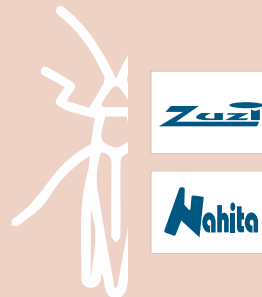


# Q

## DIDACTIC MATERIAL

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**▶ QBB - Anatomy models**

**▶ Sense organs - Eye**



- 1 | Detachable eyeball model.
- 2 | Represented parts: scleral-corneal (cornea and sclera), uveal (iris and choroid) and retinal layers, lens, anterior and posterior eye chambers, optic nerve and eye muscles.
- 3 | Supplied with base.

Code	Parts	Magnifications	Dimensions
QBB001	6	6x	15x15x25 cm
QBB016	5	6x	16x16x20 cm

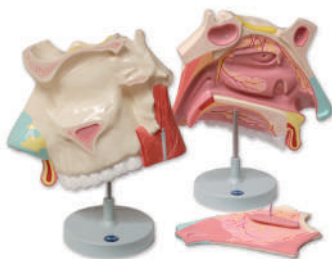
**▶ Sense organs - Ear**



- 1 | Representation of the outer, middle and inner ear.
- 2 | Parts: pinna and auditory canal, tympanic membrane, chain of ossicles, Eustachian tube, cochlea and semicircular canals as well as the auditory nerve
- 3 | Removable parts according to model.

Code	Parts	Magnifications	Dimensions
QBB002	4	3x	15x36x20 cm
QBB003	3	1.5x	12x17x12 cm

**▶ Sense organs - Nasal cavity**



- 1 | Corresponding to the upper left half of the face.
- 2 | Represented the frontal, sphenoidal and maxillary sinuses, the nasal septum and cartilage, the mucosa and olfactory bulb, as well as the upper, middle and lower turbinates.
- 3 | Shows the blood supply and nerve endings of the nasal, olfactory mucosa and palate.
- 4 | Supplied with base. Made of PVC .

Code	Parts	Magnifications	Dimensions
QBB004	2	3x	15x28x33 cm

**▶ QBB - Anatomy models**

**▶ Sense organs - Skin section**



- 1 | Three-dimensional section of thin human skin
- 2 | Representation of the epidermis, dermis and hypodermis
- 3 | Observed structures: hair follicles, sebaceous and sweat glands, sensory receptors, nerves, blood and lymph vessels.
- 4 | Supplied with base.
- 5 | Made of PVC.

Code	Parts	Magnifications	Dimensions
QBB029	1	60x	17x17x18 cm

**▶ Skeleton and vertebral column - Vertebrae and pelvis**



- 1 | It shows the morphology and disposition of the cervical, thoracic, lumbar and sacral vertebrae.
- 2 | Includes the representation of the intervertebral discs and also the pelvis.
- 3 | Supplied with support.
- 4 | Made of PVC .

Code	Parts	Magnifications	Dimensions
QBB006	1	1x	92x34x15 cm

**▶ Skeleton and vertebral column - Flexible vertebral column/pelvis**



- 1 | Spine with occipital plate and pelvis.
- 2 | Representation of vertebral arteries and a herniated disc.
- 3 | Aluminum support included.
- 4 | Made of PVC .

Code	Parts	Magnifications	Dimensions
QBB007	1	1x	92x34x15 cm



▶ QBB - Anatomy models

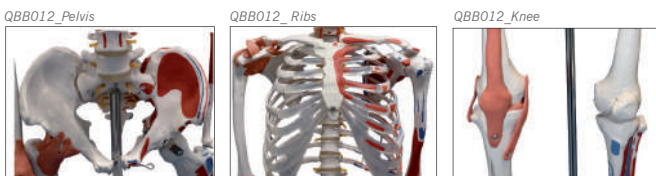
▶ Skeleton and vertebral column - Mini skeleton



- 1 | Tabletop skeleton mounted on support.
- 2 | Removable cranial vault and mobile jaw.
- 3 | Supplied with support.
- 4 | Made of PVC .

Code	Parts	Magnifications	Dimensions
QBB010	1	0.25x	45 cm

▶ Skeleton and vertebral column - Human skeleton



- 1 | Mobile lower jaw with 3 removable teeth and detachable skull
- 2 | Vertebral nerves, vertebral arteries and lumbar disc herniation.
- 3 | Support with 5 legs provided with wheels.
- 4 | Includes poster.
- 5 | Made of PVC.

Code	Description	Magnifications
QBB011	Human skeleton	1x
QBB012	Human skeleton with muscles	1x

▶ QBB - Anatomy models

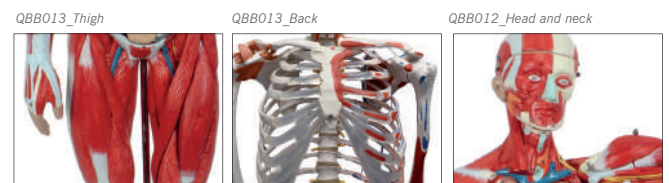
▶ Skeleton and vertebral column - Cranium and jaw



- 1 | Representation of the skull and facial skeleton
- 2 | Removable cranial vault.
- 3 | Articulated lower jaw with 3 removable teeth.
- 4 | Made of PVC .

Code	Parts	Magnifications	Dimensions
QBB014	2	1x	22x15x17 cm

▶ Skeleton and vertebral column - Body with muscles



- 1 | Over 400 numerically identified structures of muscles and internal organs.
- 2 | A total of 31 detachable parts.
- 3 | Highly stable base support.
- 4 | Complete explanatory legend.
- 5 | Made of PVC

Code	Parts	Magnifications	Dimensions
QBB013	32	0.75x	80x33x23 cm



QBB - Anatomy models

▶ Head and torso - Human mini torso with head



- 1 | Human male mini-torso.
- 2 | Detachable parts: head, brain, lung lobes, stomach, heart, liver, intestinal tract and male genital system.
- 3 | Supplied with base.

Code	Parts	Height
QBB015	13	42 cm

▶ Head and torso - Dual-sex human torso, open back



- 1 | It shows the digestive, respiratory, urinary, reproductive and nervous systems.
- 2 | Shows the organs that make up the head, neck, chest cavity (trachea, lungs, heart, esophagus), male and female pelvic cavity, as well as the abdominal cavity (liver, stomach, intestine, pancreas).

Code	Parts	Height	Magnifications
QBB041	27	85 cm	1x

▶ Head and torso - Head and neck



- 1 | Representation of the skull and facial skeleton.
- 2 | Removable cranial vault.
- 3 | Articulated lower jaw with 3 removable teeth. Made of PVC

Code	Parts	Height
QBB026	4	1x



QBB - Anatomy models

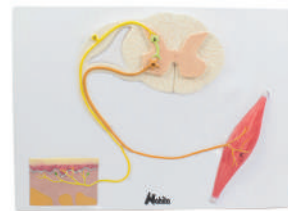
▶ Nervous system - Spinal cord



- 1 | With representation of the grey substance (anterior and posterior horns, grey commissure and appendageal duct) and the white substance (anterior, lateral and posterior cords, anterior commissure, ventral and dorsal grooves).
- 2 | Includes two vertebrae and shows the motor and sensory roots.
- 3 | Supplied with base. Made of PVC.

Code	Parts	Magnifications
QBB024	1	2x

▶ Nervous system - Spinal cord, muscle and skin



- 1 | It includes the spinal cord (gray and white matter), a section of skin with its receptor nerve ending and the corresponding muscle with its motor nerve ending.
- 2 | Mounted on a board. Made of PVC

Code	Parts	Dimensions
QBB025	1	50x36x6 cm

▶ Nervous system - Brain



- 1 | Divided into two brain hemispheres.
- 2 | Model GBB027 subdivided to show the different lobes, brain stem and cerebellum. Supplied with base.
- 3 | Made of PVC.

Code	Parts	Magnifications
QBB027	9	1x
QBB028	2	1x



▶ QBB - Anatomy models

▶ Urinary system - Kidney, glomerulus and nephron



- 1 | Longitudinal section of the kidney with its functional unit, nephron and blood vessels, and the renal corpuscle.
- 2 | Mounted on a table.
- 3 | Made of PVC.

Code	Parts	Magnifications
QBB030	1	3x/100x/650x

▶ Urinary system - Urinary system



- 1 | Representation of the human urinary system.
- 2 | Includes the male and female anatomies and constituent organs.
- 3 | Mounted on a table.
- 4 | Made of PVC .

Code	Parts	Magnifications
QBB018	1	1x

▶ Respiratory system - Respiratory system



- 1 | Represented are the entire larynx, trachea and lungs.
- 2 | Shows the trachea, bronchi and bronchioles and their terminal structures called alveoli.
- 3 | Numerous detachable parts including the heart
- 4 | Made of PVC .

Code	Parts	Magnifications
QBB008	7	1x

▶ QBB - Anatomy models

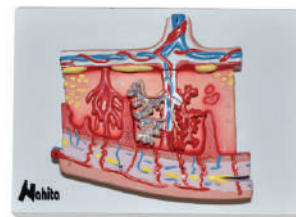
▶ Respiratory system - Larynx



- 1 | Structure that links the pharynx to the trachea
- 2 | It contains the vocal cords, formed by the elastic folds of its walls.
- 3 | Shows the protruding part on the front of the neck, commonly known as the “nut”.
- 4 | Made of PVC .

Code	Parts	Magnifications
QBB022	4	2.5x

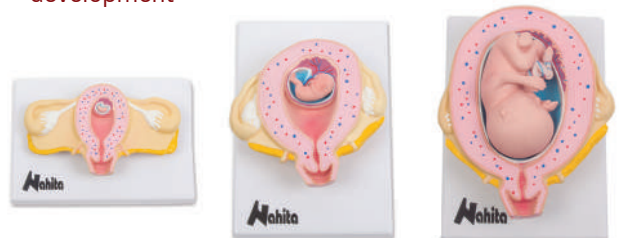
▶ Genitalia and pregnancy - Placenta



- 1 | Section of placenta comprising the umbilical cord.
- 2 | It reproduces in detail its internal structure, with a high vascularization, the umbilical vessels, the maternal vessels, the villi and the placental septum.
- 3 | Made of PVC.

Code	Parts	Magnifications
QBB036	1	1x

▶ Genitalia and pregnancy - Embryo development



- 1 | Represented 8 stages of embryonic development from the fourth week to the sixth month of pregnancy.
- 2 | They show the individual and twin fetus in the various normal, transverse and breech positions.
- 3 | Mounted on a table.
- 4 | Made of PVC.

