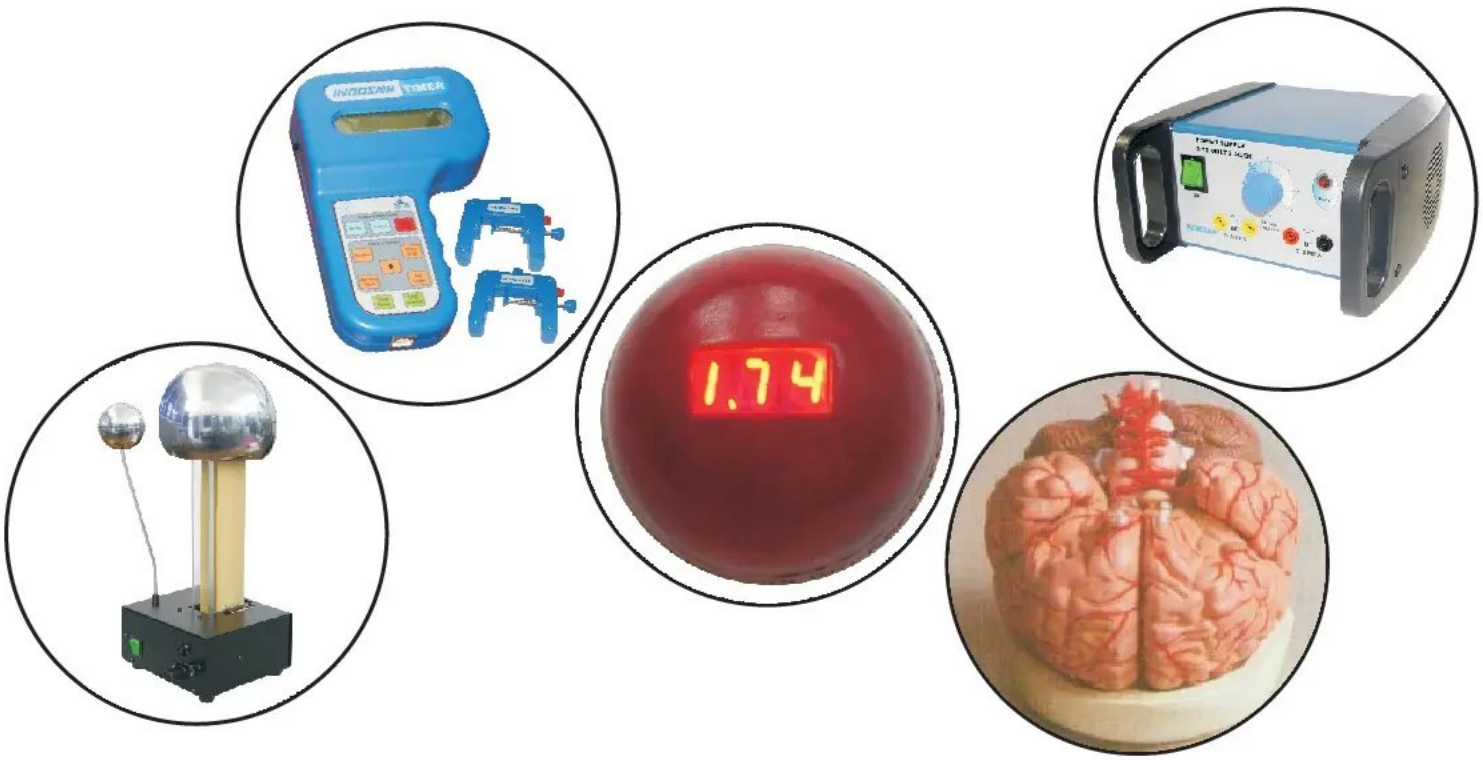
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SCIENCE TEACHING

OUR APPROACH

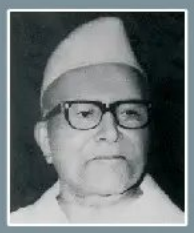
- Make science learning fun
- Teachers spend time in teaching & not looking for components
- Class room demo while theory is being taught
- Take home kits
- Do it yourself kit



PHYSICS | CHEMISTRY | BIOLOGY

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ABOUT US



- Started Manufacturing in 1919.
- Was a Science Teacher.
- Published 400 Pages Catalogue in 1937



Nand Lal
The Group Founder



Ajay Sagar (M.D.)
- B.E. Production, PEC Chd.
- 26 Years Experience



Manisha Sagar (Jt.M.D.)
- P.G. in Science
- 9 Years Experience

INFRASTRUCTURE

Head Office and Factory
Location : Ambala
Established : 1993
Total Area : 300,000 sq.feet
Covered Area: 40000 sq.feet.

Roorkee Unit
Established : March 2010
Products : Electronic Equipment

Delhi Office
Location : Centrally located at Nehru Place, Ansal Tower, New Delhi.

QUALITY POLICY

- Manufacturing & Supplying various products & equipments of consistent quality to the satisfaction of our customers.
- Continually improving the cost performance ratio of our identified products.
- Involvement of all employees in improvement and innovation in all spheres of management.



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ELECTROSTATIC

VAN-DE-GRAFF GENERATOR KIT - SA001

Experiments:

Exp-1 High Voltage Generation.
Exp-2 Corona discharge.
Exp-3 Conduction of electricity.
Exp-4 Electrostatic Charges.
Exp-5 Ions in Motion.
Exp-6 Attraction and repulsion between Charged body.
Exp-7 Electrostatic Wind.

