

# OPTIKA<sup>®</sup>

S C I E N C E  
I T A L Y



## KITS - MOBILE LAB

## NEW PACKAGING

New stackable and multi-function storage box with lid equipped with closing clip.

Dimensions of the box: 46 x 36 mm, h 23.5 mm.



All components, after use, can be neatly stored in special preformed polystyrene drawers. Thanks to the high resistance to impact and atmospheric agents, products contained in it will be protected over time.



## KITS LEVELS

*First steps into science*

These kits "**First steps into science**" are suitable for students of primary school.

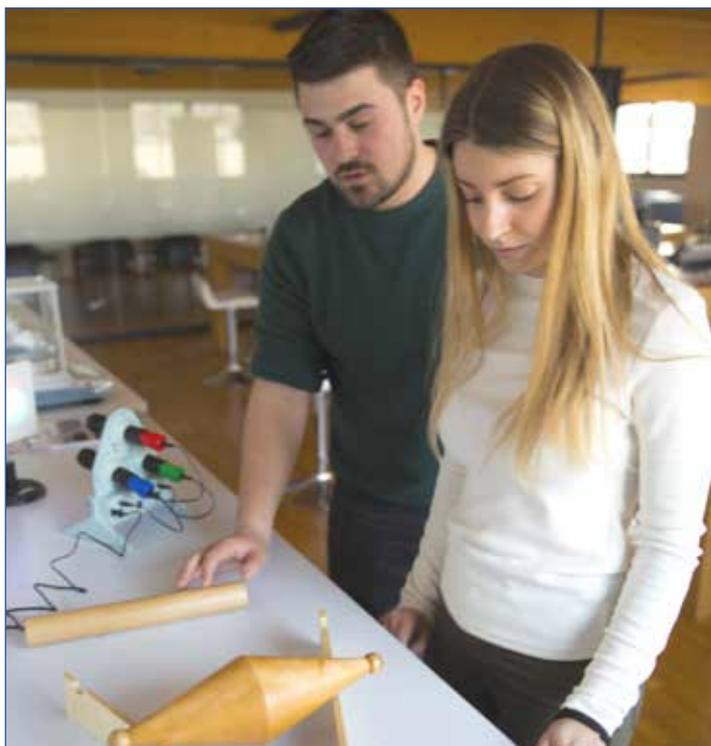
- experiments are not dangerous for students;
- materials used to create components are not toxic;
- no line voltage is needed to use them.

Experiments are easy to be performed and they are suitable for students. Experiments have been performed in our laboratories by competent staff, this ensures good development of them. The aim is to give students the possibility to approach science field observing elementary phenomena, catching their interdisciplinary aspects. The steps suggested for each experiment are easy to be checked and stimulate the curiosity of students towards further questions and elaborations. The experiments are easy but not superficial, they help students to understand subjects which seem to be complex from a theoretical point of view. The analysis of natural phenomena should not be only explained by the teacher but it has to be performed directly by students through several experiments.

These kits are cheap but they present a high teaching efficiency. Each experiment is described in teaching guides, provided in pdf version, along with a list of items to be used and the specific steps to follow to perform the experiments.



## BASIC

*Advanced experimentation*

## ADVANCED

The "**Advanced experimentation**" kits are suitable for students of high schools. The most effective way to introduce the world of science to young people is to teach them concepts representing the base for further investigation on the subject: a wider research could take place further on. There are some fields regarding our daily life that house several phenomena. For example, the air we breath is not only necessary for life, but it is also the seat of meteorological, sound and electrical phenomena, as well as many others, involving different scientific fields.

The same goes for water, energy, light and many other things. The first approach to the study of these subjects must feature a vision of the subject as a whole, through an experimental and interdisciplinary course. This new series of kits has been designed to offer teachers a valid educational instrument to deal with these phenomena in a unitary way, through a series of simple but effective experiments.

# First steps into science

## BASIC

### **B1 States and properties of matter - Measurement**

Thanks to this kit, students are able to study all the concepts on which the scientific method is based: space, matter, states and how to measure them.

### **B2 Forces**

What is a force? How can you measure it? Thanks to this kit students can study force concept from its roots to its use.

### **B3 Equilibrium and simple machines**

Lever and simple machines, how to use force: science in everyday life.

### **B4 Pressure - Fluids - Floating**

Forces applied on liquids and solids: Archimedes' and Stevin's principles.

### **B5 Motion**

Bodies in motion and basic concepts: "space and time" relationship for rectilinear trajectories.

### **B6 Temperature, heat and changes in status**

Starting from the bases of thermology, students will be able to understand everyday phenomena. Thermal expansions in different states of matter.

### **B7 Light and its phenomena**

Light, its nature and how science is able to explain lenses and mirror.

### **B8 Sound**

Can you hear this sound? What is it and how can it propagate? Thanks to this kit students will be able to discover sound nature.

### **B9 Electricity and electric current**

Please, turn on the light...in order to discover electricity behavior and nature.

### **B10 Magnets and electromagnets**

Earth, magnetic poles and fields. How it works and how we can exploit it.