Code	Magnifications
QBB037	1x




▶ QBB - Anatomy models

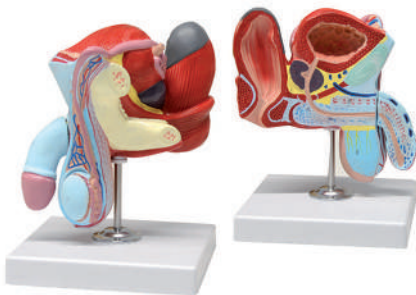
▶ Genitalia and pregnancy - Pregnancy pelvis 



- 1 | It shows the female pelvis at the 40th week of pregnancy and the fetus in its usual pre-birth position.
- 2 | Fetus detachable for examination. Made of PVC.

Code	Parts	Magnifications
QBB038	2	1x

▶ Genitalia and pregnancy - Male genital apparatus 



- 1 | Vertical section of the male genital system.
- 2 | Shows the penis, the testicles lodged in the scrotum, the vas deferens, and the prostate.
- 3 | Includes representation of the bladder and rectal colon.
- 4 | With vertical rotating base.
- 5 | Made of PVC.

Code	Parts	Magnifications
QBB020	2	1x

▶ Genitalia and pregnancy - Female genital apparatus 



- 1 | Vertical section of the female genital system.
- 2 | Shows the vagina, uterus, ovaries and fallopian tubes, bladder and rectal colon.
- 3 | With vertical rotating base. Made of PVC.

Code	Parts	Magnifications
QBB021	2	1x

▶ QBB - Anatomy models

▶ Dental models - Mouth cavity 



- 1 | Ideal to show the correct cleaning and protection of the teeth.
- 2 | Representation of tongue, teeth, gums, upper and lower jaw and palate. Supplied with base. Made of PVC .

Code	Parts	Magnifications
QBB040	2	2x

▶ Dental models - Half lower mandible 



- 1 | Half right with permanent teeth and several cavities.
- 2 | A movable part that allows to show the irrigation and dental roots.
- 3 | Supplied with base.
- 4 | Made of PVC .

Code	Parts	Magnifications	Dimensions
QBB034	2	1x	7x10x2 cm

▶ Dental models - Upper molar, 3 roots 



- 1 | With triple roots and cavities.
- 2 | Removable to show the longitudinal section of the crown and root.
- 3 | Supplied with base.
- 4 | Made of PVC .

Code	Parts	Magnifications	Dimensions
QBB035	2	6x	24x12x12 cm



## QBB - Anatomy models

### Other organs - Heart



- 1 | Represented are arteries, capillary blood vessels, venules, veins, atria and ventricles.
- 2 | Removable in 3 parts: superior vena cava, aorta and pulmonary arteries, and heart.
- 3 | Made of PVC .

Code	Parts	Magnifications
QBB005	3	3x

### Adult torso CPR manikin



- 1 | Adult Cardio-Pulmonary Resuscitation Model.
- 2 | Allows the application of artificial respiration and thoracic compression.

Code	Dimensions
QBB039	80x30x40 cm

## QBG - Botany models

### Plant cell

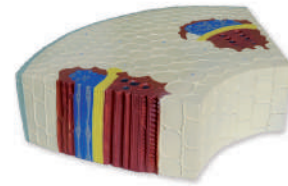


- 1 | Longitudinal section showing the internal structure of the plant cell
- 2 | The nucleus and the most representative organelles (vacuoles, chloroplasts, ER and mitochondria) are distinguished.
- 3 | It shows the external morphology of union between adjacent cells through the cell wall and their primary pores of intermembrane connection (plasmodesm). Made of PVC .

Code	Parts	Magnifications
QBG004	1	3000x

## QBG - Botany models

### Dicotyledon stem



- 1 | Cross and longitudinal section of the stem.
- 2 | Shows the vascular bundles (xylem, phloem, procambium), the cortex and parenchyma (medullary and interphasicular) as well as the outer epidermis. Made of PVC .

Code	Parts	Magnifications
QBG001	1	125x

### Longitudinal section of root



- 1 | Longitudinal section of root showing its internal and external morphology.
- 2 | It represents the zones of division (caliptra and apical meristem), elongation and differentiation (radical hair).
- 3 | Allows to distinguish from outside in: epidermis, cortical parenchyma, vascular bundle, xylem and phloem.
- 4 | Made of PVC .

Code	Parts	Magnifications
QBG002	1	100x

### Peach blossom



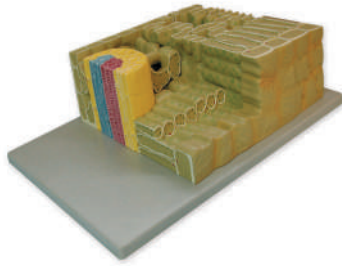
- 1 | Parts of a flower represented: stem, receptacle, calyx (sepals), corolla (petals), stamens (anther and filament) and pistil (stigma, style and ovary).
- 2 | Supplied with base. Made of PVC

Code	Parts	Magnifications
QBG003	1	20x



QBG - Botany

▶ Leaf section



- 1 | Cross and longitudinal section of sheet.
- 2 | Numbered representation of parts (upper and lower epidermis, palisade and lagoon parenchyma, vascular bundle and stoma).
- 3 | Supplied with base.
- 4 | Made of PVC .

Code	Parts	Magnifications
QBG005	1	700x

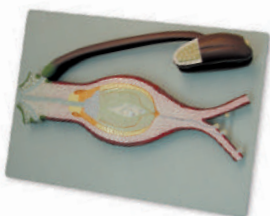
▶ Vascular bundles



- 1 | Cross and longitudinal section of the vascular beam.
- 2 | Numbered representation of parts (parenchyma, xylem, phloem, cambium, fiber, etc).
- 3 | Supplied with base.
- 4 | Made of PVC .

Code	Parts	Magnifications
QBG006	1	550x

▶ Fertilization of angiosperm



- 1 | It shows in detail the male (androcyte) and female (gynoecium) organs of an angiosperm flower.
- 2 | The stamens, containing the pollen, and the carpel (stigma, style, ovary and eggs) are distinguished. Made of PVC .

Code	Parts	Magnifications
QBG007	2	300x



QBN - Zoology

▶ Animal cell



- 1 | Longitudinal section of the animal eukaryotic cell.
- 2 | Includes the nucleus and its genetic content (DNA/RNA)
- 3 | Shows the organelles and elements arranged in the cytoplasmic space (smooth and rough endoplasmic reticulum, Golgi apparatus, mitochondria, vesicles, lysosomes, ribosomes, centrioles, etc).
- 4 | Made of PVC.

Code	Parts	Magnifications
QBN001	1	10000x

▶ Ameba



- 1 | Longitudinal section of the unicellular eukaryotic organism called *Amoeba proteus*
- 2 | It allows to distinguish parts of its morphology such as the plasma membrane, the contractile and digestive vacuoles, and its pseudopodia characteristics used to feed and move in the environment.
- 3 | Made of PVC.

Code	Parts	Magnifications
QBN002	1	10000x

▶ Mitosis



- 1 | It illustrates the four phases of nuclear division of a eukaryotic cell: prophase, me-phase, anaphase and telophase.
- 2 | Mounted on a table.
- 3 | Made of PVC.

Code	Parts	Magnifications
QBN003	1	10000x



## ▶ QBN - Zoology

## ▶ Eartworm dissection



- 1 | Longitudinal section of the anterior region of the earthworm (*Lumbricus terrestris*)
- 2 | Cross section in relief.
- 3 | Removable digestive tube.
- 4 | Supplied with base.
- 5 | Made of PVC .

Code	Parts	Magnifications
QBN004	2	15x

## ▶ Locust dissection



- 1 | Longitudinal section of the locust (*Locusta migratoria*).
- 2 | With the following removable parts: legs, antenna, mouthpiece, wings and digestive tract.
- 3 | Supplied with base.
- 4 | Made of PVC .

Code	Parts	Magnifications
QBN005	6	10x

## ▶ Dog skeleton

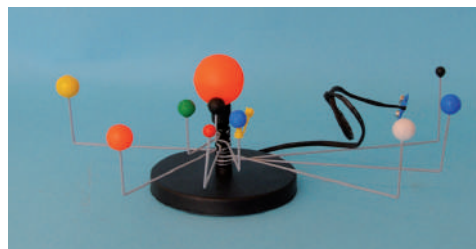


- 1 | Assembled on a rectangular black plastic base.
- 2 | It has two metal uprights that attach to the skeleton at the thoracic vertebrae and lumbar vertebrae respectively.
- 3 | The tail (caudal vertebrae) is removable as is the head.
- 4 | Movable jaw.
- 5 | Made of PVC .

Code	Parts	Magnifications
QBN006	1	60x20x26 cm

## ▶ QBQ - Astronomy

## ▶ Solar system



- 1 | Solar system composed of: sun, planets and terrestrial moon.
- 2 | Mechanical movement of the planets.
- 3 | Illumination of the sun by a battery (not included).

Code	Parts
QBQ001	1

## ▶ QBR - Molecular kits

## ▶ Organic Chemistry molecular kit, student



- 1 | Composed of a total of 76 pieces of atoms for the representation of simple molecules of organic chemistry.
- 2 | Supplied in a box for storage and a tool for removing bonds.
- 3 | The kit is composed of: Carbon (20 pieces), Hydrogen (30 pieces), Oxygen (6 pieces), Nitrogen (6 pieces), Sulphur (2 pieces), Phosphorus (1 pieces), Halogen (8 pieces), Metal (2 pieces).
- 4 | Links: short (50, white color), medium (41, gray color), long (12, gray color)

Code	QBR003
------	--------

## ▶ Organic Chemistry molecular kit, teacher



- 1 | Composed of a total of 146 pieces of atoms for the representation of simple molecules of organic chemistry
- 2 | Supplied in a box for storage and a tool for removing bonds.
- 3 | The kit consists of: Carbon (32 pieces), Hydrogen (40 pieces), Oxygen (22 pieces), Nitrogen (10 pieces), Sulphur (13 pieces). Halogen (8 pieces), Metal (14 pieces), Phosphorus (7 pieces)
- 4 | Links: medium (50, grey colour), long (36, grey colour).

Code	QBR004
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QBR - Molecular kits

Biochemistry molecular kit, teacher



- 1 | Composed of a total of 262 pieces of atoms for the representation of biochemical molecules such as amino acids, peptides, polysaccharides, purines, phospholipids, nucleotides, etc.
- 2 | Supplied in a box for preservation and with two tools for removing bonds.
- 3 | The kit is composed of: Carbon (68 pieces), Nitrogen (34 pieces), Metal (2 pieces), Hydrogen (10 pieces), Oxygen (40 pieces), Sulfur (2 pieces), Phosphorus (6 pieces).
- 4 | Links: visible (10 pieces, gray color), not visible (60 pieces), hydrogen links (100 pieces).