PHYSICS, Class XII, Part-1, Chapter - 2, Electrostatic potential & capacitance.

Special features :

- **An interesting fun way to teach electrostatics.**
- **Adjustment of belt.**
- Very good set up of accessories.
- **Spark length 50-80mm under favorable ambient condition.**

Fun Class Room Demo



SH502



Van- de graff accessories



Hair Raising by Vande Graff

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SH502	Van-De-Graff Generator	1
CA445	Pointed wheel-a	1
CA586	Needle on 4mm plug-b	1
CA582	Perspex jar with pith ball-c	1
CA585	Thread brush-d	1
CA584	Point discharge-e	1
CA583	Perspex pillar-f	1
R3917	Nylon thread	1
CA578	Faraday's pail-g	1
R3772	Neon lamp-h	1
C6692	Electric Chimes-i	1
R5101	Electric tester	1
SN201	Flexible Lead Pair	1
R10000	Plastic Stool-j	1
	Instruction Manual	

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WIMSHURST MACHINE KIT - SA021

Exp-1 Generation of high DC voltage.
Exp-2 Production of charge due to friction.
Exp-3 Conduction of electricity (Electrical Chimes).
Exp-4 Presence of electric field outside a charged body.
Exp-5 Continuous production of Electrostatic charges.
Exp-6 Ions in motion.
Exp-7 Charge storage in Leyden Jars.

PHYSICS, Class XII, Part-1, Chapter -2, Electrostatic potential & capacitance.

Fun Class Room Demo



SA021

An economy model of Wimshurst machine for generating high DC voltage. It consists of transparent discs which can be rotated using hand operated crank and has two high voltage capacitors (Leyden Jars).

SCOPE OF SUPPLY:

Cat NO.	Item Name	Qty.
SE167	Wimshurst Machine*	1
C6685	Storage stand	1
C1896	Friction rod	1
C6686	Luminous Pane	1
C6688	Tripod stand	1
C1894	Stand rod	1
C6687	Sphere with connector pin	1
C6692	Bell	1
C6778	Connecting chain	2
C9701	Paper brush	1
C6697	Pith balls in box	10
C6696	Pith double pendulum	1
C6694	Needle with connecting pin	1
C6695	Pointed wheel	1
C6689	Jar with point shaped electrode	1
C6690	Jar with spherical electrode	1
C6693	Hook stand	1
C6691	Base plate with ring guide	1
C7788	Plastic ball	1
	Instruction manual	1

ELECTROSTATIC KIT - SH545

Exp-1 Repulsion between like charges.
Exp-2 Attraction between a charged body and an insulator.
Exp-3 Light hollow conductors.
Exp-4 To show ionisation experiments.
Exp-5 To show positive and negative charges.

PHYSICS, Class XII, Part-1, Chapter - 1, Electric Charges & fields.
Chapter - 2, electrostatics of Conductors.



SH545

Fun Class Room Demo

The kit is used for demonstrating a number of electrostatics experiments. It consists of various elements and a gold leaf electroscope with a transparent front window and ground glass rear window.

SCOPE OF SUPPLY:

Item Name	Qty.
Proof plane on insulating handle	1
Metalized polystyrene sphere	4
Electrophorous plate insulating handle	1
Polythene strip	1
Polythene tiles	2
Nylon reel	1
Aluminium cans	2
Cellulose acetate strip	1
Wire stirrup	1
Polishing cloth	1
Plated wire hook	1
Gold leaf electroscope	1
Instruction manual	1

