

## Natural Sciences

### Air Apparatus



**Item code: Na1**

- Demonstrates convection
- Painted metal box
- Sliding glass front
- 2 detachable glass chimneys
- Chimneys mounted in spring clips
- Box size: 220 x 150 x 100mm

### Air Track Linear

**Item code: Na2**

- Strong aluminium square tubing
- Two rows of fine holes
- Large catapult arms
- Air inlet tube connection fitted at one end
- Wide bore air hose, 1.7m long
- Track supported by two vertical members with adjustable feet
- Track:
  - Square section aluminium: 48 x 48mm
  - Wall thickness: 2mm
  - Overall length: 2m
  - Hole: 1.5mm
  - Spacing of holes: 20mm
  - Nominal height, centre line above bench: 100mm



- Optional Accessories:
  - Complete set of track accessories
  - Blower - Na3
  - Timer model - NT3
  - Light gate, normally two required

### Air Track Linear Blower

**Item code: Na3**

- 240V, 750W industrial type
- Hose adapter
- 1.5m of 3-core captive mains lead
- Motor and other electrical parts are insulated
- Cylinder dimensions: 340 x 280mm
- Optional accessory: Wide bore air hose, 1.7m long



## Natural Sciences

### Ammeter AC (Import Only)



**Item code: Na4**

- Mounted in either metal or plastic case
- Easy reading angle
- Colour-coded
- Moving coil types
- Single range: 0 - 5A and 0 - 10A
- Double scale: 0 - 1A and 0 - 5A

### Ammeter AC (Import Only)

**Item code: Na5**

- Mounted in either metal or plastic case
- Easy reading angle
- Colour-coded
- Moving coil types
- Single scale: 0 - 1A or 0 - 5A or 0 - 10A
- Double scale: 0 - 500mA or 0 - 5A
- Triple scale: 0 - 50mA or 0 - 500mA or 0 - 5A



### Ammeter DC (Import Only)

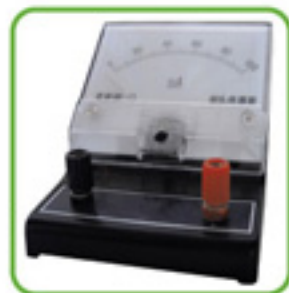
**Item code: Na6**

- For use on overhead projector
- Size of window:  $\pm 25\text{cm}^3$
- Ranges: 0 - 100mA / 0 - 1A / 0 - 5A
- Local alternative available

### Ammeter Micro

**Item code: Na7**

- Mounted in either metal or plastic case
- Easy reading angle
- Colour coded
- Moving coil types
- 0 - 100mA



## Natural Sciences

### Amplifier Audio



#### Item code: Na8

- Model Aa1
- Versatile
- For general purpose
- Mains operated amplifier
- Magnetic pickup 2.5mV
- Input impedance 47k at 1kHz
- With tuning control

### Aneroid Barometer

#### Item code: Na9

- A) With 95mm dial scales
- In plastic casing
  - Demonstration type
- B) On wooden backing
- Non-demonstration type



### Apparatus Organic Chemistry



#### Item code: Na10

- Ground glass angle joint set
- Based on 19/26 joint
- Set has 3 flasks
- Provision for filtration
- Set comprises of 11 items:
  - 1) Dropping funnel, 100ml with interchangeable key
  - 2) Air leak/steam inlet tube
  - 3) Liebig condenser
  - 4) Receiver adapter
  - 5) Stopper
  - 6) Round bottom flask, 250ml
  - 7) Cone/screw cap adapter
  - 8) Still head
  - 9) Pear shaped flask, 100ml
  - 10) Filter funnel, 24ml perforated plate
  - 11) Buchner flask, 100ml

## Natural Sciences

### Aquarium



**Item code: Na11**

A) Glass

- Rectangular tank
- 610 x 305 x 305mm

B) Plastic

- 310 x 220 x 170mm

### Auxanometer

**Item code: Na12**

- Simple pattern
- Light round section metal pointer
- Rectangular scale
- Both fitted with bosses
- Pointer gives x5 magnification
- Each graduation represents 1mm growth

- Lever 450mm
- Scale 250 x 80mm



### Balance Spring

**Item code: Nb1**

- Newton spring balance
- With zero adjuster
- Handle and load hook
- Available sizes: 0 - 1N, 0 - 5N, 0 - 10N, 0 - 100N, 0 - 500N

### Balance Spring

**Item code: Nb2**

- Newton spring balance
- Plastic body
- Top suspension ring
- Large, easily readable flat scales
- Zero adjuster
- Load hooks
- Available sizes: 0 - 5N, 0 - 10N, 0 - 20N, 0 - 50N