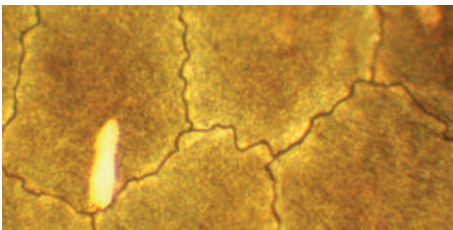
**Code** QBR005



QGB - Animal histology

l.s.	Longitudinal Section
c.s.	Cross-Sectional
w.m	Whole Mount
sec.	Section

Basic tissue types

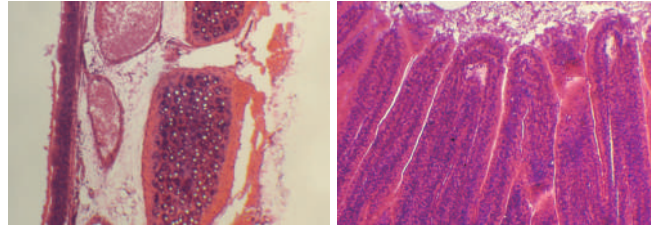


Code	Description
QGB011	Simple flat epithelium, w.m.
QGB012	Stratified flat epithelium, sec.
QGB013	Adipose tissue, sec.
QGB014	Loose connective tissue, w.m.
QGB015	Cartilage, sec.
QGB016	Compact bone, w.m.
QGB017	Human blood smear
QGB018	Frog blood smear
QGB019	Fish blood smear
QGB020	Snake blood smear
QGB021	Smooth muscle, teared, w.m.
QGB022	Skeletal muscle, l.s. and c.s.
QGB023	Cardiac muscle, sec.
QGB058	Gallus domestica blood smear
QGB059	Tendon, dense connective tissue, l.s.
QGB066	Mouse tail, c.s.
QGB079	Ciliated epithelium, sec.



QGB - Animal histology

Organs and systems

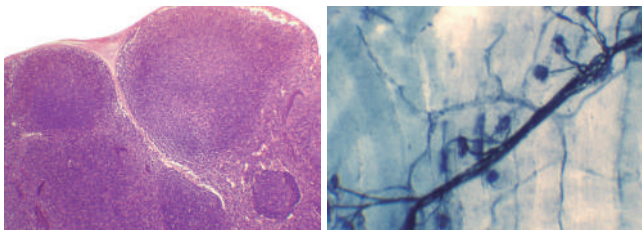


Code	Description
<b>Circulatory system</b>	
QGB046	Artery and vein, c.s.
QGB074	Frog heart, c.s.
QGB075	Arteria de rana, s.t.
QGB076	Frog artery, c.s.
<b>Respiratory system</b>	
QGB043	Lung, sec.
QGB044	Lung, blood irrigation, sec.
QGB045	Smoking lung, human, sec.
QGB063	Trachea, c.s.
QGB064	Trachea, l.s.
<b>Gastrointestinal system</b>	
QGB005	Frog small intestine, c.s.
QGB033	Esophagus, c.s.
QGB034	Parotid gland, sec.
QGB035	Wall of stomach, sec.
QGB036	Small intestine, c.s.
<b>Gastrointestinal system</b>	
QGB037	Jejunum, sec.
QGB039	Large intestine, c.s.
QGB040	Pancreas, sec.
QGB042	Gall bladder, sec.
QGB061	Pig liver, sec.
QGB062	Rabbit liver, sec.
QGB070	Frog stomach, sec.
QGB071	Frog liver, sec.
QGB073	Frog large intestine, c.s.
<b>Reproductive system and embryonic development</b>	
QGB006	Frog egg, sec.
QGB007	Two cell stage frog egg, sec.
QGB008	Cleavage stage frog egg, sec.
QGB009	Frog blastula, sec.
QGB010	Frog gastrula, sec.
QGB050	Rabbit ovary, sec.
QGB051	Human sperm smear
QGB052	Fallopian tube, c.s.
QGB053	Mammary gland, active phase, sec.
QGB065	Rabbit testicle, sec.
QGB067	Frog sperm smear
QGB068	Frog testicle, sec.
QGB069	Frog ovary, sec.
<b>Urinary system</b>	
QGB047	Kidney, l.s.
QGB048	Kidney, blood irrigation, sec.
QGB049	Urinary bladder, sec.
QGB072	Frog kidney, l.s.
<b>Immune system</b>	
QGB038	Appendix section
QGB041	Spleen, sec.
QGB054	Lymph node, sec.
<b>Nervous system and sense organs</b>	
QGB004	Frog skin, w.m. .
QGB024	Rabbit spinal cord, c.s.
QGB025	Brain, rabbit, silver staining, sec.
QGB026	Cerebellum, rabbit, silver staining, sec.



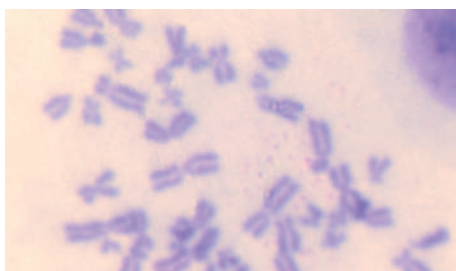
▶ QGB - Animal histology

▶ Organs and systems



Code	Description
QGB027	Cerebellum, rabbit, HE, sec.
QGB028	Motor nerve endings, rabbit, w.m.
QGB029	Motor neuron, w.m.
QGB030	Brain, human, HE, sec.
QGB031	Brain, human, silver staining, sec.
QGB032	Taste buds, rabbit, sec.
QGB055	Eyeball, I.s.
QGB056	Human skin, sweat glands, sec.
QGB057	Human skin, hair follicles, sec.
QGB060	Tongue with filiform papillae, I.s.

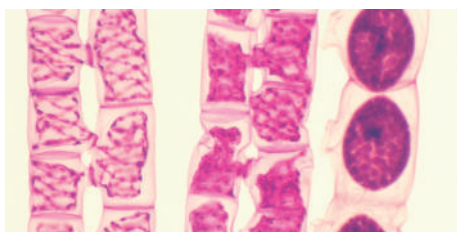
▶ Cytologie



Code	Description
QGB001	Mitosis horse <i>Ascaris</i> eggs, sec.
QGB002	Locusta testicle, sec.
QGB003	Giant chromosomes of salivary gland, w.m.
QGB077	Human chromosomes in blood, male

▶ QGF - Plant histology

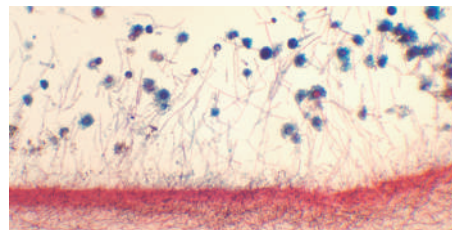
▶ Alga



Code	Description
QGF010	Chlamydomonas, w.m.
QGF011	Volvox, w.m.
QGF012	Spirogyra conjugation, w.m.
QGF013	Porphyra, w.m.
QGF023	Brown alga leaf, c.s.
QGF116	Spirogyra vegetative mass, w.m.
QGF125	Blue-green alga, w.m.
QGF129	Oscillatoria, w.m.
QGF130	Euglena, w.m.

▶ QGF - Plant histology

▶ Fungi and lichens



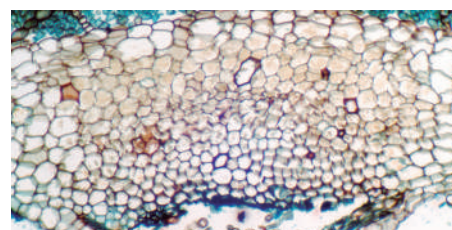
Code	Description
QGF004	Mushroom, sec.
QGF005	<i>Rhizopus nigricans</i> , w.m.
QGF006	<i>Penicillium</i> , w.m.
QGF007	<i>Aspergillus</i> , w.m.
QGF008	Yeast, w.m.
QGF009	Lichen, sec.

▶ Ferns



Code	Description
QGF024	Fern prothallus w/young sporophyte, w.m.
QGF025	Fern prothallus w/antheridium, c.s.
QGF026	Fern prothallus w/archegonium, c.s.
QGF117	Fern sorus, sec.
QGF118	Fern subterraneous stem, c.s.
QGF128	Fern sporangium, w.m.

▶ Moss and liverworts

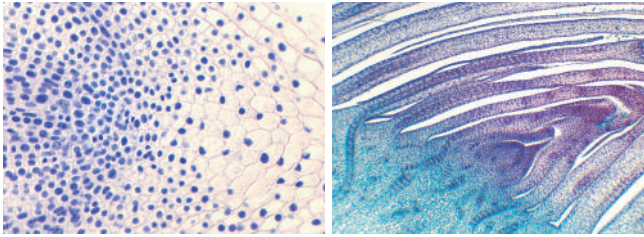


Code	Description
QGF014	Marchantia thallus, c.s.
QGF015	Marchantia sorus, sec.
QGF016	Marchantia antheridium, I.s.
QGF017	Marchantia archegonium, I.s.
QGF018	Moss leaf, w.m.
QGF019	Moss, w.m.
QGF020	Moss protonema, w.m.
QGF021	Moss antheridium, I.s.
QGF022	Arquegonio de musgo, s.I.
QGF122	Moss stem, c.s.



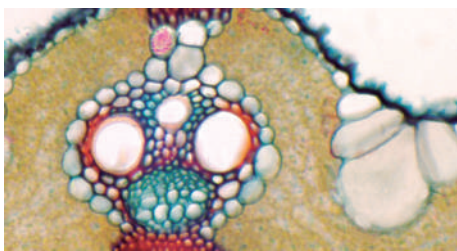
▶ QGF - Plant histology

▶ Angiosperms - basic structures and tissues 



Code	Description
QGF046	Mitosis, onion root tip cells, l.s.
QGF051	Narcissus tazetta root tip, l.s.
QGF065	Stem with collenchyma, c.s.
QGF066	Stem with sclerenchyma, c.s.
QGF067	Stem with lenticels, c.s.
QGF068	Morus alba petiole, abscission layer, l.s.
QGF069	Stem with sieve tubes, l.s.
QGF070	Stem with intercalary meristem, l.s.
QGF071	Syringo stem tip, l.s.
QGF072	Hydrilla verticillata stem tip, l.s.
QGF073	Onion stomata, w.m.
QGF074	Triticum aestivum stomata, w.m.
QGF075	Oryza sativa stomata, w.m.
QGF076	Vicia faba stomata, s.e.
QGF077	Commelina communis stomata, w.m.
QGF078	Three types of plant leaves, c.s.
QGF080	Nerium indicum leaf, sunken stomata, c.s.
QGF086	Osmanthus fragrans leaf, stone cells, c.s.
QGF091	Sunken plant leaf, aerenchyma, c.s.
QGF105	Stone cells, pear fruit, sec.
QGF106	Plasmodesmata, endosperm sec.
QGF113	Meiosis, lily anther, c.s.
QGF126	Persimmon pulp cells
QGF127	Sugarcane armpit bud, c.s.
QGF132	Solanum tuberosum tuber, sec.