### **B11 Work and energy - renewable energy**

Thanks to this kit students are able to study all those concepts on which renewable energy are based: first of all by clarifying the meaning of "energy" and "work".

### **B12 Water and its properties**

All the facets of water: its properties, its use, how we can exploit it and why we should preserve it.

### **B13 Air and its properties**

All the facets of air: its properties, its use, how we can exploit it and why we should preserve it.

### **B14 Plants**

Be a plant: thanks to this kit students are able to study how a plant born, lives and dies.

### **B15 Animals**

A first step into biology: from cells point of view, how animals grow and live.

### **B16 Eye and sight**

One of the six senses and its human organ: the relationship between eye and sight.

### **B17 Ear and hearing**

One of the six senses and its human organ: the relationship between ear and hearing.

### **B18 Touch, smell and taste**

Three of the five senses and the related organs: how perception works.

### **B19 Environment of life**

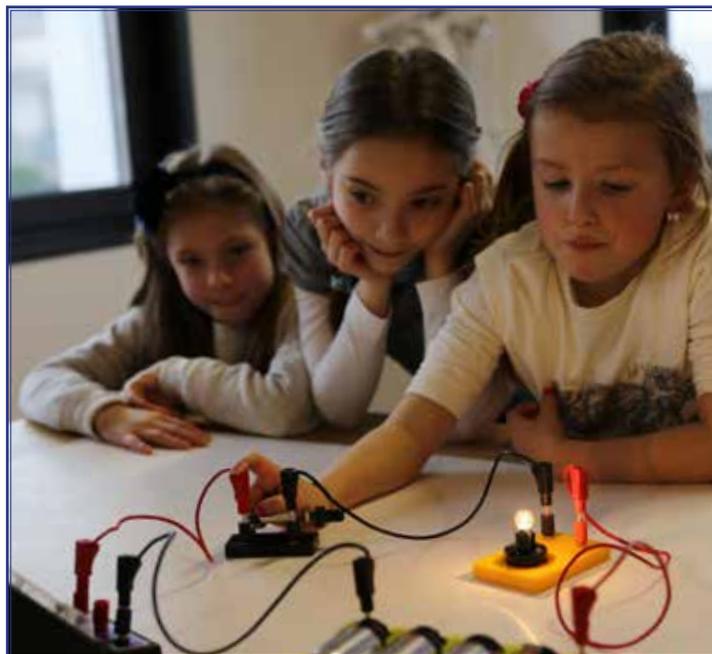
From the ground to the sky: a brief discussion on ground composition and the water cycle on Earth.

### **B20 Introduction to chemistry**

Matter: what is it? What it is made of and what it can compose.

### **B21 The apparent motion of the sun**

From an high point of view: the motion of the Earth and the apparent motion of the Sun.



# Advanced experimentation

# ADVANCED

## A1 Statics of solids

Let's introduce statics of solids concept: forces and equilibrium first of all.

## A2 Statics of liquids

Let's introduce statics of liquids concept: the three basic Pascal's, Stevin's and Archimedes' principles.

## A3 Dynamics

Thanks to this kit, students can study the relationship between space and time and their derived magnitudes, such as velocity and acceleration (average and instantaneous value).

## A4 Thermodynamics

How can describe and study everyday thermal phenomena? Thermodynamics helps us: starting from thermal sensation definition to reach the concept of heat and its propagation.

## A5 Geometric optics

How to study light using geometric concepts? Thanks to this kit, students will be introduced to basic optics laws that regulate light phenomena.

## A6 Physics of sound

Physics in everyday life: what is sound? How can we describe it? From perception to mathematical description.

## A7 Electrodynamics

First step into electricity world: basic introduction to Ohm's laws and their use in everyday life.

## A8 Electromagnetism

Thanks to this kit, students will be able to study the concept of magnetic field and magnetic flux: not only how it works but also how describe it.

## A9 Electromagnetic induction and A.C.

Thanks to this kit, the relationship between magnet and current is well described. Students are also introduced to Faraday - Neumann and Lenz laws.



# MOBILE LAB



## MOBILE LABORATORY

"Stand-alone" system: equipped with sink, completely independent thanks to an independent hydraulic circuit and an adjustable electric power supply.

Sturdy and ergonomic structure, mounted on four swivel wheels, suitable for intense use: the equipment provided with the mobile lab is easy to use, functional and durable in time. The mobile laboratory is designed to contain neatly all the products needed to help teachers in laboratory practices.

Each type has been studied specifically for primary schools and secondary schools, responding in best way to every type of educational need.



***OPTIKA mobile laboratory can be completely set up according to the teacher's needs.  
It can contain up to 4 kits.***

***We offer technical support aimed at purchasing and preparing the most suitable equipment  
for scientific practice in educational laboratories.***



These photos may be different from the appearance of the delivered product, the correct dimensional and functional specifications will be provided once requested.



---

**OPTIKA® S.r.l.**

Via Rigla, 30 - 24010 Ponteranica (BG) - ITALIA  
Tel.: +39 035.571.392 - [info@optikascience.com](mailto:info@optikascience.com)

---