## Natural Sciences

### Ball & Ring Apparatus



#### Item code: Nb3

- Brass ball secured to mounted brass ring by a chain
- Ring is mounted on a rod with a wooden handle
- Sphere: 22mm  $\phi$
- Ring: 32mm outside  $\phi$
- Length overall 210mm

### Balloon

#### Item code: Nb4

- Shows the expansion of air when placed in a vessel undergoing evacuation and other air pressure investigations
- Packet of 10



### Bar Compound

#### Item code: Nb5

- Bi-metallic
- Strip of iron
- Strip of copper
- Riveted together
- Fitted handle
- Strip 200 x 25 x 1mm

### Barometer Tube

#### Item code: Nb6

- Straight
- Heavy wall
- Glass
- Bore 4mm
- Length  $\pm$ 900mm



## Natural Sciences

### Bell Electric (Import Only)



#### Item code: Nb7

- For battery operation
- Plated bell
- 6 - 12V DC
- A) Single Coil
- B) Electric Demo (on board)

### Bell In Vacuum

#### Item code: Nb8

- Bell jar
- Pump plate
- Air outlet for a vacuum pump
- Two terminals for electric connections
- 6 - 8V DC electric bell



### Bicycle Dynamo

#### Item code: Nb9

- A) Plastic
  - Gear driven
  - Hand crank
  - MES lamp holder
  - 1.25V lamp
- B) Hand held (economy type)
  - Imported only

### Bioset

#### Item code: Nb10

- Strip of 8 photomicrographs
- Text folder to explain them
- For use with Bioviewer
- Range of titles available



## Natural Sciences

### Bioviewer



**Item code: Nb11**

- Tough styrene
- White reflector provides light
- Adjustable eyepiece
- Fine quality lens

### Blowpipe

**Item code: Nb12**

- Constructed in copper and nickel plated
- Replaceable jet
- Length: 200mm
- Without mouthpiece



### Boyles Law Apparatus

**Item code: Nb13**

- Mounted vertically on scale
- Calibrated dial - Bourdon gauge
- A) 0 - 400kPa
- B) 0 - 250kPa

### Cage Insect Plastic Casing

**Item code: Nc1**

- Standard design
- Well made
- Moulded plastic top and base
- Clear plastic cylinder
- Used for breeding larvae and observing insects



## Natural Sciences

### Calorimeter Joules Economy



**Item code: Nc2**

- Polystyrene case
- Perspex lid
- Pair of terminals
- With heating coil
- For Joules experiment

### Capillary Apparatus

**Item code: Nc3**

- 5 glass capillary tubes with ends ground flat
- Bores ranging from 0.5 - 2.3mm
- With supporting frame
- Shallow metal trough
- Capillary tubes  $\pm 120$ mm long



### Case Insect Wooden Display

**Item code: Nc4**

- 430 x 235 x 60mm deep
- Clear Perspex sliding lid
- Polystyrene base to mount specimens

### Cell Electrolytic

**Item code: Nc5**

- Cylindrical perspex vessel
- Two perspex lids with two contact sockets
- One lid with two carbon electrodes
- One lid with copper and zinc plate electrodes
- Vessel polypropylene





## Natural Sciences

### Charles' Law Apparatus



**Item code: Nc6**

- Jolly's Apparatus
- Mounted on metal base
- Boxwood scale graduated in mm
- Glass air reservoir
- Spring clips secure reservoir
- Vertical clamping rod
- Mercury levelling tube with open end
- Jolly air thermometer bulb supplied
- Scale: 600mm long
- Reservoir: 200mm long
- Bulb:  $\pm 65\text{mm } \varnothing$

### Circuit Board (Worcester)

**Item code: Nc7**

- Board with 12 pins to hold circuit board components
- Clips to hold 3 torch cells
- 3 bulb holders and bulbs
- 5 connectors, 1 switch, 3 mounted resistors
- 3 red croc and 3 black croc leads
- 4 resistance boards:
  - 1) 1 x 0.4 Nichrome
  - 2) 1 x 0.4 Copper
  - 3) 1 x 0.2 Nichrome
  - 4) 1 x 0.2 Eureka



### Clinostat

**Item code: Nc8**

- Cork table
- Table rotates 4 times per hour
- Perspex cover for cork table
- Plastic container for cover
- Container held on cork disc by elastic bands
- Supplied with 1.5m core cable
- Fitted with 3-pin 15A plug
- Voltage: 220vac
- Rev/hour: 4
- Height: 250mm
- Cork disc: 85mm
- Perspex cover: 110 x 100mm



## Natural Sciences

### Cloth



#### Item code: Nc9

- For static electricity investigations
- Flannel and Dacron
- $\pm 200 \times 200\text{mm}$



### Collision Apparatus

#### Item code: Nc10

- Wood runway
- Sloped
- 255mm long
- 100mm high
- 8mm wide groove

- Subject sphere support - adjustable, attached to plastic base
- Plumb bob - for making plumb line
- Steel sphere - two steel spheres 16mm  $\varnothing$