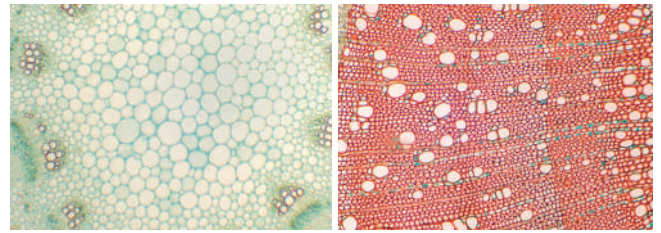
▶ Angiosperms - Leaves 



Code	Description
QGF079	Ficus leaf, sunken stomata, c.s.
QGF081	Ligustrum lucidum leaf, c.s.
QGF082	Jasminum nudiflorum leaf, c.s.
QGF083	Lily leaf, c.s.
QGF084	Coffee leaf, c.s.
QGF085	Camellia sinensis leaf, c.s.
QGF087	Triticum aestivum leaf, c.s.
QGF088	Oryza sativa leaf, c.s.
QGF089	Corn leaf, c.s.
QGF090	Narzissus tazetta leaf, c.s.
QGF092	Fig leaf, c.s.
QGF093	Privet leaf, c.s.
QGF094	Sugarcane leaf, c.s.
QGF111	Mono and dicotyledon leaves, c.s.
QGF003*	Nicotina tabacum leaf c.s.

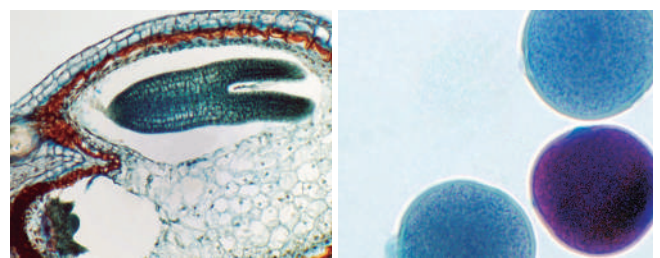
▶ QGF - Plant histology

▶ Angiosperms - Stems 



Code	Description
QGF052	Helianthus young stem, l.s.
QGF053	Sambucus williamsii stem, c.s.
QGF054	Hibiscus syriacus stem, c.s.
QGF055*	Tilia 1 year stem, c.s.
QGF056	Arachis hypogaea young stem, c.s.
QGF057	Arachis hypogaea old stem, c.s.
QGF058	Arachis hypogaea old stem, c.s.
QGF059	Corn stem, c.s.
QGF060	Corn stem, l.s.
QGF061	Medicago sativa stem, c.s.
QGF062	Orange stem, c.s.
QGF063	Nerium indicum stem, c.s.
QGF064	Pelargonium hortorum stem, c.s.
QGF110	Mono and dicotyledon stems, c.s.
QGF112	Tilia 1, 2 and 3 year stem, c.s.
QGF115	Herbage and woody stem, c.s.
QGF119	Helianthus stem, c.s.
QGF120	Gossypium young stem, c.s.
QGF121	Gossypium old stem, c.s.
QGF123	Sugarcane stem, c.s.
QGF001*	Ricinus comunis old stem c.s.
QGF002*	Pyrus s.p. stem, c.s.

▶ Angiosperms - Reproductive organs and seeds 

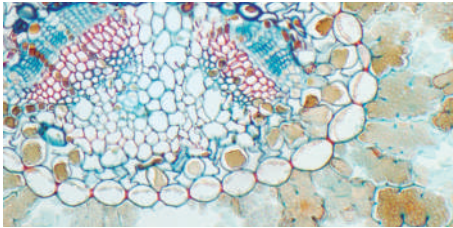


Code	Description
QGF095	Lily pollen, w.m.
QGF096	Lily anther, c.s.
QGF097	Lily ovary, c.s.
QGF098	Narcissus tazetta ovary, c.s.
QGF099	Helianthus ovary, c.l.
QGF100	Capsella young embryo, sec.
QGF101	Capsella middle embryo, sec.
QGF102	Capsella mature embryo, sec.
QGF103	Triticum aestivum seed, l.s.
QGF104	Corn seed, l.s.
QGF107	Capsicum pericarp, sec.
QGF108	Luffa cylindrica pollen, w.m.
QGF114	Lilium embryo sac development .
QGF133	Germinated pollen, w.m.



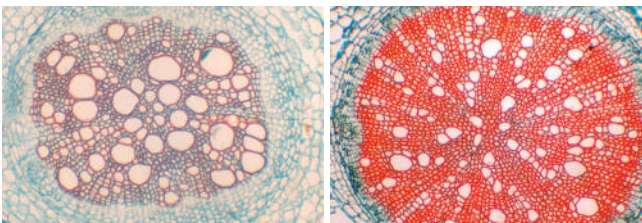
▶ QGF - Plant histology

▶ Gynosperms



Code	Description
QGF027	Pine leaf, c.s.
QGF028	Pine 1 year stem, c.s.
QGF029	Pine 10 years stem, s.t.
QGF030	Male pine cone, l.s.
QGF031	Female pine cone, l.s.
QGF032	Pine pollen, w.m.

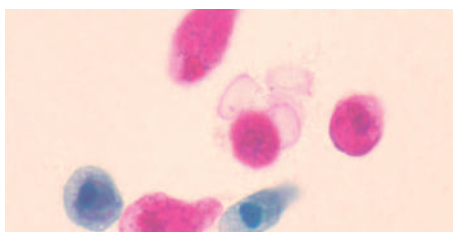
▶ Angiosperms - Roots



Code	Description
QGF033	Cuscuta chinensis parasitic root, c.s.
QGF034	Helianthus old root, c.s. .
QGF035	Ranunculus japonicus root, c.s.
QGF036	Vicia faba young root, c.t.
QGF037	Vicia faba old root, s.t.
QGF038	Vicia faba lateral root, c.s.
QGF039	Ipomoea batatas root, c.s.
QGF040	Iris root, c.s.
QGF041	Gossypium root, c.s.
QGF042	Glycine max root, c.s.
QGF043	Glycine max root nodule, c.s.
QGF044	Raphanus sativus fleshy root, c.s.
QGF045	Daucus carota root, c.s.
QGF047	Onion root, c.s.
QGF048	Corn root, c.s.
QGF049	Oryza sativa root, c.s.
QGF050	Earthpea root, c.s.
QGF109	Mono and dicotyledon roots, c.s.
QGF124	Sugarcane root, c.s.
QGF131	Allium tuberosum root, c.s.

▶ QGJ - Zoology

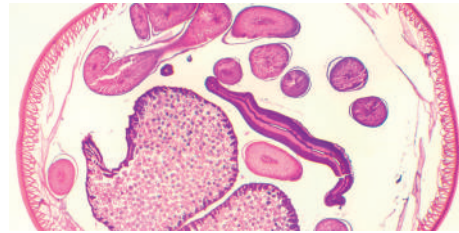
▶ Bacteria and protozoa



Code	Description
QGJ001	Paramecium, w.m.
QGJ002	Unicellular animal, w.m.
QGJ046	Three types of bacteria smear

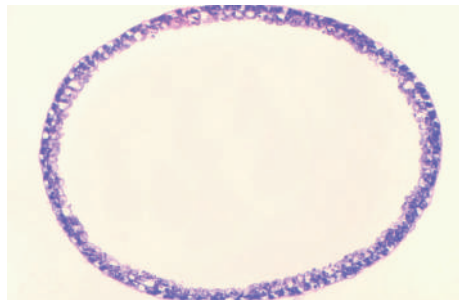
▶ QGJ - Zoology

▶ Aschelminthes, molluscs an annelids



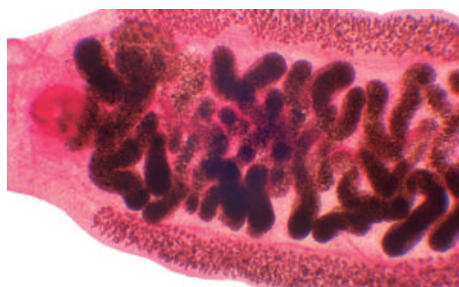
Code	Description
QGJ013	Ascaris male, c.s.
QGJ014	Ascaris female, c.s.
QGJ015	Ascaris male and female, c.s.
QGJ052	Mussel gills, w.m.
QGJ016	Hirudo niponia, w.m.
QGJ017	Earthworm, c.s.

▶ Cnidaria



Code	Description
QGJ003	Hydra w.m.
QGJ004*	Hydra spermary, c.s.
QGJ005*	Hydra ovary, c.s.
QGJ009	Hydra, l.s.
QGJ047	Hydra, c.s.

▶ Plathelminthes

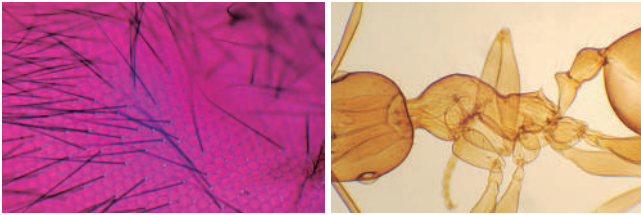


Code	Description
QGJ010	Turbellaria, w.m.
QGJ011	Turbellaria, c.s.
QGJ012*	Bladder worm, w.m.
QGJ028	Schistosoma miracidium, w.m.
QGJ029	Schistosoma male, w.m.
QGJ030	Schistosoma female, w.m.
QGJ031	Schistosoma male anf female conjugation, w.m.
QGJ048	Turbellaria, digestive tube, w.m.
QGJ049*	Clonorchis sinensis, w.m.
QGJ064	Schistosoma eggs, w.m.
QGJ065	Schistosoma cercaria, w.m.



