CHEMISTRY - Molecular models and atomic models

This model helps the students to understand the atom, because it permits them to create different atoms using coloured spheres which represent the protons, the neutrons and the electrons. The holes on the plate are ordered according to the different energetic levels of the orbit. In this way it is possible to understand the chemical links, the isotopes, the emission spectra and other matters concerning the atom. Size: 475x475 mm.

Energy levels and principal quantum number (n) Energy levels and secondary quantum number Orbitals and magnetic quantum number (m)
Electronics configuration at fundamental state
Periodic table of elements When an atom has no charge
Electronics configurations



Equipment supplied

- Atom model (table)
 Atom model (table)
 48 Electrons (yellow spheres)
 Fortons (red or green spheres)
 Neutrons (black spheres)
 48 Cards regarding photons absorption
 48 Cards regarding nuclear reactions
 2 Periodic table of elements

Organic chemistry (teachers)

In this box you can find: 40 Hydrogen atoms, 38 Carbon atoms, 12 Oxygen atoms, 4 Nitrogen atoms, 2 Sulfur atoms, 4 Phosphorous atoms, 8 Chlorine atoms, 3 Metal atoms, 55 simple bond, 25 complex bonds, 60 bonds, 1 key for bonds.



Organic chemistry (students)

MM051

MM003

This kit is recommended for group of students: 30 Hydrogen atoms, 20 Carbon atoms, 6 Oxygen atoms, 8 Chlorine atoms, 2 Bromine atoms, 2 Iodine atoms, 2 Metal atoms, 4 Nitrogen atoms, 12 orbitals, 40 simple bonds, 12 complex bonds, 50 tie points, 1 key for bonds.



- Molecular models and atomic models

Organic and inorganic chemistry MM00. Fitted with organic and inorganic molecules, complex ions and covalent hydrogen. The package consists of: 14 metal atoms; 14 hydrogen atoms; 8 halogen atoms; 22 oxygen atoms; 13 sulphur atoms; 10 nitrogen atoms; 12 carbon; 7 phosphorus; 50 bridges for simple connection; 36 bridges for double and triple connection.





Molecular models and atomic models - CHEMISTRY









RA2001 - RA2002 - RA2003 - RA2004

Pocket pH Tester

Suitable for measuring water's and soil's pH. To perform the measurement, just immerse the electrode in the sample to be examined. At the cost of a few litmus papers, you can have the most convenient pocket pH meter available on the market. This tool allows you to perform fast and accurate measurements from 0 to 14 pH with a resolution of 0.1, immediately reading the measurement on the liquid crystal display.

The instrument can be manually calibrated on 2 points. a fast, accurate, practical and light instrument; It works with batteries of common type for over 1000 hours of work.

pH range	0.0 to 14.0 pH
pH resolution	0.1 pH
pH accuracy (at 20°C)	±0.2 pH
pH calibration	automatic with 1 or 2 points
Auto off	after 8 or 60 minutes or disabled
Power supply	1.5V CR2032 (1) / ca 1000 hours of continuous use
Condizioni di Utilizzo	0 to 50°C (32 to 122°F); R.H. max 95%

HI1271

PH-2

Electrode for PH-2 Replacement electrode for PH-2.

HI1271

pH Electrode with Bluetooth

HI12302

Flexibility and simplicity of use, no cables, no tools. Simply download the free app to turn your compatible Apple or Android device (not included) into a full-featured pH meter. HI12302 is equipped with a combined pH electrode with plastic body (PEI), double junction, gel filling, for general use. The high quality electrode is equipped with a built-in temperature sensor that ensures automatic temperature compensation both during measurement and during calibration.

HI12302 is able to perform pH measurements on a scale ranging from 0.00 to 13.00 pH, measurements in mV and temperature measurements on a scale ranging from -5.0 to 70.0 °C. It can be used almost anywhere: in the laboratory, on the field, in production or in the classroom.

Reference system	Double, Ag/AgCl
Junction	Ceramic
Electrolyte	gel
pH range	0.00 to 13.00 pH
mV range	±420 mV
Temperature scale	-5.0 to 70.0°C
Operating temperature	-5.0 to 70.0°C
Tip	spherical
Temperature sensor	yes
Body	PEI
Probe dimensions	Tip diameter 12 mm
Power supply	CR2032 3V lithium ion/ about 500 hours
Connection	Bluetooth 4.0, 10 m

6.32 21.4 Tablet and stand are not included



HI12302

pH Tester

PH-2

The pocket tester is robust and reliable and is ideal for both laboratory and field use. This new tester has a thickness of less than 2 cm and is extremely ergonomic, comfortable to hold in your hand. The instrument is simple to use because it is equipped with only 2 buttons: one dedicated to switching on and off; the other dedicated to calibration.

Range	0.0 to 14.0 pH
pH resolution	0.1 pH
pH accuracy (at 20°C)	±0.1 pH
Temperature range	0.0 to 50.0°C / 32.0 to 122.0°F
Temperature resolution	0.1°C / 0.1°F
Temperature accuracy (at 20°C)	±0.5°C/±1.0°F
pH calibration	automatic with 1 or 2 points
Temperature compensation	automatic 0 to 50°C (32 to 122°F)
Power supply	1x3V CR2032/about 800 hours of continuous use
Automatic shut off	after 8 or 60 minutes. It can be disabled
Operational conditions	0 to 50°C; U.R. max 100%

PH / ORP / Temperature tester

Io PH-6 is a waterproof pocket pH, ORP and temperature meter. This instrument is protected from moisture and is designed to float.

The pH electrode is replaceable and easy to insert as it is equipped with a round stainless steel connector.