### Communication Vessel

#### Item code: Nc11

- 4 glass tubes of different shapes
- Cross-sectional area projecting vertically from a common horizontal tube
- Tubes mounted

### Compass - Plotting

#### Item code: Nc12

- Dial marked with principal points of compass
- Needle pivoted between top and bottom glass plates
- Also available without dial
- 16 - 20mm  $\varnothing$



## Natural Sciences

### Compass - Pocket



**Item code: Nc13**

- Needle enclosed in rotatable housing
- Clockwise 0 - 360° scale
- North/South index lines
- 35mm ø

### Conductivity Apparatus - Ingenhauz

**Item code: Nc14**

- Demonstrates thermal conductivities in various metals
- Rectangular vessel
- 5 metal rods
- Aluminium, brass, copper, iron, lead and zinc
- Rods 150 x 6mm



### Conductivity Apparatus - Thermal

**Item code: Nc15**

- Shows difference in thermal conductivities
- Strips of copper, iron, aluminium and brass
- Hollow for wax
- Mounted on wooden ring
- Strips 80 x 20 x 2mm

### Crook's Radiometer

**Item code: Nc16**

- Demonstration radiometer
- Spins up to 2900rpm from heat of sun



## Natural Sciences

### Cube - Leslie's



#### Item code: Nc17

- Tinplate box
- 100mm sides
- 15mm opening
- 1 side polished
- 1 side dull finish
- 1 side black
- 1 side white

### Cubes - Metal

#### Item code: Nc18

- Assorted
- Set of 7
- 10mm side
- Brass, lead, iron, copper, aluminium, zinc and tin
- For density investigations and calorimetric



### Cubes - Wood

#### Item code: Nc19

- Assorted woods
- Set of 8
- 20mm side
- Selection may vary with availability
- Mahogany, oak, red, cedar, pine, maple or ash, yellow wood, saligna



### Cylinder - Metal

#### Item code: Nc20

- Aluminium, brass, copper, iron
- A) 30mm high x 10mm  $\phi$
- B) 40mm high x 16mm  $\phi$



## Natural Sciences

### Demonstration Meter



**Item code: Nd1**

- High grade moving-coil galvanometer
- Hardwood case
- Glass panels
- Marked on both sides
- 2 x 4mm socket terminals
- Zero adjustment
- 325 x 315mm high

### Demountable Transformer

**Item code: Nd2**

- Safety in operation
- Complete solution to teaching transformer theory
- Simple operation
- Complete with full range of accessories
- Low maintenance



### Diffraction Gratings

**Item code: Nd3**

- Card mount:  $\pm 90 \times 40$ mm
- 3 apertures:  $16 \times 9$ mm
- Gratings: 100 lines/mm, 300 lines/mm, 600 lines/mm

### Displacement Vessel (Eureka)

**Item code: Nd4**

- With overflow
- $\pm 100 \times 60$ mm



## Natural Sciences

### Dissecting Board



**Item code: Nd5**

- Cork faced wood
- 175 x 80mm

### Dissecting Dish

**Item code: Nd6**

- Stainless steel
- With rim
- L 286mm x W 229mm x D 44mm



### Dissecting Set

**Item code: Nd7**

- All in PVC pouch with zip
- Comprising of:
  - 1 Scalpel handle no. 3
  - 3 Scalpel blades no. 11
  - 1 Needle with eye
  - 1 Seeker
  - 1 Forcep, blunt 130mm
  - 1 Forcep, sharp 112mm
  - 1 Scissor, fine 115mm
  - 1 Scissor, blunt 130mm

### Electric Field Apparatus

**Item code: Ne1**

- One pair of pointed electrodes
- One pair of parallel electrodes
- One plastic petri dish
- Two terminals to accommodate electrodes
- One transparent plastic base mounted on four rubber feet and two 4mm sockets
- For use on OHP



## Natural Sciences

### Electromagnet



**Item code: Ne2**

- U-shaped core
- Coils insulated 0.71mm copper wire
- With armature and hook
- Maximum voltage 3V

### Electroscope

**Item code: Ne3**

- Flask type
- 100ml conical flask
- Brass rod
- Disc supported in cork
- Polythene insert
- Height: 200mm



### Electroscope

**Item code: Ne4**

- Stable base
- Metal case
- Two parallel removable glass windows
- Case: 100mm
- Height: 200mm



### Electroscope

**Item code: Ne5**

- Gold plated plastic leaves
- Mounted in glass jar
- Makes robust and economical piece of apparatus



## Natural Sciences

### Electrostatic Capacitor Plates



#### Item code: Ne6

- Robust
- Adjustable
- Can use on OHP
- Pith ball coated with graphite on a cotton thread
- Disc: 115mm  $\varnothing$
- Base: 160 x 160mm
- Total height: 120mm

