Transparent coloured spades 4135

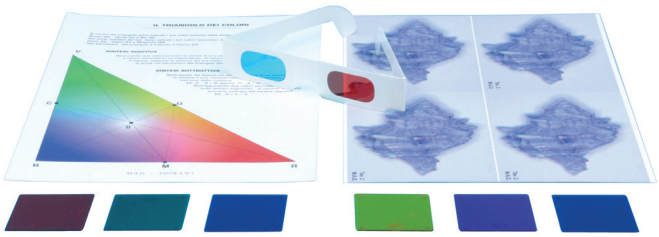
Six different colours. Superimposing the spades and exposing them to a light source, it is possible to learn the concept of primary and secondary colours.

4135

Colours and vision Kit 4015

Equipment supplied

1 Set of 3 primary colour filters;
1 Set of 3 secondary colour filters;
1 Chart with colour triangle;
1 Chart with 4 stereoscopic figures
1 Pair of stereoscopic spectacles



4015

Disks for Newton's rings 4116

Couple of glass disks; one has plane, parallel faces; the other has a slightly spherical curve. They are superimposed so to produce Newton interference rings, which are monochromatic if you use laser light and become coloured if you use white light. Disk diameter: 55 mm.

4116

Additive colour synthesis apparatus 4352

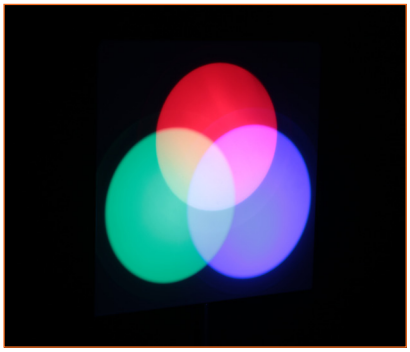
With this apparatus it is possible to perform the additive colour synthesis of the primary colours : red, green and blue. The apparatus is composed of 3 led projector, whose intensity can be changed with continuity. In this way it is possible to obtain the white colour and all the other colours of the colour triangle.

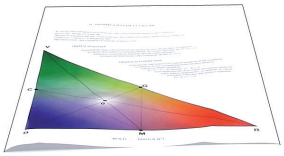
Topics

- Binary colour synthesis
- Complementary colours
- The trichromatic coordinates
- Colour triangle
- Colour reproduction

Equipment supplied

3 led projector: red, green, blue
1 Stand
1 Power-unit
1 Tripod base
1 White screen
1 Colour triangle chart





4352

Fresnel's double prism 4115

Double prism with very small refractive angle, obtained from a whole block of glass. Insert it in a thin light beam and it refracts the beam's two halves, superimposing them to generate interference fringes.

4115

Red diode laser device with magnetic base and lens 4354

This continuous emission laser device is supplied with a lens to obtain a linear ray of light. Moreover base and battery-holder are supplied with magnets in order to be applied to a magnetic blackboard.
Wavelength : approx. 635 nm.
Power: 1mW.

4354

Diaphragm with 1 slit 4104

On a frame 50x50 mm, to be mounted on filter-holder code 4390.
Slit width: 0.1 mm.

4104

Diaphragm with 2 slits 4105

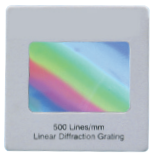
On a frame 50x50 mm, to be mounted on filter-holder code 4390.
Slit width: 0.1 mm.

4105

Diaphragm gratings

On a frame 50x50 mm, to be mounted on filter-holder code 4390.

80 lines/mm	4106
500 lines/mm.	4212
1000 lines/mm.	4213



4106 - 4212 - 4213

Set of 3 diffraction gratings 4143

100 Lines/mm
300 Lines/mm
600 Lines/mm

4143

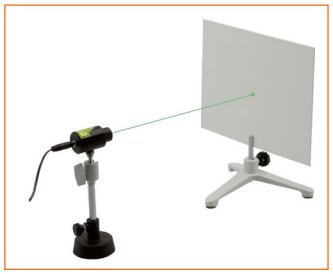
Red diode laser device with stand 4207

Continuous emission device with power-unit.
Visible up to 35 m; power: < 1 mW; wavelength : 635 nm.
It is supplied with a removable lens which is able to turn the circular section of the ray into a linear one.
Jointed stand diameter: 10 mm.
Supplied with base and transformer.

4207

Green diode laser device with stand 4151

It has a continuous emission; power-unit included.
Power: 3mW; wavelength: 532 mm.
It is supplied with a lens to obtain a linear trace.
Adjustable stand diameter: 10mm.
Supplied with base and transformer.



4151

Kirchoff-Bunsen's spectroscope 4028

The item is mounted on a circular metal platform, it is composed of: 1 collector with adjustable slit, 1 collector with graduated scale and 1 collimator with 2 interchangeable eyepieces. The slit of the collector is supplied with a small prism which allows you to compare the spectrum of two different sources. While the collector, equipped with achromatic objective, is fixed to the platform, the collimator can rotate on an alidade, keeping the directional axis in the centre of the apparatus. The collector with graduated scale requires a small white light source to project the image of the scale in the eyepiece of the collimator by means of the reflection on a face of the prism. The equilateral prism made of highly dispersive material. With this device you can study the spectrum of a source of monochromatic or polychromatic light. We recommend the use of interferential filters to the check of the wavelength.