Parameter	pH/ORP/Temperature
PH scale	-2.00 a 16.00 pH
PH resolution	0.01 pH
PH accuracy	±0.05 pH
PH calibration	automatic
Compensation	automatic
ORP scale	±1000 mV
ORP precision	±2 mV
The temperature scale	da -5.0 a 60.0°C / da 23.0 a 140.0°F
Resolution temperature	0.1°C / 0.1°F
Precision temperature	±0.5°C/±1°F



Edge pH Bluetooth Meter

Modern, thin and light design - pH electrode monitoring technology Temperature sensor integrated in all electrodes - Data storage -Large, easy-to-read LCD - Capacitive Keypad - Two USB ports - GLP functions Rechargeable battery.

pH range	da -2.00 a 16.00 pH	
pH resolution	0.01 pH, 0.001 pH, 0.1 mV	
pH accuracy (at 20°C)	±0.01 pH, ±0.002 pH; ±0.2 mV	
ORP Range	±2000.0 mV	
ORP Resolution	0.1 mV	
Temperature Range	-20.0 to 120.0°C; -4.0 to 248.0°F	
pH Calibration:	2-points, manual	
Memorizzazione:	Up to 1000 records in total, between: - Sample storage (max 200 log) - Manual log on Stability (max 200 log) - Automatic storage at programmable intervals up to 100 batches (max 600 logs/lot)	
PC connection	USB: micro-USB	



HI98107

HI98107

PH-6

PH-6

HI2002

Storage solution for electrodes	HI70300M
Bottle, 230 ml.	
	HI70300M
Buffer solutions for pH meters calibration	
Buffer solution pH 4,01; 500 ml.	HI7004L
Buffer solution pH 7,01; 500 ml.	HI7007L
Buffer solution pH 10,01; 500 ml.	HI7010L
Solutions for conductivity meter calibration	
12880 µS/cm; 230 ml.	HI7030M
111800 µS/cm; 230 ml.	HI7035M

Solution for cleaning electrodes of pH meters 230 ml bottle to clean the junction of the electrodes.

HI7004L - HI7007L - HI7010L - HI7030M - HI7035M - HI7061M

Refractometry - CHEMISTRY

The operation mode of refractometers is based on the principle that the refractive index of a solution is proportional to the concentration of a solute. Thanks to a few drops of the sample, it is easy to define the concentration of the substances. This simple and accurate method is usually used to measure the concentration of sugar solutions (Brix). The refractometers are also used in food field for products such as maramalades, fruit juices, syrups, wine, honey and so on.

HI7061M



Bench polarimeter with monochromatic LED light source



CHEMISTRY - Spectroscopy



Spectrometer

This instrument has very good optic and mechanical features which allow the exact measurement of the optical ray deviation angles; therefore it can determine the refractive index of solids and liquids and the wavelength of monochromatic sources. Base: made of firevarnished cast-iron. Goniometer: Ø 17.5 cm and divided in 360° with a precision of 1°. It is equipped with a vernier, which allows to measure with an accuracy of 1/10°. Telescope: it has achromatic objectives with an 178 mm focal length and an eyepiece 15x. Focusing allows fine regulation. Collimator: endowed with achromatic objective with 178mm focal length and with a steady adjustable slit up to 6 mm. Plane of the prism: it can be adjusted both vertically and horizontally and it is supplied with boss-heads for the fixing of the diffraction grating. Diameter: 80 mm. Equipment: 1 Crown glass equilateral prism 32x32 mm; 1 diffraction grating 500 lines/ mm; 1 magnifying lens. Dimensions: 48x33x33h cm. Weight: 12 Kg. The purchase of the diffraction gratings 80 lines/mm and 1000 lines/mm is suggested to verify the variation of the spectral resolution.



4209

4209

Volta's battery, column type

It is made of copper and zinc parts, separated by felt disks soaked in an acid solution. It is supplied with a bottle of acid solution.



Apparatus for the electrical conductivity of liquids

Comprised of 4 bulbs in parallel. The electrolytic liquids must be poured into the four glasses, in which the electrodes are immersed. With this simple device, the electrolyte solutions can be recognised and the variation of conductivity as a function of the concentration can be studied.



Human battery

5113

5124

Volta's battery, cups type

Placing your hand on two of the four metal plates (zinc, lead, aluminium and copper), you create a potential difference between the plates because of the electrical conduction properties of the human body. This potential difference can be measured through the use of a millimetric voltmeter (not included)

Trying all possible combinations between metals, it is possible to guess the existence of the electrochemical series.

Plates dimensions: 15x23 cm. Board dimensions: 23x65 cm.





5167

5287

It is composed of 4 voltmeters in series. It is supplied with copper and zinc electrodes, acid solution, cables and an LED assembled on a panel.



Electrolytic cell

Topics

- Electrical conductivity in liquids
 Volta's battery
 Electricity accumulator
 Electroplating

Equipment supplied

1 Base for electrolytic cell	1 Brass electrode
2 Supports for electrolytes	1 Sulphuric acid bottle, 10% solution
2 Coal electrodes	1 Bottle of copper sulphate's solution
2 Copper electrodes	1 Glass beaker
2 Zinc electrodes	3 Electrical leads
2 Lead electrodes	

1 Digital multimeter

Equipment required not supplied

1 Battery holder 4 1,5V Battery

Replacements for electrolytic ce	
All electrodes kit for cod. 5415	5415.1
Brass electrodes (couple)	5043.1
Lead electrodes (couple)	5043.2
Copper and zinc electrodes (couple)	5043.3
-	5415.1 - 5043.1 - 5043.2 - 5043.3



5415

Hofmann's voltameters

With graduated tubes and their metal stands. Height: 70 cm. Power supply unit (suggested code 4991) and connecting wires requested.