### Exposure Meter (Light Meter)

#### Item code: Ne7

- Selenium cell
- Has a moving scale
- 0 - 3000lux
- No battery required



### Falling Bodies Apparatus

#### Item code: Nf1

- Traditional robust construction
- Clear demonstration of a projectile motion
- Complete with 2 spheres



### Forcep Coverslip

#### Item code: Nf2

- Nickel plated





## Natural Sciences

### Forcep Dissecting



**Item code: Nf3**

- Blunt
- Narrow flutes
- Without guide pin
- Stainless steel
- 130mm

### Forcep Dissecting

**Item code: Nf4**

- Sharp
- Narrow flutes
- Without guide pin
- Stainless steel
- 115mm



### Fork - Tuning

**Item code: Nf5**

- Quality steel
- Prong lengths: 85 - 120mm
- Frequency Hz: 256 - 512

### G By Free Fall Apparatus

**Item code: Ng1**

- Fall apparatus to determine "g"
- 6V solenoid supported by 8mm rod
- Target switch
- Steel sphere
- Works with timer NT3 (optional)



## Natural Sciences

### Galvanometer



#### Item code: Ng2

- 35-0-35mV
- Moving coil
- Colour-coded 4mm socket terminals
- Zero adjustment scale
- Sensitivity:  $\pm 200\mu\text{A}/\text{division}$
- Set in plastic case: 100 x 90 x 100mm

### Gauge Bourdon

#### Item code: Ng3

- Circular gauge
- Dial reads 0 - 250kpa pressure circular pillar
- Tubule projects from side of pillar
- Gauge: 100mm  $\phi$
- Plastic base: 255 x 100mm



### Generator Function

#### Item code: Ng4

- Frequency range 1hz - 100khz
- Output 0 - 5V peak to peak
- Generates sine, square and triangular wave forms
- Power available at output 5W into 4ohms
- Loudspeaker can be connected



### Generator Van De Graaff

#### Item code: Ng5

- Electric motor 220V
- Rubber belt enclosed in PVC tube
- Large aluminium dome
- With discharge sphere and earthing socket
- Produces large sparks
- Range of accessories
- Ng6 can be connected to generator



## Natural Sciences

### Generator Van De Graaff Accessories Only



#### Item code: Ng6

- Enables many electrostatic experiments to be performed effectively
- Simple to use
- Fitted with 4mm plugs that can be connected to top of dome
- Low cost
- Enhances the value of your Van De Graaff

### Hydrometer

#### Item code: Nh1

- For testing battery electrolyte
- Range: 1.100/1.300
- Material: glass/plastic
- Length: 178mm



### Induction Coil

#### Item code: Ni1

- Heavy duty
- Mounted on plastic base: 255 x 100mm
- Demonstrates the various factors affecting the induction between two coils
- Specification:
  - Inner coil 120 turns 32mm  $\phi$
  - Outer coil 1500 turns 50mm  $\phi$
  - Iron core 200mm length x 10mm  $\phi$
  - Connections via banana sockets



### Insect Board

#### Item code: Ni2

- Cork faced board
- 6mm groove down centre of cork
- 200 x 80 x 25mm



## Natural Sciences

### Insect Net



**Item code: Ni3**

- Quality gauze net
- 300mm ø
- On short handle for easy storage

### Jar Bell (with Bell)

**Item code: Nj1**

- Plastic jar
- Supplied with bell and leads
- For bell in vacuum experiment



### Jar Bell Baseplate

**Item code: Nj2**

- Base plate and pressure gauge
- With exhaust connections
- For use with Nj1

### Jar - Coplin

**Item code: Nj3**

- Glass jar
- Moulded glass cover
- Takes 10 slides (76 x 26mm)



## Natural Sciences

### Jar - Staining



**Item code: Nj4**

- Schiefferdecker
- With covers
- Takes 20 micro slides

### Jolly Bulb & Gauge

**Item code: Nj5**

- For gas at constant volume investigations
- Easy to read pressure gauge
- Glass bulb: 60mm  $\varnothing$



### Joules Calorimeter

**Item code: Nj6**

- Metal vessel with lid
- Pair of 4mm terminal
- Wire heating coil
- Stripper

### Kinetic Model

**Item code: Nk1**

- Represents molecules in motion
- Clear perspex tube
- Freely sliding expanded polystyrene piston mounted on a housing
- Coupled to crank-driven agitator
- Two 4mm sockets to connect to a 6V supply power
- Supplied with 100 small ball bearings
- Tube: 200 x 50mm
- Housing: 150 x 90 x 50mm



## Natural Sciences

### Lamps Spectrum (Tube Spectrum)



**Item code: NI1**

- Gas filled discharge tube for studying typical spectra of the different gasses
- Glass body with metal end caps
- Helium
- Hydrogen
- Neon
- Sodium
- Mercury