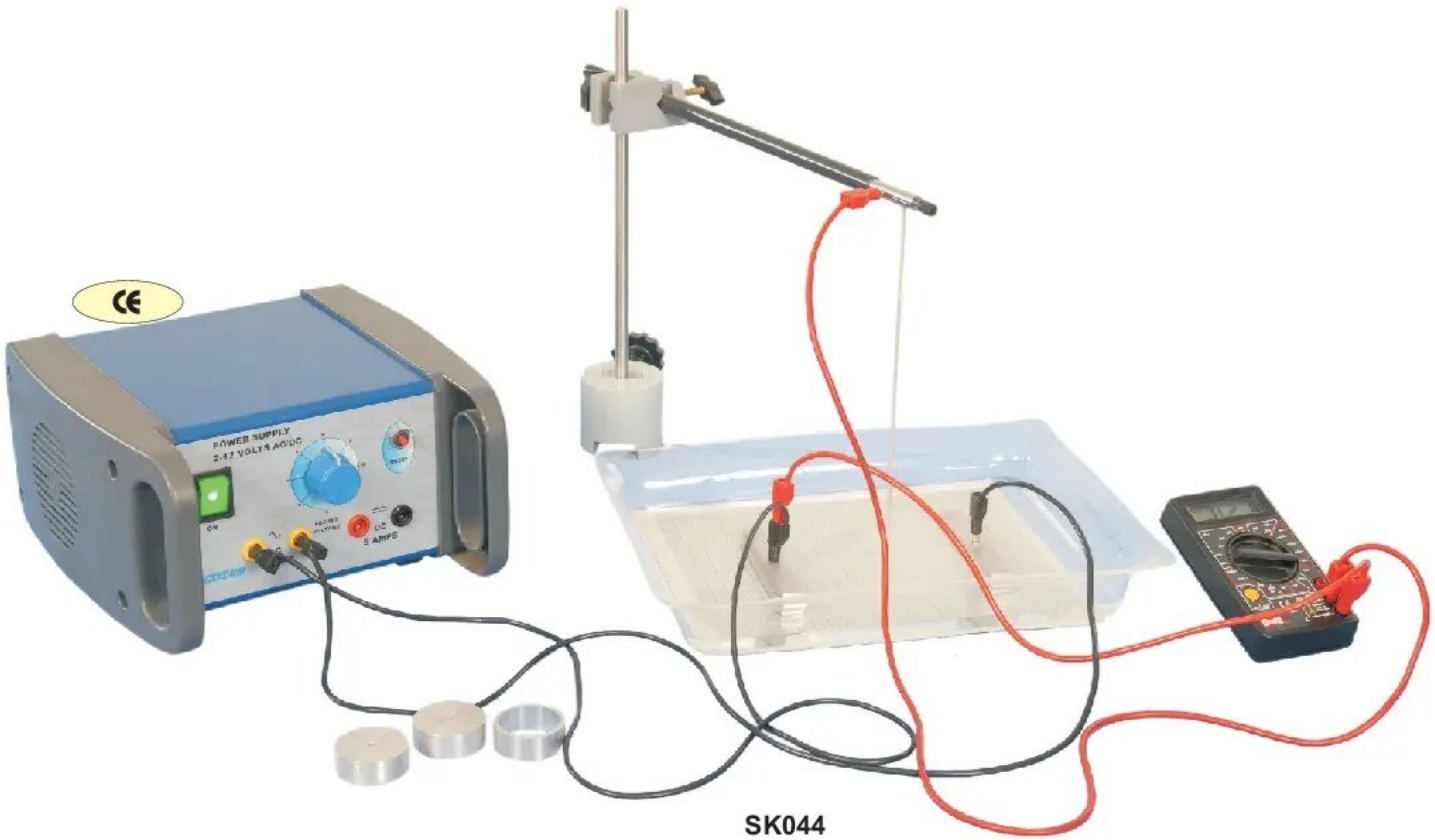
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ELECTROSTATIC

FIELD LINES AND EQUIPOTENTIAL LINES - SK044

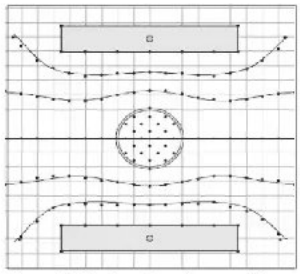
Experiments:
Exp-1 To investigate the equipotential lines of electric fields.
Exp-2 To draw the equipotentail lines for bar electrode.
Exp-3 To draw the equipotentail lines for disc Electrode.
Exp-4 To draw the equipotentail lines for ring Electrode.
PHYSICS, Class XII, Part-1, Chapter - 2, Electrostatic Potential & Capacitance, equipotential surface.

Special features :
- Multipurpose power supply.
- Point noodle for tracing the filed line.
- Connection is very easy.
- Different shaped electrodes.
- Electrical safety tested.

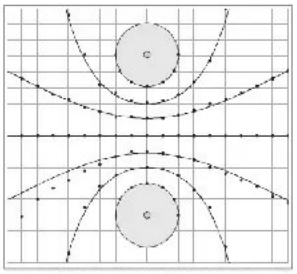


SK044

Principle and Working:
An Equipotential line is a collection of points in space when each point has the same value of electric potential.
In present setup, a voltage is applied between a pair of electrodes placed in a plastic trough filled with distilled water and voltage is measured at different points with a needle connected to a multimeter. The points are marked on a graph paper with reference to another graph placed under the trough.



Parallel electrodes with a conductor ring



Disc electrodes

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty
C5994	Trough	1
SP730	Needle	1
C7862	Rod with socket	1
R6148	Multimeter	1
SG110	Cylindrical base	1
C7863	Bar electrode	2
C7864	Disc electrode	2
C7865	Ring electrode	1
C7866	Stand rod	1
SW092	Boss head	1
SE080	Power supply (2-12 V AC)	1
SN200	Flexible plug lead (set)	2
	Instruction manual	1

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BASIC ELECTRICITY KIT - SN955

Experiments:

Exp-1 To show the change in intensity of bulb with adding cells.
Exp-2 To interrupt the electricity by using push switch.
Exp-3 The series and parallel combination of bulbs.
Exp-4 To demonstrate the effect of variable resistance.
Exp-5 The working of change over switch.
Exp-6 To demonstrate the difference between diode and resistance.
and many more.....

PHYSICS, Class XII, Part-1, Chapter - 3, Current electricity.
SCIENCE, Class X, Chapter - 12, Electricity.
Chapter - 13, Magnetic effects of electric current.

