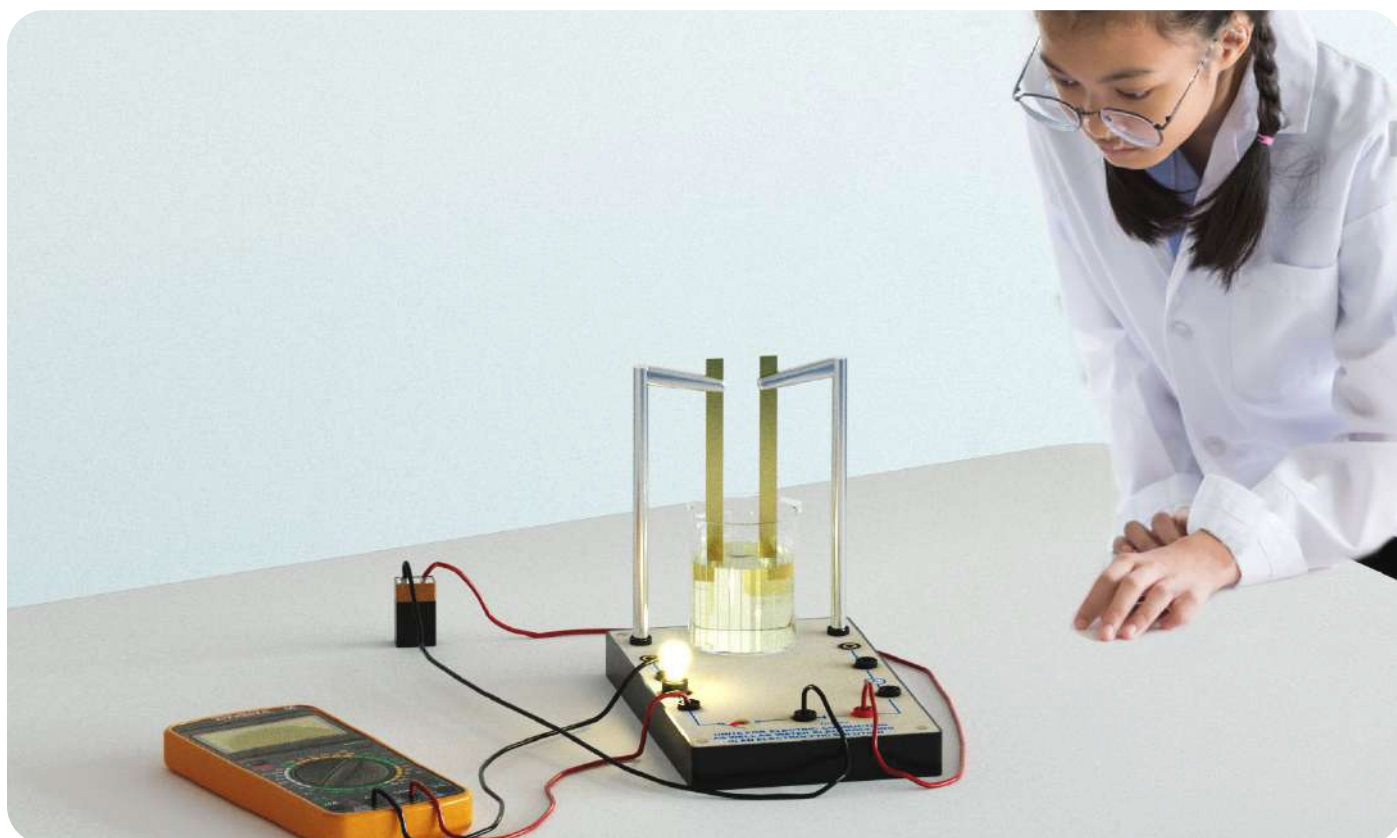
Alternative Energy

Alternative energy represents the sustainable future for meeting our planet's energy needs. This kit will enable students to delve into the technologies behind clean energy production, exploring the principles of power generation through mechanically driven DC generators, wind turbines, hydroelectric systems, pneumatic devices, and solar panels.

The experiments of

Chemistry

Students will analyze, observe, and experiment with fundamental principles of Chemistry hands-on. They will have access to all necessary instrumentation, and each experiment will include a theoretical description of the demonstrated principles, formulas, and data collection.



Experiments

Principle of conservation of mass:

Lavoisier's Law

Density of substances

Indicator of acids and bases using red cabbage

Acids and bases: heat of neutralization

Electrolytes and conductivity

Oxidation-reduction reactions

Daniell's cell

Salt bridge: Volta's cell

Capillarity

Colored celery experiment

Osmosis

Observation of osmosis in a carrot

Starch coloring experiment

Paper chromatography

Oxygen in water

Cell structure

Human body skeleton and muscles

Mobile science lab

Science Bus

Recreate all the experiments in
your classroom with the **Science
Bus**



Optional side module:

- Charges up to 24 tablets simultaneously
- Includes removable shelves for flexibility

Enable observation of scientific phenomena and execution of experiments in primary and secondary schools across Physics, Chemistry, Biology, Physiology, and Alternative Energies, fostering comprehensive scientific education.



The execution of the experiments is made simple and guided thanks to

Manual provided

with each kit.

Rear locks ensure the supplied scientific equipment is securely stored for safety.

Science Bus overcomes the challenge of transporting experiments to classrooms and enhances laboratory management with its mobility, which allows for easy relocation.

12

swivel
castors

Your **virtual reality** learning

VR **EXPERIENCE**

Recreate all the experiments in
virtual reality using the **VR
Experience**



Simplify the future ahead.

Experiences available for download online, enabling independent use by professors without requiring on-site technical support.

The experience can also be used on iOS and Android devices without requiring an augmented reality viewer.

Recreate the **50 experiments** featured on the Science Bus on a large scale using virtual reality. **Make the impossible possible.**

Experience usable with an

All-in-One

viewer

Enhance **learning inclusivity** and optimize **data utilization** for educational improvement.



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