### Lens - Convex

**Item code: NI2**

- Glass
- Spherical
- Double convex
- 50mm  $\phi$
- Focal lengths: 50mm/100mm/150mm/200mm/300mm/500mm



### Lens - Concave

**Item code: NI3**

- Glass or acrylic
- Spherical
- Double concave
- 38mm  $\phi$
- Focal lengths: 50mm/100mm/150mm/200mm/300mm/500mm



### Lens Holder

**Item code: NI4**

- Takes lenses up to 76mm
- Upright 100mm high
- V-shaped slot
- Mounted on rectangular base



## Natural Sciences

### Light Gate



**Item code: N15**

- 12V operation
- Infrared optics
- Relay driven
- Pre-aligned for simplicity
- Works with timer N13 (optional)

### Magnet - Bar Type

**Item code: Nm1**

- 6% chrome steel
- In pairs with keepers
- 75mm/100mm/150mm



### Magnet - Bar Type

**Item code: Nm2**

- Alnico
- Better quality
- Better holding power
- Sizes: 40 x 12.5 x 5mm / 50 x 15 x 5mm / 75 x 15 x 10mm / 100 x 15 x 10mm / 150 x 12 x 7.5mm



### Magnet - Cylindrical

**Item code: Nm3**

- Cobalt
- 76 x 6mm
- Red chromed
- In pairs



## Natural Sciences

### Magnet - Horseshoe



**Item code: Nm4**

- 6% chrome steel
- 75mm or 100mm

### Magnifier - Hand

**Item code: Nm5**

A) Oblong

- Magnification 2.5x
- Size 54 x 41mm

B) Round

- Magnification 2.5x
- Sizes: 60/65mm  $\varnothing$ , 75/80mm  $\varnothing$ , 100/130mm  $\varnothing$

C) Desk type

- Magnification 4x
- With light source
- Size: base 7.5cm, height 6cm



### Magnifier - Pocket



**Item code: Nm6**

- Doublet
- Lens:  $\pm 19\text{mm } \varnothing$
- In plastic mount
- Plastic case
- Magnification 10x

### Manometer

**Item code: Nm7**

- For pressure or vacuum measurements
- Plastic tube on a white back plate
- With scale
- Back plate mounted on base plate
- Suitable for connection to a 6.5mm bore flexible tubing
- Adjustable centre scale





## Natural Sciences

### Mass Pieces



- Item code: Nm8**
- Slotted on hanger
  - Other sizes available on request
- A) Total weight 1kg
- 100gm hanger
  - 9 x 100gm weights
- B) Total weight 100gm
- 10gm hanger
  - 9 x 10gm weights

### Meter Demonstration (Amps & Volts)



- Item code: Nm9**
- Unique design for teacher's demonstration
  - Digital, large LED display
  - Switch between amps & volts without reconnection
  - Sensitive monitoring - will not affect characteristics of circuit being investigated
  - Battery or mains operated



### Microphone

- Item code: Nm10**
- Piezo-electric crystal
  - Tubular metal case
  - Integral on/off switch

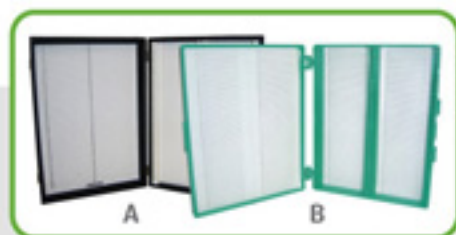
### Microscope Slides - 76 x 26mm

- Item code: Nm11**
- A) Plain cut edge
  - B) Plain ground edge
  - C) Frosted cut edge
  - D) Frosted ground edge



## Natural Sciences

### Microscope Slide Box



#### Item code: Nm12

- Metal hinges and clasps
- Stores micro slides of size 76 x 26mm
- Inside black numbered slots with printed index in cover
- 270 x 190 x 35mm

A) Wooden frame

B) Plastic case

### Microscope Slides - Prepared

#### Item code: Nm13

- Enquire about our range



### Microtome

#### Item code: Nm14

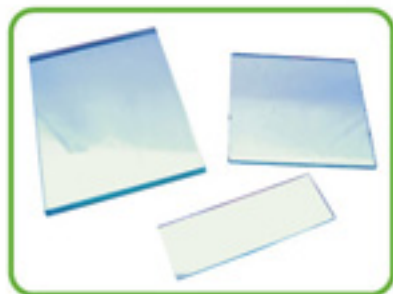
- Wide flat top to guide the sectioning razor and for protection
- Feed screw has a 1mm pitch and wide milled flange
- Without razor
- 70mm  $\varnothing$  cutting table
- 16mm  $\varnothing$  central well



### Mirror Plane

#### Item code: Nm15

- Surface aluminised plane glass plates
- Surface film of high reflectivity
- Surface hard and durable
- Not mounted
- Sizes: 75 x 25mm or 100 x 75mm