**QGJ - Zoology**

**Arthropods**



Code	Description
QGJ006	Daphnia, w.m.
QGJ007	Siphonaptera, w.m.
QGJ008	Aphis, w.m.
QGJ018	Male mosquito mouth parts, w.m.
QGJ019	Female mosquito mouth parts, w.m.
QGJ020	House fly mouth parts, w.m.
QGJ021	Honeybee mouth parts, w.m.
QGJ022	Butterfly mouth parts, w.m.
QGJ023	Grasshopper mouth parts, w.m.
QGJ024	Periplaneta mouth parts, w.m.
QGJ025	Insect compound eye, sec.
QGJ033*	Caterpillar
QGJ034	Spider, w.m.
QGJ035	Mosquito larva, w.m.
QGJ036	House fly, w.m.
QGJ037	Female mosquito, w.m.
QGJ038	Male mosquito, w.m.
QGJ039	Fruit fly, w.m.
QGJ040	Ant, w.m.
QGJ041	Insect digging leg, w.m.
QGJ042	Insect walking leg, w.m.
QGJ043	Insect swimming leg, w.m.
QGJ044	Insect leaping leg, w.m.
QGJ045	Insect pollinating leg, w.m.
QGJ050	Tetranychus telarius, w.m.
QGJ051	Insect compound eye, w.m.
QGJ054	House fly wing, w.m.
QGJ055	Butterfly wing, w.m.
QGJ056	Honeybee wing, w.m.
QGJ057	House fly leg, w.m.
QGJ058	Honeybee front and back leg, w.m.
QGJ059	House fly antenna, w.m.
QGJ060	White ant antenna, w.m.
QGJ061	Mosquito antenna, w.m.
QGJ062	Chafer antenna, w.m.
QGJ063	Honeybee antenna, w.m.

**Chordates and vertebrates**



Code	Description
QGJ027	Branchiostoma belcheri, pharynx, c.s.
QGJ032	Bird feather, w.m.
QGJ053	Fish scale, w.m.



**QGR - Slide sets**

**Reproduction and genetics**



- 1 | Aimed at illustrating the processes of both animal and plant reproduction; they allow a journey from the apparently simple division of a cell through the mechanism of mitosis, to the complex embryonic development of plants and higher animals.
- 2 | Supplied in a plastic box to ensure the protection and durability of the preparations.

**1\_ Genetics**

Code	Set	Nº slides
QGR006	Genetics	5

1 | Includes human and polygenic chromosome preparations, animal mitosis, plant mitosis and meiosis. Composed of:

- QGB077 - Human chromosomes in blood, male
- QGF113 - Meiosis, lily anther, c.s.
- QGB001 - Mitosis horse Ascaris eggs, sec.
- QGF046 - Mitosis, onion root tip cells, l.s.
- QGB003 - Giant chromosomes of salivary gland, w.m.

**2\_ Animal and plant rep.**

Code	Set	Nº slides
QGR005	Animal and plant rep.	24

1 | Includes preparations of the gametogenesis process and early stages of amphibian embryonic development, sexual reproduction of gymnosperms and angiosperms Composed of:

- QGB051 - Human sperm smear
- QGF095 - Lily pollen, w.m
- QGB067 - Frog sperm smear
- QGF108 - Luffa cylindrica pollen, w.m.
- QGB068 - Frog testicle, sec.
- QGF133 - Germinated pollen, w.m.
- QGB069 - Frog ovary, sec.
- QGF114 - Lilium embryo sac development
- QGB006 - Frog egg, sec.
- QGF100 - Capsella young embryo, sec.
- QGB007 - Two cell stage frog egg, sec.
- QGF101 - Capsella middle embryo, sec.
- QGB008 - Cleavage stage frog egg, sec.
- QGF102 - Capsella mature embryo, sec.
- QGB009 - Frog blastula, sec.
- QGF103 - Triticum aestivum seed, l.s. .
- QGB010 - Frog gastrula, sec.
- QGF104 - Corn seed, l.s.
- QGF032 - Pine pollen, w.m.
- QGF126 - Persimmon pulp cells
- QGF030 - Male pine cone, l.s.
- QGF107 - Capsicum pericarp, sec.
- QGF031 - Female pine cone, l.s.



## QGR - Slide sets

## Histology and organography



### 1\_ Animal histology

Code	Set	N° slides
QGR001	Animal histology	24

1 | Includes preparations of blood, epithelium, connective tissue, cartilage, bone, muscle and nerve tissue. Composed of:

QGB017 - Human blood smear	QGB057 - Human skin, hair follicles, sec.
QGB073 - Frog large intestine, c.s.	QGB042 - Gall bladder, sec.
QGB018 - Frog blood smear	QGB056 - Human skin, sweat glands, sec.
QGB063 - Trachea, c.s.	QGB022 - Skeletal muscle, l.s. and c.s.
QGB019 - Fish blood smear	QGB012 - Stratified flat epithelium, sec.
QGB015 - Cartilage, sec.	QGB023 - Cardiac muscle, sec.
QGB020 - Snake blood smear	QGB011 - Simple flat epithelium, w.m.
QGB016 - Compact bone, w.m.	QGB024 - Rabbit spinal cord, c.s.
QGB058 - Gallus domestica blood smear	QGB036 - Small intestine, c.s.
QGB066 - Mouse tail, c.s.	QGB028 - Motor nerve endings, rabbit, w.m.
QGB014 - Loose connective tissue, w.m.	
QGB047 - Kidney, l.s.	
QGB059 - Tendon, dense connective tissue, l.s.	
QGB021 - Smooth muscle, teared, w.m.	

### 2\_ Plant histology

Code	Set	N° slides
QGR002	Plant histology	24

1 | Includes meristem preparations, parenchyma, cholenchyma, sclerenchyma, xylem, phloem and protective tissue. Composed of:

QGF046 - Mitosis, onion root tip cells, l.s.	QGF065 - Stem with collenchyma, c.s.
QGF081 - Ligustrum lucidum leaf, c.s.	QGF069 - Stem with sieve tubes, l.s.
QGF105 - Stone cells, pear fruit, sec.	QGF087 - Triticum aestivum leaf, c.s.
QGF076 - Vicia faba stomata, s.e.	QGF127 - Sugarcane armpit bud, c.s.
QGF051 - Narcissus tazetta root tip, l.s.	QGF053 - Sambucus williamsii stem, c.s.
QGF132 - Solanum tuberosum tuber, sec.	QGF074 - Triticum aestivum stomata, w.m.
QGF086 - Osmanthus fragans leaf, stone cells, c.s.	QGF080 - Nerium indicum leaf, sunken stomata, c.s.
QGF077 - Commelina communis stomata, w.m.	QGF070 - Stem with intercalary meristem, l.s.
QGF071 - Syringo stem tip, l.s.	QGF066 - Stem with sclerenchyma, c.s.
QGF091 - Sunken plant leaf, aerenchyma, c.s.	QGF075 - Stomates d'Oryza sativa, s.e.
QGF082 - Jasminum nudiflorum leaf, c.s.	QGF092 - Fig leaf, c.s.
QGF088 - Oryza sativa leaf, c.s.	
QGF072 - Hydrilla verticillata stem tip, l.s.	



## QGR - Slide sets

### 3\_ Animal organography



Code	Set	N° slides
QGR003	Animal organography	25

1 | Includes preparations of skin, digestive, excretory, respiratory and reproductive systems, circulatory, lymphoid and nervous systems and sense organs of mammals. Composed of:

QGB046 - Artery and vein, c.s.	QGB057 - Human skin, hair follicles, sec.
QGB063 - Trachea, c.s.	QGB041 - Spleen, sec.
QGB033 - Esophagus, c.s.	QGB056 - Human skin, sweat glands, sec.
QGB064 - Trachea, l.s.	QGB054 - Lymph node, sec.
QGB035 - Wall of stomach, sec.	QGB060 - Tongue with filiform papillae, l.s.
QGB043 - Lung, sec.	QGB047 - Kidney, l.s.
QGB037 - Jejunum, sec.	QGB032 - Taste buds, rabbit, sec.
QGB044 - Lung, blood irrigation, sec.	QGB048 - Kidney, blood irrigation, sec.
QGB039 - Large intestine, c.s.	QGB055 - Eyeball, l.s.
QGB050 - Rabbit ovary, sec.	QGB049 - Urinary bladder, sec.
QGB040 - Pancreas, sec.	
QGB065 - Rabbit testicle, sec.	
QGB061 - Pig liver, sec.	
QGB024 - Rabbit spinal cord, c.s.	
QGB042 - Gall bladder, sec.	

### 4\_ Plant organography

Code	Set	N° slides
QGR004	Plant organography	25

1 | Includes preparations of stems, roots, leaves and reproductive organs of gymnosperms and angiosperms (monocots and dicotyledons). Composed of:

QGF028 - Pine 1 year stem, c.s.	QGF078 - Three types of plant leaves, c.s.
QGF042 - Glycine max root, c.s.	QGF067 - Stem with lenticels, c.s.
QGF029 - Pine 10 years stem, c.s.	QGF068 - Morus alba petiole, abscission layer, l.s.
QGF038 - Vicia faba lateral root, c.s.	QGF109 - Mono and dicotyledon roots, c.s.
QGF112 - Tilia 1, 2 and 3 year stem, c.s.	QGF097 - Lily ovary, c.s.
QGF049 - Oryza sativa root, c.s.	QGF033 - Cuscuta chinensis parasitic root, c.s.
QGF110 - Mono and dicotyledon stems, c.s.	QGF098 - Narcissus tazetta ovary, c.s.
QGF043 - Glycine max root nodule, c.s.	QGF039 - Ipomoea batatas root, c.s.
QGF115 - Herbage and woody stem, c.s.	QGF099 - Helianthus ovary, c.l.
QGF027 - Pine leaf, c.s.	QGF045 - Daucus carota root, c.s.
QGF056 - Arachis hypogaea young stem, c.s.	QGF096 - Lily anther, c.s.
QGF111 - Mono and dicotyledon leaves, c.s.	QGF035 - Ranunculus japonicus root, c.s.
QGF057 - Arachis hypogaea old stem, c.s.	



**▶ QGR - Slide sets**

**▶ Zoology**



- 1 | Aimed at studying the different evolutionary groups that make up the animal kingdom, with special emphasis on the animal group with the greatest diversification and specialization: insects.
- 2 | Supplied in a plastic box to ensure the protection and durability of the preparations.