Special features:

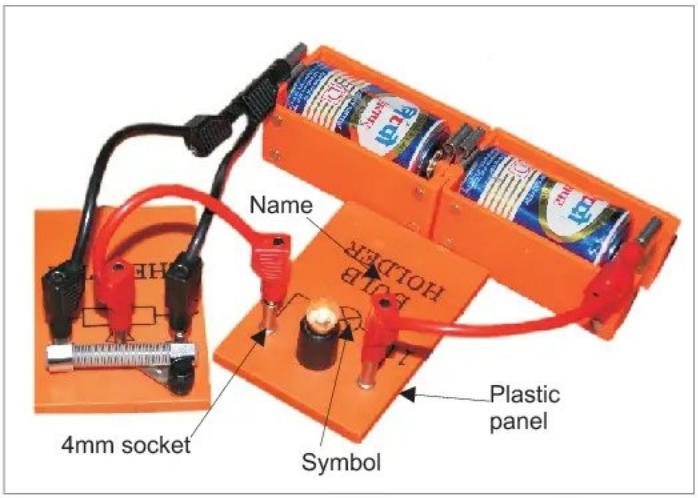
- Vertical demonstration for whole class.
- **Name of component & symbol printed on modules.**
- **Each component fitted with magnet on four grooves provided on rear side of panel.**

Fun Class Room Demo





Magnetic board with components (vertical demo)



Use a resistor to control the brightness of bulb

SCOPE OF SUPPLY

Cat No.	Item Name	Qty.
C7100	Cell holder	3
C7101	Bulb with holder	3
R6235	Lead 4mm red 10cm	3
R6236	Lead 4mm black 10cm	3
R6237	Lead 4mm red 25cm	1
R6238	Lead 4mm black 25cm	1
C7104	Push switch	1
R2712	Steel wool	1
C7106	Universal clips	1
C7105	Rheostat	1
C8119	Insulated wire	1
C7103	Electrode holder with 2 carbon rods	1
C1847	Soft iron bar	1
LP178	Compass	1
C7102	Change over switch	1
R6240	Resistance	1
R6239	Diode	1
R6233	Crocodile clips	2
R8160	Magnetic Board	1
	Instruction manual	1

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ELECTRICITY KIT - SN250

Exp1 Battery and bulb to form closed circuit.
Exp2 Simple Circuit.
Exp3 Series Circuit.
Exp4 Parallel Circuit.
Exp5 Electrical Current carrying material.
Exp6 Heat Generation when electric current is produced.
Exp7 Electromagnet formation.
Exp8 Switch function in circuit.
Exp9 Filament in Glass Bulb

PHYSICS, Class XII, Part-1, Chapter - 3,Current Electricity .
SCIENCE, Class VIII, Chapter - 11, Electric Currents.



SN250

TAKE IT HOME KIT

It is an introduction to the basic principles of electricity through experiments. This kit is specially framed for the students to learn the basic electricity phenomenon.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SG386	Wall thermometer Alcohol filled	1
R1451	Iron nail big	1
R7475-6	Terminal clips made of Brass	2
C1989	Copper ring	1
R3874	Rubber rod	1
CA171	Wooden block disc shape	1
R6792	Brass screw	1
R1462	Aluminium rivet	1
R6801	Marble block small	1
R6796	Piece of Porcelain block	1
R2817	Carbon block	1
P0484	Nail 50mm long	1
R6797	Piece of cord	1
C5684	Spool of copper wire PVC insulated	1
C5685	Bare copper wire	1
C5686	Nichrome wire grey cotton insulated	1
R3858	Bulbs 3.8 Volts screw type	10
C9169	Battery square 4.5 Volt cell holder	1
SE017	Bulb holders plastic	5
	Instruction manual	1

PERMITTIVITY OF AIR EXPERIMENT SV244A

Exp-1 To measure the force of attraction between charged capacitor plates by Null Method
Exp-2 To calculate the permittivity of Air
Exp-3 To measure the force between current carrying conductor and determine the permeability of Air.



SV244

SCOPE OF SUPPLY :

Cat No.	Item Name	Qty.
SV244	Coulomb and current balance	1
SE1003	Power supply 0-30V DC, 0-20A	1
	Fractional weight set	1
SE067	Multimeter	1
C4941	Diode laser	1
SP134	Wooden scale 50cm	1
	Instruction manual	1

By means of null method this balance measures tiny forces, it possess adjustable counterweight and an optical lever. To measure the repulsive force between parallel current-carrying conductors a pair of straight aluminium rods are given. Attractive force between charged capacitor plates ,a pair of plates are also included. In the electromagnetic experiment sufficient deflection may be caused by means of a current of 10-20A. For returning the balance to its original position, fractional weights are added to a small pan which is attached to the upper conductor rod, thus force between the conductors are measured. The dynamic definition of the Ampere or to determine the permeability of Air may be confirmed by interpretation of the result. Permittivity of the air may be observed by the analogous electrostatic experiment. An indirect estimate of the speed of light may be made from these two values. The whole experiment requires a diode laser & scale for the optical lever, fractional weight set for the current experiment, multimetyer for volts and amps, a 300V variable high voltage source and an AC or Dc current source for 10-20A. A detailed manual is included.

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CAPACITANCE DEMONSTRATION KIT -SA002

Experiment:

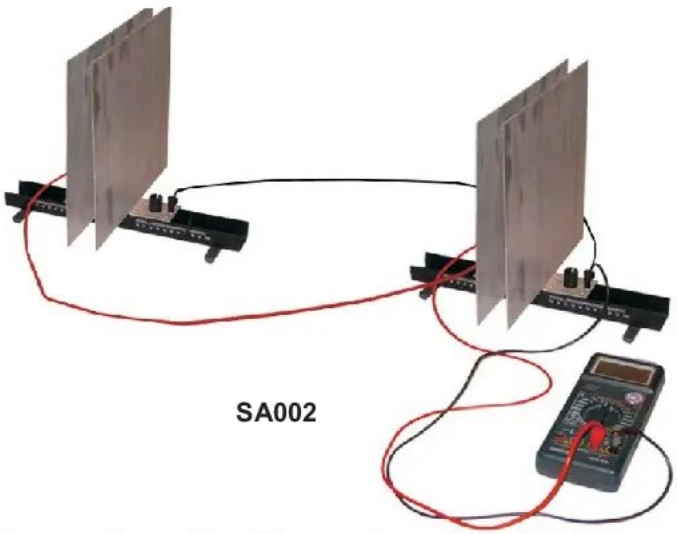
Exp-1 Capacitance of series & parallel combination of plate capacitors
Exp-2 Effect of area of plates on capacitance.
Exp-3 Effect of distance between the plates on capacitance.
Exp-4 Effect of different dielectric material on capacitance.