## Natural Sciences

### Needle - Dissecting



**Item code: Nn1**

- Sharpened steel
- Mounted in hard-wood or plastic handle - 80mm
- 120mm length
- Straight or bent

### Needle - Magnetic

**Item code: Nn2**

- Steel needle
- Brass bearing



### Needle Magnetic Stand

**Item code: Nn3**

- Wooden base
- Supports magnetic needle

### Optical Bench Model

**Item code: No1**

- 2 Adjustable supports
  - 1 Candle holder
  - 1 Lamp 12V, 10W
  - 1 White screen
  - 1 Aluminium slide, calibrated 1500mm long
- 5 Lenses with lens holders:
    - 4 Convex lenses, focal length: 50, 100, 150, 200mm
    - 1 Concave lens, focal length: 100mm
  - 6 Saddles
  - 2 Shutter slides



- 4) 1 Slide holder
- 5) 1 Arrow slide
- 6) 1 4-hole slide
- 7) 1 Mercedes slide
- 8) 1 Multi slit
- 9) 1 Single slit
- 10) 1 Slide with convex lens
- 11) 1 Prism support with protractor

## Natural Sciences

### Oscilloscope



#### Item code: No2

- Dual channel
- Portable
- Dc to 20MHz
- 1 mV/div
- Single time base
- Delayed sweep
- Advance trigger system
- hf / lf reject trigger filter
- Component test function
- Easy to use

### Oscilloscope

#### Item code: No3

- Single
- 3" 5mHz
- With marker system



### Osmosis Apparatus

#### Item code: No4

- Length of visking tubing mounted on two stoppers
- With a length of capillary tubing
- Without stand

### Optical Bench

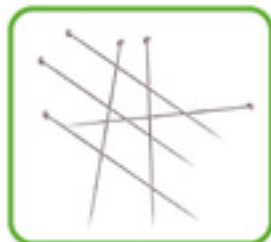
#### Item code: No5

- Kit contains convex and concave lenses, lens holders, screen, light source and a collapsible meter stick
- Compact so all components fit into the small plastic storage tray for easy issue and control



## Natural Sciences

### Pins



#### Item code: Np1

- Entomological
- White brass
- Supplied in 14g packets ( $\pm 100$  pins)
- No. 5 - 26mm long

### Potometer

#### Item code: Np2

- For investigating the uptake of water and transpiration of a cut shoot
- Easy for learner use
- Can be submerged in a basin of water
- Portable
- Self standing
- Syringe control



#### Potometer - Farmer's

#### Item code: Np3

- Measures the uptake of water by a cut plant shoot
- Central reservoir with 3-hole stopper
- Holds capillary tube
- Graduated in mm
- Funnel with stopcock
- Short length of 10mm glass tubing

### Potometer - Ganong's

#### Item code: Np4

- Demonstrates transpiration rates and rates of water absorption by a cut shoot under various external conditions
- Open end of tube is graduated in mm
- Mounted on wooden base by spring clips



## Natural Sciences

### Power Supply - 2v AC/DC Westminster



#### Item code: Np5

- High current
- Designed with the Westminster Electromagnetic kit in mind
- Output 1V DC unsmoothed providing a current of 8A and 2V AC, at 10A maximum, the circuit is overload protected
- Size: 270 x 150 x 115mm

### Power Supply - Ep124

#### Item code: Np6

- Size: 270 x 150 x 140mm
- Input: 220 - 250V AC 50Hz
- Output: 2, 4, 6.8, 10 and 12V
- AC (selectable) with DC output
- No smoothing at 4A



### Power Supply - Ep125

#### Item code: Np7

- Clear voltage selector switch
- Lockable switch
- Smooth/unsmoothed DC output and AC output
- Overload protection
- 1 - 12V at 5A continuous in 1V steps
- Cost effective
- Conforms to CE specifications
- Size: 270 x 150 x 140mm



### Power Supply

#### Item code: Np8

- Import only
- Size: 130 x 160 x 320mm
- Input: AC 220V
- Output: 0 - 30V, 5A
- Digital panel meter



## Natural Sciences

### Power Supply - Epac12



**Item code: Np9**

- Fuse protection
- Robust transformer
- The output of this supply can be tapped for 2V, 4V, 6V, 8V, 10V, and 12V AC rated at 6A
- Size: 270 x 150 x 115mm

### Power Supply - Epm4

**Item code: Np10**

- AC and DC supply
- Designed for electronics
- 4 in 1 unit
- Outputs: AC 5, 10, 15, 20V at 500mA, DC +5V, DC -15V - 0 +15V at 500mA, DC 1 16V at 1A
- Continuously variable with meter
- Size: 270 x 150 x 80mm