**1\_ Insects anatomy**

Code	Set	Nº slides
QGR007	Insects anatomy	24

1 | Includes preparations of different types of wings, legs, antennas, mouthparts and eyes of insects. Composed of:

- |  |  |
|--|--|
| QGJ041 - Insect digging leg, w.m.          | QGJ063 - Honeybee antenna, w.m.            |
| QGJ023 - Grasshopper mouth parts, w.m.     | QGJ018 - Male mosquito mouth parts, w.m.   |
| QGJ042 - Insect walking leg, w.m.          | QGJ054 - House fly wing, w.m..             |
| QGJ024 - Periplaneta mouth parts, w.m.     | QGJ019 - Female mosquito mouth parts, w.m. |
| QGJ043 - Insect swimming leg, w.m.         | QGJ055 - Butterfly wing, w.m.              |
| QGJ059 - House fly antenna, w.m.           | QGJ020 - House fly mouth parts, w.m.       |
| QGJ044 - Insect leaping leg, w.m.          | QGJ056 - Honeybee wing, w.m.               |
| QGJ060 - White ant antenna, w.m.           | QGJ021 - Honeybee mouth parts, w.m.        |
| QGJ045 - Insect pollinating leg, w.m.      | QGJ051 - Insect compound eye, w.m.         |
| QGJ061 - Mosquito antenna, w.m.            | QGJ022 - Butterfly mouth parts, w.m.       |
| QGJ057 - House fly leg, w.m.               | QGJ025 - Insect compound eye, sec.         |
| QGJ062 - Chafer antenna, w.m.              |  |
| QGJ058 - Honeybee front and back leg, w.m. |  |

**2\_ Microorganisms**

Code	Set	Nº slides
QGR008	Microorganisms	13

1 | Includes preparations with examples of prokaryotes, fungi and animals and single-cell algae. Composed of:

- |  |   |
|--|---|
| QGJ001 - Paramecium, w.m.              | QGF005 - <i>Rhizopus nigricans</i> , m.e. |
| QGF008 - Yeast, w.m.                   | QGF012 - Spirogyra conjugation, w.m.      |
| QGJ002 - Unicellular animal, w.m.      | QGF006 - <i>Penicillium</i> , w.m.        |
| QGF010 - <i>Chlamydomonas</i> , w.m.   | QGF116 - Spirogyra vegetative mass, w.m.  |
| QGJ046 - Three types of bacteria smear | QGF007 - <i>Aspergillus</i> , w.m.        |
| QGF130 - <i>Euglena</i> , w.m. .       |   |
| QGF125 - Blue-green alga, w.m.         |   |
| QGF011 - <i>Volvox</i> , w.m.          |   |

**3\_ Life cycless**

Code	Set	Nº slides
QGR009	Life cycless	12

1 | Includes preparations of the different phases of the hepatic, moss and fern life cycle. Composed of:

- |  |   |
|--|---|
| QGF014 - Marchantia thallus, c.s.                    | QGF025 - Fern prothallus with antheridium, c.s. |
| QGF015 - Marchantia sorus, sec.                      | QGF019 - Moss, w.m.                             |
| QGF024 - Fern prothallus with young sporophyte, w.m. | QGF026 - Fern prothallus with archegonium, c.s. |
| QGF117 - Fern sorus, sec.                            | QGF020 - Moss protonema, w.m.                   |
| QGF016 - Marchantia antheridium, l.s.                | QGF118 - Fern subterranean stem, c.s.           |
| QGF128 - Fern sporangium, w.m.                       |   |
| QGF017 - Marchantia archegonium, l.s.                |   |

**▶ QGR - Slide sets**

**4\_ Zoology**



Code	Set	Nº slides
QGR010	Zoology	40

1 | Includes preparations of skin, digestive, excretory, respiratory and reproductive systems, circulatory, lymphoid and nervous systems and sense organs of mammals. Composed of:

- |   |  |
|---|--|
| QGJ001 - Paramecium, w.m.                   | QGJ035 - Mosquito larva, w.m.                          |
| QGJ013 - Ascaris male, c.s.                 | QGJ029 - Schistosoma male, w.m.                        |
| QGJ002 - Unicellular animal, w.m.           | QGJ036 - House fly, w.m.                               |
| QGJ014 - Ascaris female, c.s.               | QGJ030 - Schistosoma female, w.m.                      |
| QGJ003 - Hydra w.m.                         | QGJ037 - Female mosquito, w.m.                         |
| QGJ015 - Ascaris male and female, c.s.      | QGJ031 - Schistosoma male anf female conjugation, w.m. |
| QGJ066 - Paramecium conjugation, w.m        | QGJ038 - Male mosquito, w.m.                           |
| QGB001 - Mitosis horse Ascaris eggs, sec.   | QGJ048 - Turbellaria, digestive tube, w.m.             |
| QGJ067 - Paramecium fission, w.m.           | QGJ039 - Fruit fly, w.m.                               |
| QGJ052 - Mussel gills, w.m.                 | QGJ049 - Clonorchis sinensis, w.m.                     |
| QGJ009 - Hydra, l.s.                        | QGJ040 - Ant, w.m. .                                   |
| QGJ006 - Daphnia, m.e.                      | QGJ064 - Schistosoma eggs, w.m.                        |
| QGJ047 - Hydra, c.s.                        | QGJ026 - Branchiostoma belcheri, w.m.                  |
| QGJ007 - Siphonaptera, w.m.                 | QGJ065 - Schistosoma cercaria, w.m                     |
| QGJ010 - Turbellaria, w.m.                  | QGJ027 - Branchiostoma belcheri, pharynx, c.s.         |
| QGJ008 - Aphis, w.m.                        | QGJ016 - Hirudo niponia, w.m.                          |
| QGJ011 - Turbellaria, c.s.                  | QGJ032 - Bird feather, w.m.                            |
| QGJ050 - Tetranychus telarius, w.m.         | QGJ017 - Earthworm, c.s.                               |
| QGJ068 - Bombyx mori larva (silkworm), w.m. | QGJ053 - Fish scale, w.m.                              |
| QGJ034 - Spider, w.m.                       |  |
| QGJ028 - Miracidio de Schistosoma, m.e.     |  |

**▶ Basic Education Set**



Code	Set	Nº slides
QGR011	Basic Education Set	24

1 | Includes 24 prepared slides in 6 categories:

- Animals: Mouse hair, hare hair, dog hair, sheep hair
- Plants: Arachis hypogaea stem, Ficus leaf, onion epidermis, scaly hair of silver berries
- Insects: Bee abdomen, bee leg, grasshopper wing, housefly leg
- Textile fibers: Colored threads, handmade paper, fingerprints, Bem-berg
- Pollen & Spores & Seeds: Lily pollen, pine pollen, bottlebrush seeds, fern spores
- Small creatures: Plant lice, ant, shrimp egg, Daphnia



▶ QLB - Mechanics and fluids

▶ Inclined plane



- 1 | Composed of 2 metal plates joined by a hinge at one end; one of the plates serves as a base, and the other as an inclined plane.
- 2 | The apparatus includes a plastic cart with a hook, a set of weights (1x100 g, 1x50 g, 1x20 g), and a small plate with a string of negligible mass.

Code	Description
QLB001	Inclined plane

▶ Force plane



- 1 | Circular scale graduated from 0 to 360° (divisions every 1° and number every 10°)
- 2 | Includes 4 pulleys with clamps, set of ropes, centering bar and 4 sets of weights (1x100 g, 1x10 g, 1x20 g, 1x50 g) with slots and hook (100 g).

Code	Description
QLB002	Force plane

▶ Free fall apparatus with digital timer



- 1 | The equipment consists of an electromagnet mounted on a plastic casing that allows a metal ball attached to a square section bar to be released.
- 2 | The time elapsed between the ball being released and hitting the platform will be shown on the digital counter display in order to calculate the gravity g of free fall.
- 3 | The equipment includes a digital counter.

Code	Description
QLB003	Free fall apparatus with digital timer

▶ QLB - Mechanics and fluids

▶ Communicating vessels



- 1 | Composed of 4 glass tubes each with a different diameter section and shape, connected to each other at the base by a horizontal glass tube common to all of them, sealed in a manifold and mounted on a support.

Code	Description
QLB004	Communicating vessels

▶ Pressure syringes



- 1 | Composed of a pair of graduated glass syringes with capacities of 50 and 10 cm<sup>3</sup> and providing a cross-sectional area ratio of 3:1.
- 2 | They are mounted on a metal base and feature a platform on top for weight attachment; the nozzles of both syringes are connected by a 3-position valve.
- 3 | Set of weights included: 1x200 g, 2x100 g, 1x50 g, 2x20 g, 1x10 g.
- 4 | Enables simple Boyle's Law experiments to be carried out.

Code	Description
QLB005	Pressure syringes

▶ Bell jar with hand vacuum pump



- 1 | Instrument designed to demonstrate the effect of atmospheric pressure.
- 2 | Consisting of a transparent bell and a vacuum hand pump both made of tough ABS plastic.
- 3 | The hood is fitted with a pressure gauge and a vacuum release valve.
- 4 | Note: Exposure or contact of the apparatus to organic solvents or vapours or other aggressive chemical reagents is strictly prohibited. The apparatus is NOT autoclavable.

Code	Description
QLB006	Bell jar with hand vacuum pump



QLB - Mechanics and fluids

▶ U tube manometer



- 1 | With stopcock located near the end of one of the branches and mounted on a bracket.
- 2 | The scale has a 50-0-50 graduation with 1 mm divisions.

Code	Description
QLB007	U tube manometer

▶ Magdeburg hemispheres



- 1 | The apparatus consists of two hemispheres of about 100 mm  $\varnothing$ , both with a handle at the top. One of them has a plastic key for the vacuum inside by means of a vacuum pump and a rubber ring on the inside for proper sealing.
- 2 | The lightweight plastic construction makes it easy to handle and use.

Code	Description
QLB008	Magdeburg hemispheres

▶ Mechanics kit



- 1 | Kit for studying mechanical motion with various components to demonstrate Hooke's law, Newton's third law, among others. Components: 1x 1N dynamometer, 1x 2N dynamometer, 1x inclined beam, 2x weighing plates, 2x weights with hooks, 1x balance lever, 1x support with scale, 4x S-shaped hooks, 3x magnetic clamps, 4x threaded bolts, 1x spring, 2x supports with magnets, 1x set of weights, 1x magnetic tape measure with scale in blocks and pointer, 1x torque table, 1x pulley support, 1x level, 1x 48 mm pole, 1x 106 mm pole.

Code	Description
QLB009	Mechanics kit



QLB - Mechanics and fluids

▶ Metal cube set, 20 mm



- 1 | Set of 6 cubes of various materials; supplied in a box. Composed by 1 cube of 20mm of each material: Brass, Lead, Iron, Copper, Aluminium and Zinc.

Code	Description
QLB010	Metal cube set, 20mm

▶ Density cylinder set



- 1 | Composed of 12 cylinders of different materials and different lengths (38mm-60 mm), but with the same  $\varnothing$  of 12,5 mm.
- 2 | The cylinders are made of the following materials: copper, brass, acetyl, rubber, acrylic, aluminium, polypropylene, PVC, nylon, oak, maple, and walnut.