PHYSICS, Class XII, Part-1, Chapter - 2, Electrostatic potentials.

Special features:

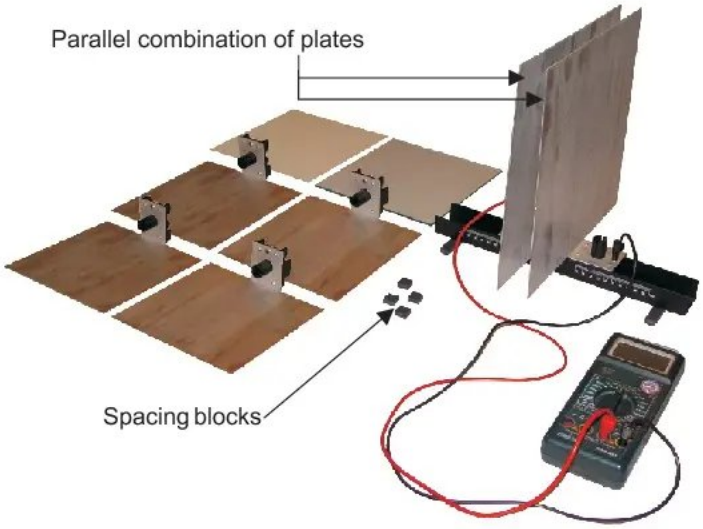
- **Constant area of plates show capacitance C with variation of distance d (C ∝ 1/d).**
- The d can be increased with spacers in steps on 1mm.
- U shaped small bench with marking in cm eitherside.
- 3 different dielectric sheet.
- **Large size plates ,suitable for demonstration to a group of students.**

Series combination of plates

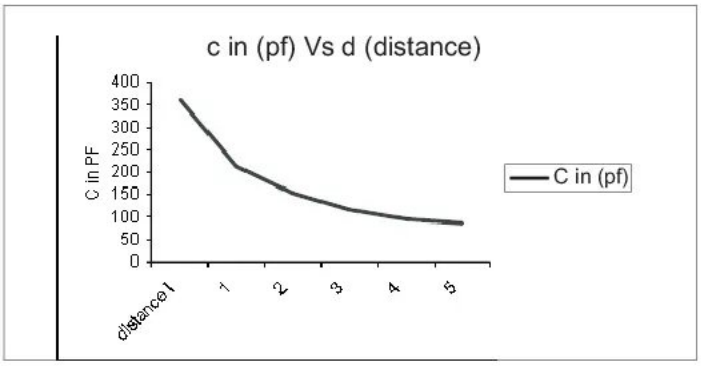


SA002

Parallel combination of plates

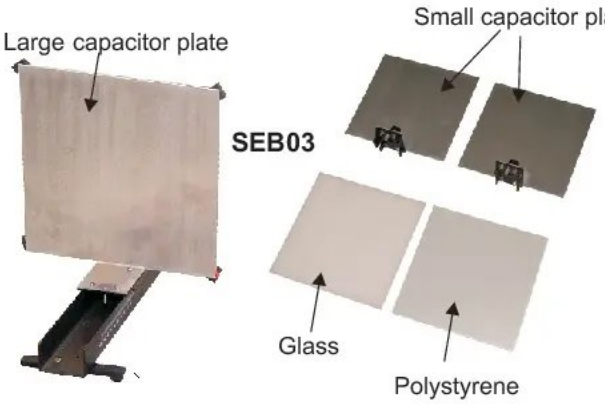


The capacitance of the plate capacitors as a function of the distance between the plates is shown in the curves below:

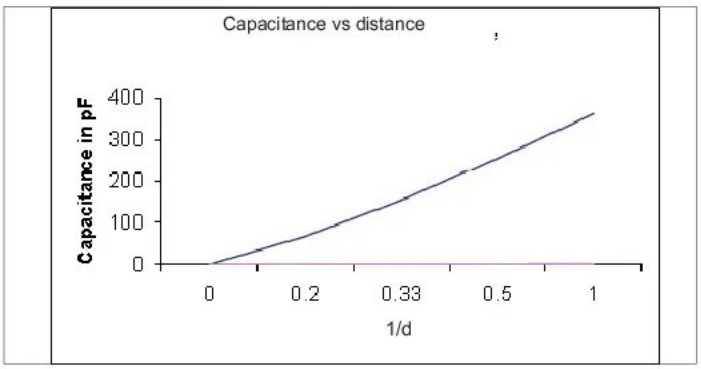


Large capacitor plate

Small capacitor plate



Capacitance is the function of the 1/d



SCOPE OF SUPPLY :