### Power Supply - Epo-16m

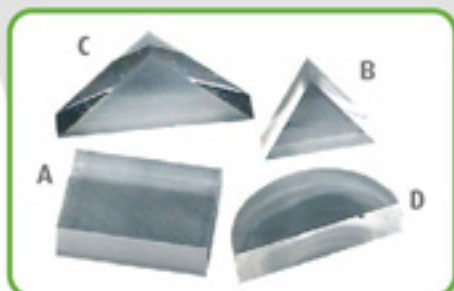
**Item code: Np11**

- Size: 200 x 150 x 115mm
- Input: 220 - 250V AC 50Hz
- Output: 0 - 16V DC (variable voltage)
- Current limited to 2.25A
- Regulated and short circuit protected
- Panel meter: 0 - 15V DC

### Prism Perspex

**Item code: Np12**

- Polished
  - Please enquire for sizes not listed
- A) Rectangular: 50 x 75 x 20mm  
 B) Equilateral: 50 x 20mm  
 C) Isosceles: 70 x 70 x 95 x 20mm  
 D) Semi-circular: 75mm  $\phi$



## Natural Sciences

### Pulley



#### Item code: Np13

- Single, double & triple
- 40mm  $\phi$  of pulley

### Pulley

#### Item code: Np14

- These plastic pulleys run on ball bearings
- Mounted on a metal frame
- Single pulley on 8mm rod
- Single pulley with hook
- Double pulley with hook
- Double pulley in tandem with 2 hooks



### Pulley Force Board

#### Item code: Np15

- Plastic pulley for use with a force board
- With ball bearings (dynamically run in)
- Moulded clamp for mounting of pulley on to board

### Pump Force (Import Only)

#### Item code: Np16

- Unmounted glass
- Cylinder is provided with a non-return float valve
- Lower part of cylinder has an outlet side tube
- Communicates with lower part of secondary cylinder
- Secondary cylinder is also fitted with non-return valve





## Natural Sciences

### Pump Lift (Import Only)



#### Item code: Np17

- Clear glass
- Cylinder 25mm  $\phi$
- Overall length: 370mm
- Cylinder and piston provided with non-return flat valve
- Outlet by means of a side tube
- Glass parts only
- Unmounted

### Ray Box

#### Item code: Nr1

- Fitted with 12V Festoon lamp
- Supplied with collimator lens, single, double and triple and wide slits
- On-off switch
- Triple colour filter slide and colour filters



### Rheostat

#### Item code: Nr2

- Resistance wire wound on an insulating, heat-resistant tube
- Supported by cast-metal end cheeks
- Sliding contact
- Three 4mm socket terminals
- Tube size: 200 x 38mm
- Dimensions: 255 x 52 x 92mm high
- Maximum current: 5A or 10A

## Natural Sciences

### Ripple Tank Set



#### Item code: Nr3

- All you need to perform investigations and experiments into reflection, refraction and interference effects
- Perspex base
- Plastic surrounds sloped to absorb wave reflection from sides
- Complete with legs, lamp support and lamp, concave, convex and rectangular prisms and metal barriers
- Waves generated with a roller bar
- Accessories:
  - Electric wave generator with rheostat
  - Hand stroboscope
  - 12V light source

### Rod

#### Item code: Nr4

- Stirring
- Borosilicate glass
- Both ends rounded
- 300 x 6mm  $\varnothing$



### Rod

#### Item code: Nr5

- For electrostatics
- Perspex
- Polythene and PVC rods
- 200 x 10mm

### Rod Compound Heat

#### Item code: Nr6

- Copper tube
- Wood dowel
- Shows the effect of heat absorption and heat conductivity



## Natural Sciences

### Scalpel



**Item code: Ns1**

- Fixed blade
- High-quality steel
- Handle length: 113mm
- Blade length: 38mm

### Scalpel Blade

**Item code: Ns2**

- Surgical-quality steel blades
- Use with handles no. 3 and no. 4
  - 10 for no. 3 handle
  - 10A for no. 3 handle
  - 11 for no. 3 handle
  - 22 for no. 4 handle
  - 23 for no. 4 handle
  - 24 for no. 4 handle



### Scalpel Handle

**Item code: Ns3**

- Stainless steel
- No. 3 to fit blades no.10, 10A, 11
- No. 4 to fit blades no. 22, 23, 24

### Scissor - Dissecting

**Item code: Ns4**

- Closed shanks
- Straight
- Sharp/sharp
- Stainless steel
- 112mm



## Natural Sciences

### Scissor - Dissecting



**Item code: Ns5**

- Closed shanks
- Straight
- Blunt/sharp
- Stainless steel
- 130mm

### Scissor - Iris

**Item code: Ns6**

- Closed shanks
- Fine point
- Straight
- Stainless steel
- 112mm



### Slinky Spring

**Item code: Ns7**

- Wave form helix
- Tempered steel wire
- 75mm

### Smoke Cell

**Item code: Ns8**

- Clear demonstration of Brownian motion
- Short cylindrical glass cell
- Transparent plastic window
- Line filament lamp
- Cylindrical perspex lens
- 4mm sockets
- Size: 90 x 90 x 30mm height