Code	Description
QLB011	Density cylinder set

▶ Aluminum cylinder set for density determination



- 1 | Composed of 12 aluminium rods each of different length (different mass and volume) but of the same  $\varnothing$  of 12.5 mm. Useful to show the constant density with size variation. It can also be used to study the specific heat capacity of the material.

Code	Description
QLB012	Aluminum cylinder set for density determination



▶ QLB - Mechanics and fluids

▶ Specific Gravity Determination Set



- 1| Set for determining specific gravity consisting of four cylindrical rods of the same size but of different materials: brass, aluminium, copper and iron.
- 2| The size of the cylinder is 12,5 mm (D) × 50 mm (L).

Code	Description
QLB013	Specific Gravity Determination Set

▶ Elastic materials kit



For the study of the elastic behaviour of different materials. The kit consists of the following components:

- 25 extendable steel springs of 13 × 29 mm.
- 2 wide steel springs of approximately 114 × 75 mm (L × D)
- 2 blocks of soft latex foam
- 1 spool of copper wire 32 SWG, 50g
- 2 spools of copper wire 26 SWG, 50g
- 1 soft rubber tube (50 cm)
- 4 cords with ring at both ends
- 4 soft rubber erasers for twisting

Code	Description
QLB014	Elastic materials kit

▶ Set of metal cubes with hooks

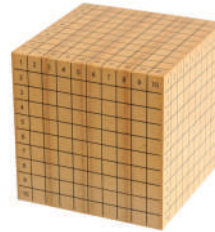


- 1| Designed for use with density, specific gravity and specific heat in educational experiments.
- 2| Composed of 20mm size cubes with hook for easy suspension and the following materials: brass, lead, copper, iron, aluminium, zinc and tin.

Code	Description
QLB015	Set of metal cubes with hooks

▶ QLB - Mechanics and fluids

▶ Cube decimeter



- 1| Hardwood cube 10 cm in size, precision cut and finished, with a total volume of 1 dm<sup>3</sup>, 1000 cm<sup>3</sup> or 1 litre.
- 2| Each side of the cube has a 10×10 grid, with a total of 100 1 cm squares in each first row and column forming a grid on each side marked 1 to 10.

Code	Description
QLB016	Cube decimeter

▶ Density sphere



- 1| Demonstrates the relationship of the density of a liquid to temperature.
- 2| It consists of a hollow copper sphere, with a sealed mouth, carefully adjusted to float in cold water and sink in hot water.

Code	Description
QLB017	Density sphere

▶ QLD - Waves and sounds

▶ Wave form helix



QLD001

- 1| Springs made of wire specially designed for the demonstration of wave motion. The Snakey type springs has bent ends for safety.

Code	Description	∅	Length
QLD001	Snakey	19 mm	300 cm
QLD002	Slinky	75 mm	10 cm



▶ QLD - Waves and sounds

▶ Vibrator generator with accessories



- 1 | Especially suitable for the production of mechanical oscillations.
- 2 | The voltage input is via 4 mm pins and the output of mechanical oscillations is via a shaft at the top.
- 3 | A locking system provides safety by blocking the movement of the shaft.
- 4 | The unit is supplied complete with Chladni plates and steel strips.

Code	Description
QLD003	Vibrator generator w/accessories

▶ Melde's apparatus



- 1 | To show the effects of vibrations on a stretched string and to investigate the relationship between frequency, tension and density.
- 2 | Consisting of a thin metal rod mounted on a clamp formed by a pair of 4 mm terminal pins, so that its free length can be adjusted as desired.

Code	Description
QLD004	Melde's apparatus

▶ Pendulum



- 1 | Designed for carrying out numerous experiments related to pendulum motion.
- 2 | The apparatus consists of a metric ruler attached vertically to the rod of a support. From the upper end of the support, a rod from which hang three spheres, each 25 mm in diameter and made of different materials (wood, steel and aluminium).

Code	Description
QLD005	Pendulum

▶ QLD - Waves and sounds

▶ Pair of tuning forks with box



- 1 | Consisting of a pair of nickel-plated tuning forks of frequency A (426.6), each mounted on the top of a soundboard.
- 2 | Each tuning fork has a sliding part on one of the branches by means of which the frequency can be changed from the nominal frequency.
- 3 | It includes a disc type rubber hammer.

Code	Description
QLD006	Pair of tuning forks with box

▶ Set 8 tuning forks



- 1 | With flat branches and clearly marked frequency.
- 2 | Consisting of 8 tuning forks each with a frequency (Hz) of the diatonic scale: C1-(256), D-(288), E-(320), F-(341.3), G-(384), A-(426.6), B-(480) and C2-(512).
- 3 | Supplied with box.

Code	Description
QLD007	Set 8 tuning forks

▶ QLG - Light and optics

▶ Newton color disk



Code: QLG001



Code QLG002

- 1 | Designed to demonstrate that white light is composed of the additive mixture of all the colours of the spectrum.
- 2 | They consist of a circular multicolour disc with sectors of different spectral colours in the appropriate proportion.

Code	Description	Ø
QLG001	Manual	200 mm
QLG002	Motorised	80 mm



▶ QLG - Light and optics

▶ Optical bench



- 1 | Made of aluminium with a ruler graduated in millimetres. Also equipped with brackets for the attachment of various accessories whose height can be adjusted.
- 2 | The optical bench is supplied complete with the following accessories: halogen lamp, flat glass, lens holder, black circular screen with aperture, diaphragm, ground glass screen, grating holder, cross-slotted plate, Jolly photometer, needle holder and receiver screen.

Code	Description
QLG004	Optical bench

▶ Hartl's disk with laser



- 1 | Designed to study the various concepts of optics including reflection and refraction using the ray tracing technique.
- 2 | Consisting of a rotating white metal disc, with a 90°-0-90°-0-90° graduation.
- 3 | The equipment is supplied with a laser type light source which allows the projection of 1, 3 or 5 parallel beams for the performance of the different experiments.
- 4 | Prisms and mirrors with magnets are also included so that they can be placed on the disc.

Code	Description
QLG005	Hartl's disk with laser

▶ Refraction disk



- 1 | Metal disc divided into 4 quadrants graduated from (0-90)°.
- 2 | It has a semicircular acrylic tank which occupies half of the disc to determine the refractive index of different liquids such as water, oil, etc.
- 3 | The whole assembly is mounted on a metal base with 1-7 markings to place the light source at the desired level.

Code	Description
QLG006	Refraction disk

▶ QLG - Light and optics

▶ Laser ray box, red



- 1 | Colour red laser beam box (wavelength 650 nm) with a choice of 1, 3 and 5 parallel beams.
- 2 | Supplied with power adapter.

Code	Description
QLG007	Laser ray box, red

▶ Hand spectroscope



- 1 | Designed for qualitative examination of the composition of absorption and emission spectra.
- 2 | Features a collimator, prism and telescope mounted inside a straight tube.
- 3 | The end of the eyepiece can be slid along its length to focus the spectrum.
- 4 | Supplied in a wooden box.

Code	Description
QLG008	Hand spectroscope

▶ Power supply for spectral tubes



- 1 | With On/Off switch and protected plugs for complete safety during use.
- 2 | The colour black power supply eliminates the effect of ambient light.

Code	Description
QLG009	110-240 V AC, 50-60 Hz



▶ QLG - Light and optics

▶ Spectral tubes



1 | Each tube is filled with a type of gas or vapour to study the respective emission spectra.

Code	Gas type	Length
QLG010	Argon	265 mm
QLG011	Helium	265 mm
QLG012	Neon	265 mm
QLG013	Hydrogen	265 mm
QLG014	Nitrogen	265 mm
QLG015	Mercury	265 mm

▶ Laser ray optics kit



1 | The kit consists of:



- Diode laser box: Consisting of 5 independent laser modules with a peak wavelength of 635nm.
- Power adapter
- Beam selector
- Human eye sheet
- Camera sheet
- Galilean telescope sheet
- Kepler telescope sheet
- Spherical aberration sheet
- Periscope sheet
- Hartle circular sheet
- Biconvex lens, biconcave lens, flat convex lens  $r=45$  mm, flat convex lens  $r=75$  mm, flat concave lens
- Concave mirror
- Convex mirror
- Flat mirror
- Rectangular slab
- Prism
- Optical fibre
- Magnetic board

Code	Description
QLG017	Laser ray optics kit

▶ QLG - Light and optics

▶ Magnetic optic ray kit



1 | The kit consists of:

- Light box.
- Power supply.
- 1- and 2-slot diaphragm.
- 3 and 5 slits diaphragm.
- Right angle prism.
- Concave lens.
- Convex lens.
- Trapezoidal acrylic body.
- Semicircular body.
- Parabolic Mirror.
- Smooth Mirror.
- Colour filter set
- Optical disc.
- Metal board.

Code	Description
QLG018	Magnetic optic ray kit

▶ QLJ - Thermology

▶ Gravesande`s ring and ball

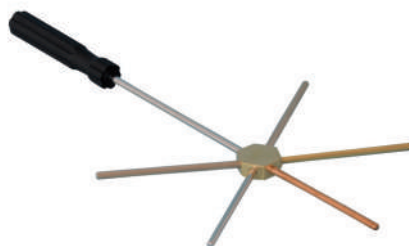


1 | Instrument for demonstrating the thermal expansion of solids. Consists of a brass ring and ball, both mounted on separate handles.

2 | When cold, the 19 mm  $\varnothing$  ball passes easily through the ring but does not pass through it when heated.

Code	Description
QLJ001	Gravesande`s ring and ball

▶ Thermal conductivity apparatus star shaped



1 | It allows the demonstration of the differences in thermal conductivity of 5 different metals: brass, copper, aluminium, steel and stainless steel.

Code	Description
QLJ002	Thermal conductivity apparatus star shaped



▶ QLJ - Thermology

▶ Joule's calorimeter



- 1| It consists of an inner vessel of about 300 mL volume contained in an outer vessel of about 900 mL, both made of aluminium and separated by insulating material to minimise heat loss.
- 2| The lid has a stirring rod and a hole for inserting a thermometer.

Code	Description
QLJ003	Joule's calorimeter

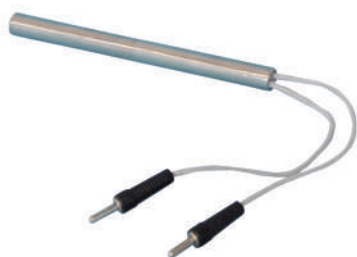
▶ Calorimeter block



- 1| For experiments to determine the specific heat capacity of different metals.
- 2| Each block is cylindrical in shape and has a mass of  $1 \text{ kg} \pm 2\%$  and has two holes, a large central one (about 12.5 mm) to house the resistor and a smaller one (about 7.5 mm) to house a thermometer or a temperature sensor.