Cat No.	Item Name	Qty.
C4338	Parallel plates (20x20) cm^2 pair	2
C4339	Parallel plates (28x28) cm^2 pair	1
C4336	Glass sheet (21x21) cm^2	1
C4337	Polystyrene sheet (21x21) cm^2	1
R2186	LCR meter (M890G)	1
SN201	4 mm plug lead pair	2
C4334-5	Spacing blocks (1,2,3,4,6 mm)	1
C4340	Capacitor rail	2
	Instruction manual	1

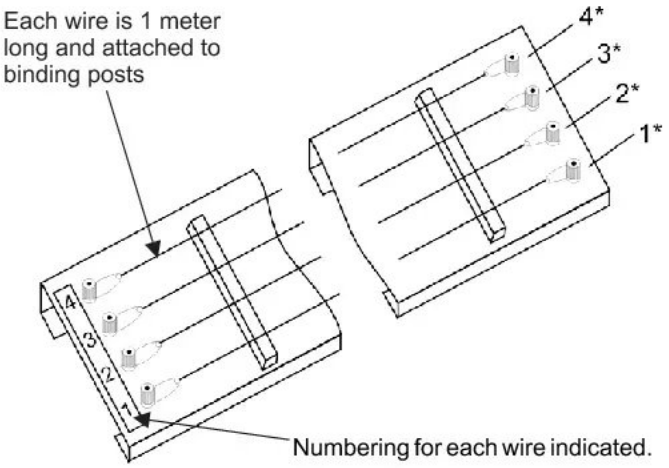
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LAW OF RESISTANCE BOARD - SA022

Experiment:
Exp-1 Resistance in series combination.
Exp-2 Resistance in parallel combination.
Exp-3 Study electrical resistance phenomena in metal.
EXP-4 Verifying ohm's law.
EXP-5 Effects of length, cross section & material on a conductor's electrical resistance.

PHYSICS, Class XII, Part-1, Chapter - 3, Current electricity.
SCIENCE, Class X, Chapter - 12, Electricity.

Special features:
- **Insulating blocks present on the base prevent the wires from contacting the metal base during experiment.**
- Demonstrate the characteristics of electrical resistance in metal wires,
- All The wires have the same length and dia , but are made of different materials.
- **Multipurpose power supply.**



- **Four parallel wires each 100 cm long terminated in insulated binding posts at each end.**
- **Law of lengths ,areas & materials may be studied.**

4 separate strands of wire

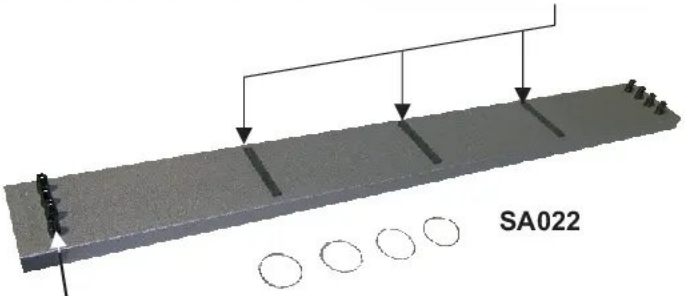
TERMINAL	WIRE DIAMETER(mm)	WIRE GAUZE	WIRE MATERIAL
1.	0.25	30	CONSTANTAN
2.	0.5	24	CONSTANTAN
3.	0.27	32	STEEL (MUSIC WIRE)
4.	0.25	30	COPPER



SV050

CE marked multipurpose power supply 12V AC/DC 3A operatable at 220 V ac,50Hz.

3 nos. Of insulating blocks on the base preventing the wire from connecting the metal base.



SA022



4mm sockets



SE067

SCOPE OF SUPPLY :

Cat No.	Item Name	Qty.
C8625	Resistance board	1
	1m, constantan wires 24 SWG	1
	1m, constantan wires 30 SWG	1
	1m,iron wires 30 SWG	1
	1m,copper wires 30 SWG	1
SE067	Multimeter	2
SN200	Connecting Lead black 50cm	2
SN201	Connecting Lead black 100cm	1
SN203	Connecting Lead red 50cm	2
SN204	Connecting Lead red 100cm	1
SV050	Power supply 1.5-12V AC/DC	1
	Instruction manual	1

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POWER SUPPLY 2-12V/5A AC/DC CE **SE080**

Ideal for general purpose applications where a low voltage sturdy power supply is required e.g. for equipments with lamps and resistances.

Technical Specification :

Parameters	Remarks
Output Voltage	2,3,4,5,6,8,10 and 12 V AC full wave. rectified, unsmoothed and unregulated D.C. in maximum 8 steps.
Overload protection	Resettable thermal trip.
Working voltage	230V AC, 50Hz

Used with the experiments of equipotential lines (SK044),Transformer Kit (SA019),Ray Optics Kit(SN639), Solar Cell Characteristics (SA027).



POWER SUPPLY 0-30V DC, 10A CE **SE1004**

This is an adjustable voltage and current regulated DC Power Supply. It provides low ripple and a high precision, continuously adjustable voltage and current .When it is in the status of regulated current, the current regulation is continuously adjustable in the rated range.

Technical Specification :

Parameters	Remarks
Input Voltage	AC 220V ±5%
Output Voltage	0-30V
Output Current	0-10Amp
Voltage Display	3½ Digit LED
Current Display	3½ Digit LED

Used with the experiments of Dia- Para -Ferro-Magnetism(SK048/SK100).



POWER SUPPLY 2-12V AC/DC CE

Ideal for general purpose applications where a low voltage sturdy power supply is required e.g. for equipments with lamps and resistances.