4028

Spectrometer 4209

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: 1,2 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

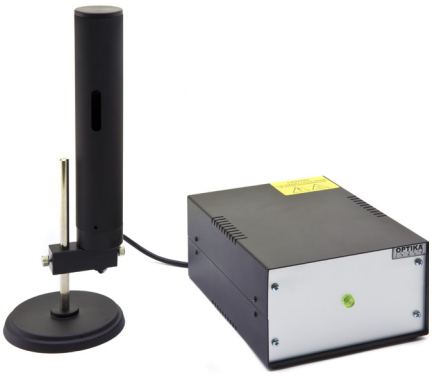
Light source for spectroscope 4326

When the item is placed in front of a tube with graduated scale, it illuminates the scale , thus allowing the operator to read the wavelength of the spectrum rows. The base is sold separately (code 0010).

4326

E27 Spectrum lamps holder with power unit 4035

The item is composed of a lamp-holder with lamp-shade, whose height is adjustable in order to allow a perfect allignment with the collimator of the spectroscope. Power supply is provided.



4035

Spectrum lamp 8 PIN

These lamps are the most convenient light source for spectroscopy.

Mercury spectrum lamp	**4054**
Sodium spectrum lamp	**4056**

4054 - 4056

Spectral lamps E27 connections

To be used with lamp holder/power supply cod. 4035

He (helium) spectral lamp E27	**4173**
Hg (mercury) spectral lamp E27	**4174**
Spectral lamp Na (sodium) E27	**4176**
Spectral lamp Ne (neon) E27	**4177**

4173 - 4174 - 4176 - 4177

Spectrum tubes power unit 4337

Power-unit able to provide electric high voltage, in order to use all spectrum tubes.
Power supply: 220V.
To be used: 30 s on and 30 s off.

4337

Spectrum tubes 4337

Oxygen	**4338**	Water vapour	**4342**	Hydrogen	**4346**
Carbon dioxide	**4339**	Nitrogen	**4343**	Mercury	**4348**
Air	**4340**	Neon	**4344**	Iodine	**4349**
Helium	**4341**	Argon	**4345**	Kripton	**4350**

4338 - 4339 - 4340 - 4341 - 4342 - 4343 - 4344 - 4345 - 4346 - 4348 - 4349 - 4350

Spectrum tubes kit, with power unit 4123

This kit is composed of the power-unit code 4337 and of 12 spectrum tubes previously described. (codes 4338, 4339, 4340, 4342, 4344, 4346, 4348, 4341, 4343, 4345, 4349, 4350).

4123

Kit for spectral analysis 4120

This set has been designed to allow students to practice the emission spectroscopic analysis.

Equipment supplied

1 Portable spectroscope
10 Needles
1 Bottle of sodium chloride
1 Bottle of potassium chloride
1 Bottle of strontium chloride
1 Bottle of copper chloride
1 Bottle of barium chloride
1 Bottle of sodium nitrate
1 Bottle of potassium nitrate
1 Bottle of strontium nitrate
1 Bottle of copper nitrate
1 Bottle of barium carbonate

4120

Ni-Cr string for spectral analysis 6107

Glass handle.
Wire length: 6-7 cm.

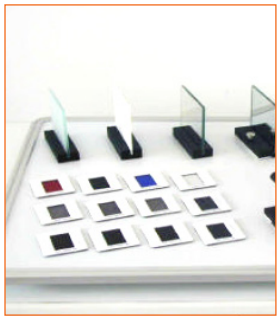
6107

Wave optics kit 4327

A coherent light source (diode laser divice) is exploited to show the priciples of the wave optics: polarization; interference; diffraction and holografy. Components are endowed with a magnetic base, in order to be placed safely on a magnetic whiteboard (included).

Topics

- Light's interference
- Interference on a thin plate
- Michelson's interferometer
- Light diffraction
- Circular hole diffraction
- Squared hole diffraction
- Diffraction grating
- Holography
- Light polarization
- Light absorption



4327

Light diffusion kit 4336

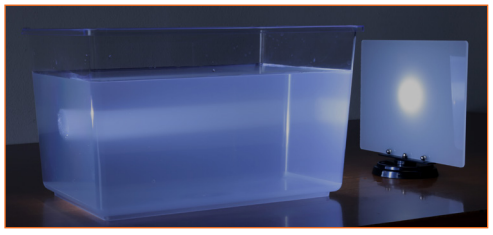
Why is the sky blue at midday while it turns red at sunset? When the light passes through particles with comparable size of the light's wavelength, light diffusion (elastic scattering) takes place.
The molecules in the air have a size comparable to the wavelength of blue component of the light.
Consequently, the molecules scatter blue light from the sun much more efficiently than the other components. For this reason, our eyes see the blue sky.
On the contrary, at sunset, light passes through a larger layer of the atmosphere and it goes through many solid particles (dust) that scatter the red component of the sun rays. With this kit, you can observe on a screen the phenomenon of progressive diffusion. With the polarizing filter it is also possible to study the polarization of the diffused light. The optic projector must be bought separately.

Equipment supplied

1 Dropper
1 Polarizing filter
1 Semi-transparent screen
1 Glass stirrer
1 Basin

Equipment required, not supplied

1 LED projector
1 Base
Milk



4336