## Natural Sciences

### Solenoid



**Item code: Ns9**

- Single layer
  - Hollow PVC former
  - Wire is 0.71mm enamelled
  - Two pillar type captive screw terminals
  - Length of winding: 95mm
- A) 120 turn  
B) 240 turn  
C) 360 turn

### Sonometer

**Item code: Ns10**

- Simple type
- Plywood box-type
- Open bottom
- Two steel strings of equal thickness
- Adjustable pegs
- Separate movable bridge for each string



### Spectrometer (Import Only)

**Item code: Ns11**

- Standard
- Robust and inexpensive
- Vernier reads to 6 minutes of arc-resolution
- Sodium 'D' lines
- Scale: 170mm  $\phi$
- Collimator - focal length: 150mm, aperture: 21mm
- Telescope - focal length: 170mm, aperture: 21mm
- Prism table: 3
- Levelling screws
- Mass: 5.4kg
- Standard accessories:
  - 1 Prism clamp for prisms up to 40mm high
  - 1 Diffraction grating holder, aperture 25 x 25mm
  - 1 Small screwdriver
  - 1 Tommy bar for axis adjustment
  - Without prism

## Natural Sciences

### Spectroscope



**Item code: Ns12**

- Hand held
- 600 1/mm diffraction grating
- Optical system
- Combined to produce bright linear spectra
- Aluminium construction
- $\pm 12\text{mm } \varnothing \times 50\text{mm}$  long

### Steam Engine Unit

**Item code: Ns13**

- Double action reversible cylinder
- Fly wheel with grooved pulley
- Spring loaded safety valve
- Centrifugal governor
- Steam jet oiler
- Burner designed to operate with fuel tablets



### Steam Turbine Model

**Item code: Ns14**

- Aluminium can with rotor on pivot
- Fitted with a nozzle that directs steam to blades of rotor



### Stroboscope

**Item code: Ns15**

- Hand held
- A moulded disc mounted on aluminium
- Finger hole for rotation
- To be used with Nr3
- 12 slots 50mm long x 4mm wide



## Natural Sciences

### Tape Ticker Timer



**Item code: Nt1**

- 15mm wide x 30m long

### Timer - Digital

**Item code: Nt2**

- Quartz battery
- Digital display
- Push button operation
- Spring clip
- Magnetic stand and mount
- Measures lapse time up to 100 minutes
- 1 second accuracy



### Timer - Laboratory

**Item code: Nt3**

- Model E55
- Economic timer
- With start, stop and reset
- 1 to 999.9 seconds
- 4 digit 13mm LED display characters (high brite)
- Size: 270 x 150 x 80mm



### Timer - Ticker

**Item code: Nt4**

- Latest design electronic circuit
- Simple to use
- AC and DC models
- Fits track



## Natural Sciences

### Trolley Dynamics System



#### Item code: Nt5

- This consists of a track and trolley kit
- Kit consists of a 1.25m aluminium track
- Heavy trolleys running on dynamically run-in bearings
- Ticker timer mounts on the end of the track
- With ticker tape, thread, pulley, mass pieces, hooks and stopwatch
- Carbon discs, line level and tape measure

### Voltmeter

#### Item code: Nv1

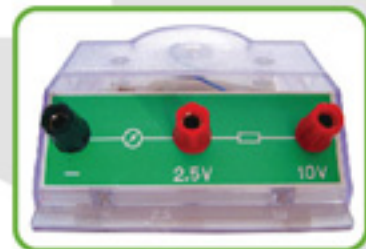
- Accuracy: moving coil  $\pm 2.5\%$
- Scale length:  $\pm 65/70\text{mm}$  (deflection angle:  $90^\circ$ )
- Internal resistance:  $50\text{m}\Omega$
- Overall size:  $100 - 140\text{mm} \times 100 \times 90 - 100\text{mm}$
- Terminal: 4mm socket
- A) Single range 0 - 5V
- B) Single range 0 - 10V
- C) Dual range 0 - 5V, 0 - 15V
- D) Triple range 0 - 3V, 0 - 15V, 0 - 300V



### Voltmeter DC

#### Item code: Nv2

- For use on overhead projector
- Indicator window:  $\pm 25\text{cm}$
- Complete with multipliers and connecting leads
- Locally manufactured alternative available
- 2 Ranges: 0 - 3V and 0 - 15V



### Wormery Rothamsted Pattern

#### Item code: Nw1

- Shows burrowing behaviour of earthworms
- Vertical support frame
- Clear perspex slides
- Plywood black out sides
- $265 \times 190 \times 50\text{mm}$