Salient Features:

- Output voltage selectable by rotary switch in maximum 8 steps.
- Fuse protection for the primary winding.
- Resettable electronic trip.
- Safety sockets are provided for both AC & DC Output,

Technical Specification :

Parameters	Remarks
Output Voltage	2,3,4,5,6,8,10 and 12 V AC full wave rectified, unsmoothed and unregulated D.C.
Overload protection	Resettable electronic trip.
Working voltage	230V AC, 50Hz

SW927 5Amp. Max. for both AC and DC.
SW928 2Amp. max. for both AC and DC.

Used with the experiments Demonstration Meter Kit(SA010).



POWER SUPPLY 1.5-12V AC/DC, 3Amp. CE **SV050**

Ideal for general purpose applications where a low voltage sturdy power supply is required e.g. for equipments with lamps and resistances.

Technical Specification :

Parameters	Remarks
Output Voltage	1.5, 3, 4.5, 6, 7.5, 9, 10.5 and 12 V AC full wave rectified, unsmoothed and unregulated D.C.
Overload protection	Resettable thermal trip.
Working voltage	220 V AC, 50 Hz single phase.
Output	1.5 to 12 V in 8 steps

Used with the experiments Law of Resistance Board(SA022),Ripple Tank Kit(SA005), Bell Experiment (SA007).

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SPECTRUM TUBE POWER SUPPLY **SW281**

Power supply is provided with a continuously adjustable knob for varying voltage from 0 to 5000V, output current 0-2mA, overload protection provided. In build current limiter ensures a long service life of the tubes. Spring contacts is fully insulated fixtures for secure mounting. Provided with fuse protection for primary winding and **protection window for tube with red switch** for safe operation. Input voltage 0-230V AC, 50Hz. Used with spectrometer experiment.

SPECTRUM TUBES

Spectrum tubes suitable for use with SW281.

Cat No	Gas	Cat No	Gas
SN630	Helium	SN631	Hydrogen
SN633	Neon	SO035	Iodine
SN635	Argon	SN634	Nitrogen
SN632	Mercury Vapours		

Used with the experiment of spectrometer.



Regulated Power Supply 0-30V DC, 0-20 Amp CE **SE1003**

This is an adjustable voltage and current regulated DC Power Supply. It provides low ripple and a high precision, continuously adjustable voltage and current .When it is in the status of regulated current, the current regulation is continuously adjustable in the rated range.

Technical Specification :

Parameters	Remarks
Input Voltage	AC 220V ±5%
Output Voltage	0-30V
Output Current	0-20Amp
Voltage Display	3½ Digit LED
Current Display	3½ Digit LED

Used with the experiments of permitivity in air apparatus(SV244), Biot Savart's Law.



POWER SUPPLY ±15 V CE **SW938**

Dual tracking power supply is intended for use with study of operational amplifiers. Output Voltage is short circuit protected.

Technical Specification :

Parameters	Remarks
Output voltage	±15V Fixed
Current	500mA
Overload protection	Current limiting.
Working Voltage	230V AC, 50Hz

Used with the experiments of Electronic plug in kit.



E.H.T. POWER SUPPLY 0-5 kV CE **SE1005**

Power supply is continuously adjustable with rotary variable knob. Output voltage is monitored with Digital meter provided on the panel.

Salient Features :

- Output voltage continuously variable from 0-5kV at a maximum current of 2 mA.
- Fuse protection for the primary windings.
- External earth socket for additional safety.
- Safety Sockets for the output voltage suitable for safety plugs.
- 6.3 V AC, 2 Amp. is provided for the filament supply.

Technical Specification :

Parameters	Remarks
Working voltage	230 V AC, 50 Hz (Cat.No.SE1005)
D.C. Voltage	Continuously variable from 0 to 5 kV.
D.C. Current	2mA(max.)
A.C. Voltage	6.3Volt (fixed)
A.C. Current	2 Amps.

Used with the experiments of Kerr Effect.

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REGULATED POWER SUPPLY 0-16V, 1A DC & 5V, 1A DC
SW926 CE

Suitable for all general purpose applications, laboratory use, experimental setups, circuit development, component/circuit evaluation, industrial applications. Good performance at low cost.

Salient Features:

- Continuously variable output 0 - 16 V DC.
- Big clearly readable bright LED Display of the output voltage 0 - 16 V DC.
- Coarse & fine controls for 0 -16 V DC.
- Low ripple
- Fuse protection for the primary winding.
- Automatic crossover type protection against overload & short circuit for 0 -16 V DC.

Technical Specification :

Parameters	Remarks
Voltage	0 -16V, 1 Amp DC continuously variable 5V. 1 Amp. DC Fixed
Display	3 Digit LED for 0-16V DC
Working voltage	230V AC, 50 Hz

Used with the experiments of Basic Electronics kit (SK094/SK095/SK096,SA031).



REGULATED POWER SUPPLY CE **Se079**

Suitable for all general purpose applications, laboratory use, experimental setups, circuit development, component/circuit evaluation, industrial applications. Good performance at low cost.

Technical Specification :

Parameters	Remarks
Voltage	0-16V, 5Amp DC continuously variable & stablized.
Ripple	Low ripple.
Overload protection	Current limiting.
Current	Continuously variable from 10% to full rating.
Display	Two separate displays(3 digit LED) are provided to monitor the output Voltage and load current continuously.
Working voltage	230V AC, 50 Hz

Used with the experiments of Magnetic field along the axis(SED1001),Magnetic field in Helmholtz Coil(SED1002).