Code	Material
QLJ004	Aluminium
QLJ005	Steel
QLJ006	Copper
QLJ007	Brass

▶ Heating resistance for calorimeter blocks



- 1| Heating element specially designed for use with the calorimetric blocks.
- 2| The heating element is housed in a stainless steel sheath from which there are two cables for electrical connection. The heating element operates on 12 V, 50 W power.

Code	Description
QLJ008	Heating resistance f/calorimeter blocks

▶ QLJ - Thermology

▶ Boyle's law apparatus



- 1| It consists of a graduated cylinder of  $(0-300) \text{ cm}^3$  made of transparent material placed on a support. At one end the cylinder is closed by a piston and at the other end there is a valve to regulate the mass of air contained in the cylinder.
- 2| The pressure inside the cylinder is read by means of a needle manometer located next to the valve.

Code	Description
QLJ009	Boyle's law apparatus

▶ Gas kinetics theory model



- 1| Equipment to demonstrate the kinetic theory of gases explaining molecular motion, decrease of density with altitude, increase of pressure/volume ratio with temperature, etc.
- 2| Consists of a transparent cylindrical tube closed with a lid and with a rubber diaphragm at the base over which a vibratory motion is generated by connecting the apparatus to a low voltage electrical source.
- 3| Includes a set of metal balls and a cardboard disc.

Code	Description
QLJ010	Gas kinetics theory model

▶ Thermodynamic kit



- 1| The kit components include: 1 aluminum rod, 1 iron rod, 2 radiation boxes, 1 propeller, 2 bossing heads, 1 hook, 1 Bunsen burner, 1 Erlenmeyer flask, 2 test tubes, 1 small glass tube, 2 large glass tubes, 1 wax crayon, 1 bimetallic strip, 1 conductivity bar device, 1 right-angle steel needle, 1 pointer, 1 graduated thermometer, 1 ungraduated thermometer, 1 wire gauge, paraffin wax, 1 silicone tube, 1 aluminum block, 1 iron block, 3 support rings, 1 alcohol burner, 4 U-tubes, 1 graduated cylinder, 1 water convection tube, 1 calorimeter with lid, 1 large beaker, food coloring, sodium thiosulfate, 2 one-hole stoppers, 2 two-hole stoppers, 3 one-hole silicone stoppers, 2 cork stoppers without holes, 2 universal clamps.

Code	Description
QLJ011	Thermodynamic kit



▶ QLL - Magnetism and electrostatics

▶ Magnets



1 | Different models of magnets for experiments on magnetism and visualisation of magnetic fields.

Ref.	Shape	Dimensions	Material
QLL001	Rectangular	75x75x10 mm	AlNiCo
QLL002	Cylindrical	100x12 mm	AlNiCo
QLL003	Ring	36,18x8 mm	Ceramics
QLL004	Horseshoe	75x12x5 mm	Chrome-plated steel

▶ Iron filling fine



1 | For the study of magnetic fields.  
2 | Supplied in a 500g box.

Code	Description
QLL005	Iron filling fine

▶ Magnetic field demonstrator, 3D

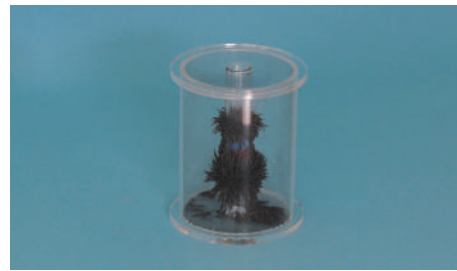


1 | Set of 4 transparent plates, size 155x76x6 mm.  
2 | Includes a rectangular magnet.

Code	Description
QLL006	Magnetic field demonstrator, 3D

▶ QLL - Magnetism and electrostatics

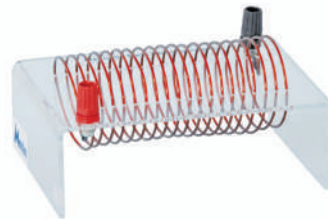
▶ Magnetic field chamber



1 | It consists of a hollow chamber made of transparent acrylic material with a hole in the centre to accommodate the cylindrical magnet.  
2 | It also allows the study of magnets of other shapes by simply placing their adjacent poles on either side of the chamber.

Code	Description
QLL007	Magnetic field chamber

▶ Magnetic field demonstrator



1 | For the study and demonstration of magnetic fields associated with different shapes of current-carrying wire. Three models are available:  
1. Straight: U-shaped copper wire mounted vertically on the base. Maximum current 8 A.  
2. Loop: copper wire in the form of a 1-turn loop. Maximum current 8 A.  
3. Coil: copper coil approx. 52x125 mm (diam. x length).

Code	Description
QLL008	Straight
QLL009	Loop
QLL010	Coil

▶ Stand with magnetic needle



1 | Circular bakelite base with non-magnetic pillar and carbon steel support on which the needle pivots.

Code	Description
QLL011	Stand with magnetic needle



▶ QLL - Magnetism and electrostatics

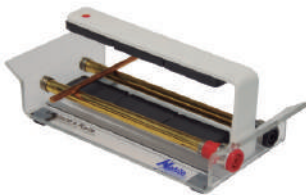
▶ Compass inclinometer



- 1| To demonstrate the earth's magnetic field and illustrate the general rule.
- 2| Consists of an aluminium ring with a double-pointed needle pivoting in the centre; the ring is graduated from 0-360°.
- 3| Mounted on an aluminium stand which can be adjusted in height and rests on a plastic base of dimensions approx. 142x80x40 mm.

Code	Description
QLL012	Compass inclinometer

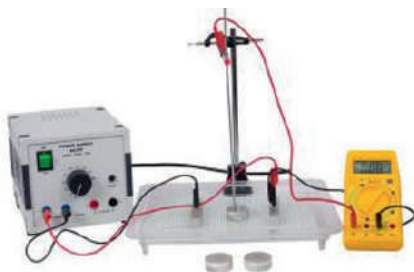
▶ Laplace's rail



- 1| It consists of an acrylic base from which 2 parallel brass rods of about 120 mm in length start.
- 2| To demonstrate the action of a magnetic field on a freely moving conductive element placed on two conductive elements.

Code	Description
QLL013	Laplace's rail

▶ Linear fields and equipotential lines kit

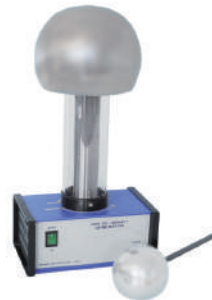


- 1| Power supply (2-12 V AC). Output voltage 2,3,4,5,6,8,10 and 12 V AC full wave, rectified, unsmoothed and unregulated D.D. in max. 8 steps. Overload protection with resettable thermal trip. Operating voltage 230 V AC, 50 Hz.

Code	Description
QLL018	Field lines and equipotential lines kit

▶ QLL - Magnetism and electrostatics

▶ Van de Graaff generator



- 1| Used for electrostatic experiments where a continuous high voltage source is necessary.
- 2| The aluminium base features insulated plastic sides for safety. An internal motor allows continuous movement of a rubber belt between 2 pulleys, this produces charge transfer from the belt to the metal dome via charge collector "combs".
- 3| By positioning the discharge sphere close enough to the charged dome, the charge is transferred to earth in the form of an electric spark which jumps from the dome to the discharge sphere.

Code	Description
QLL014	Van de Graaff generator
QLL016	Belt for Van de Graaff generator

▶ Wimshurst electrostatic generator



- 1| Equipment capable of generating electrostatic potentials.
- 2| Equipped with 2 acrylic plates with aluminium sectors glued radially along the edge. Both plates are parallel to each other and rotate in opposite directions through a system of pulleys and belts; the pulley on one of the plates seats a crank.
- 3| The load can be accumulated in a pair of high-capacity Leyden bottles.
- 4| When the machine starts to rotate, the discharge spheres accumulate charge until the transfer from one discharge sphere to another takes place in the form of an electric spark.

Code	Description
QLL015	Wimshurst electrostatic generator

Accessory	Description
QLL019	Belt



QLN - Electricity and electronics

▶ Power supply, 1-12 V AC/DC



1 | Provided with overload and short-circuit protection.

<b>Code</b>	QLN001
<b>Power</b>	110-240 V AC, 50-60 Hz
<b>Output voltage</b>	AC/DC 1-12 V
<b>Intensity</b>	6 A máx.
<b>Primary protection</b>	Fuse 2 A
<b>Secondary protection</b>	Thermal switch

\*Cables QLN005 and QLN006 are not included.

▶ Regulated power supply, 1-15 V DC



1 | Provided with overload and short-circuit protection.

<b>Code</b>	QLN002
<b>Power</b>	110-220 V $\pm$ 10% AC, 50/60 Hz
<b>Output voltage</b>	0-15 V DC, continuous variable range
<b>Intensity</b>	0-2 A máx., continuous variable range
<b>Displays</b>	2 LED displays for voltage and intensity
<b>Environmental cond.</b>	0-40°C, 95% HR

\*Cables QLN005 and QLN006 are not included.

▶ Electric field apparatus



1 | For the study of the electric field generated by different electrode configurations.

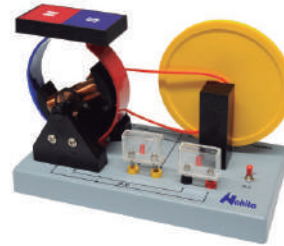
2 | Supplied complete with a circular transparent plastic plate, 2 linear and 2 circular electrodes (35 and 70 mm  $\varnothing$  respectively), 2 straight electrodes and 2 T-shaped electrodes.

Code	Description
QLN003	Electric field apparatus



QLN - Electricity and electronics

▶ Demonstration dynamo, AC/DC



1 | It demonstrates the conversion of mechanical energy into electrical energy and the principle of operation of simple dynamos.

2 | The complete apparatus is mounted on a base and is capable of generating AC and DC current simultaneously.

Code	Description
QLN004	Demonstration dynamo, AC/DC

▶ Power supply for vibration generator



1 | Line and square wave selection.

2 | Internal loudspeaker.

<b>Code</b>	QLN007
<b>Power</b>	110-220 V $\pm$ 10% AC, 50/60 Hz
<b>Output voltage</b>	0-5V
<b>Frequency ranges</b>	10-110Hz, 0,1-1,1 KHz, 1-11 KHz, 10-110KHz
<b>Environmental cond.</b>	0-40°C, 95% HR

▶ Electricity and electronics kit



1 | Electricity and electronics kit in an aluminum case, supplied with: electrical circuit and electrical resistance, divided circuit, electric power, transistors, ohmic semiconductor diode, capacitor in DC circuit, capacitor and resistor in AC circuit, electric motor, electric light cell with application.

Code	Description
QLN008	Electricity and electronics kit