Digital Gauss Meter CE **SR014**

Digital Gauss Meter with Axial hall probe to measure the magnetic field along the axis. An adjustment knob ,provided to set the magnetic field ZERO.

Technical Specification :

Parameters	Remarks
Input Voltage	220V±10%,50 Hz AC
Range	200 Gauss & 2k Gauss
Resolution	0.1 Gauss at 0 - 200 Gauss
Display	3½ Digit led for gauss reading

Used with the experiments of Magnetic field along the axis(SED1001),Magnetic field in Helmholtz Coil(SED1002).



SIGNAL GENERATOR CE **SW925**

A low distortion signal generator with four decade ranges selectable by rotary switch. Sine waveform and square waveform selectable by membrane switch with LED indicator. A built in speaker is provided for audible frequencies and is selectable by membrane switch.

Technical Specification :

Parameters	Remarks
Range	10Hz to 110 KHz in four decade ranges.
Wave form	Sine & Square.
Output	Continuously variable from 0-7V p-p,5W.
Working Voltage	230V AC, 50Hz.

Used with the experiments of Wave demonstration kit (SA009).

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TRANSFORMER KIT - SA019

Exp-1 To study the working of step-down transformer.
Exp-2 To study the working of step-up transformer.
Exp-3 To demonstrate motor and braking.
Exp-4 Effect of eddy current.
Exp-5 Principles of the shaded pol motor.

PHYSICS, Class XII, Part-1, Chapter -6, Electromagnetic induction.
Chapter -7, Alternating Current.



SA019

In order to demonstrate the basic principles of the A.C. Transformer and also the basics of various experiments in electromagnetism by means of different coils & cores using direct or alternating current, this apparatus is constructed. Coils are made of enamelled copper wire wound around on plastic bobbins with 4mm terminals connections.
All the components fit together to allow for assembly of the arrangements required to demonstrate motor & braking effects on the dissectible transformer.

SCOPE OF SUPPLY:

Item Name	Qty.
Clamp base	1
300 Turn Coil	1
600 Turn coil	2
1200 Turn coil	1
3600 Turn coil	1
12000 Turn coil	1
U & I Core, section 32X25mm	1
Multimeter	2
Connecting Leads 50cm (Pair)	2
Power Supply 12V AC/DC	1
Quadrant shaped plane plate	1
Quadrant shaped slotted plate	1
Aluminium motor disc	1
Vertical support rod	1
Clamping screw	1
Instruction manual	1

DEMONSTRATION METER KIT - SA010

Exp-1 To study the working of galvanometer.
Exp-2 Conversion of galvanometer as DC voltmeter.
Exp-3 Conversion of galvanometer as AC voltmeter.
Exp-4 Conversion of galvanometer as DC current meter.
Exp-5 Conversion of galvanometer as AC current meter.

PHYSICS, Class XII, Part - 1, Chapter - 4, Moving charges & magnetism, The Moving Coil Galvanometer.

Fun Class room demo



SA010

The kit has been designed to demonstrate the basic working principle of AC or DC analogue ammeters or voltmeters with interchangeable plastic scales. The whole kit is provided with big size demonstration meter, set of five AC/DC dials, load resistance and a power supply to operate the meter.

SCOPE OF SUPPLY:

Item Name	Qty.
Demonstration meter	1
DC dial 0-1A	1
DC dial 0-15V	1
AC dial 0-5V	1
AC dial 0-1A	1
Galvanometer	1
Resistance ½W	1
Resistance 3K, 1W	1
Power supply	1
Flexible Lead pair	1
Instruction manual	1

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RING LAUNCHER - SV543

Exp-1 Verifying the Lenz's law.
Exp-2 Induce current in ring.
Exp-3 To generate the electric current (lighting a bulb).
Exp-3 Effect of aluminum slit and acrylic ring .

PHYSICS, Class XII, Part - 1, Chapter -6, Electromagnetic induction.
Chapter -7, Alternating Current.

Fun Class room demo



SV543

Ring Launcher demonstrates the Lenz's law and effects of electromagnetically induced currents.

SCOPE OF SUPPLY :

Item Name	Qty.
Base Unit for Ring Launcher	1
Aluminum ring & slit	1
Acrylic ring	1
Coil with bulb	1
Instruction manual	1

KIT FOR MAGNETISM EXPERIMENTS - SA396

Exp-1 Magnetic field lines of a bar magnet.
Exp-2 Magnetic field lines of Horse shoe magnet.
Exp-3 Magnetic field lines of U-magnet.
Exp-4 Working of Tangential Galvanometer.
Exp-5 To determine the value of 'H' (Horizontal component of earth field)

PHYSICS, Class XII, Part - 1, Chapter -5, Magnetism & matter.
SCIENCE, Class X, Chapter - 13, Magnetic effects of electric current.

Fun Class room demo



Kit for magnetism experiments is designed for demonstrating the basic experiments of magnetism and is very useful for classroom demonstration purpose.

SCOPE OF SUPPLY:

Item Name	Qty.
Tangent galvanometer	1
Iron filing 500gm	2pkt
Horse-shoe magnet	1
U-shape magnet	1
Bar magnet	1
Magnetic compass	1
Instruction manual	1

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MAGNETIC FILED ALONG THE AXIS - SED 1001

Experiments:

Exp-1 To study Biot-Savart's law.

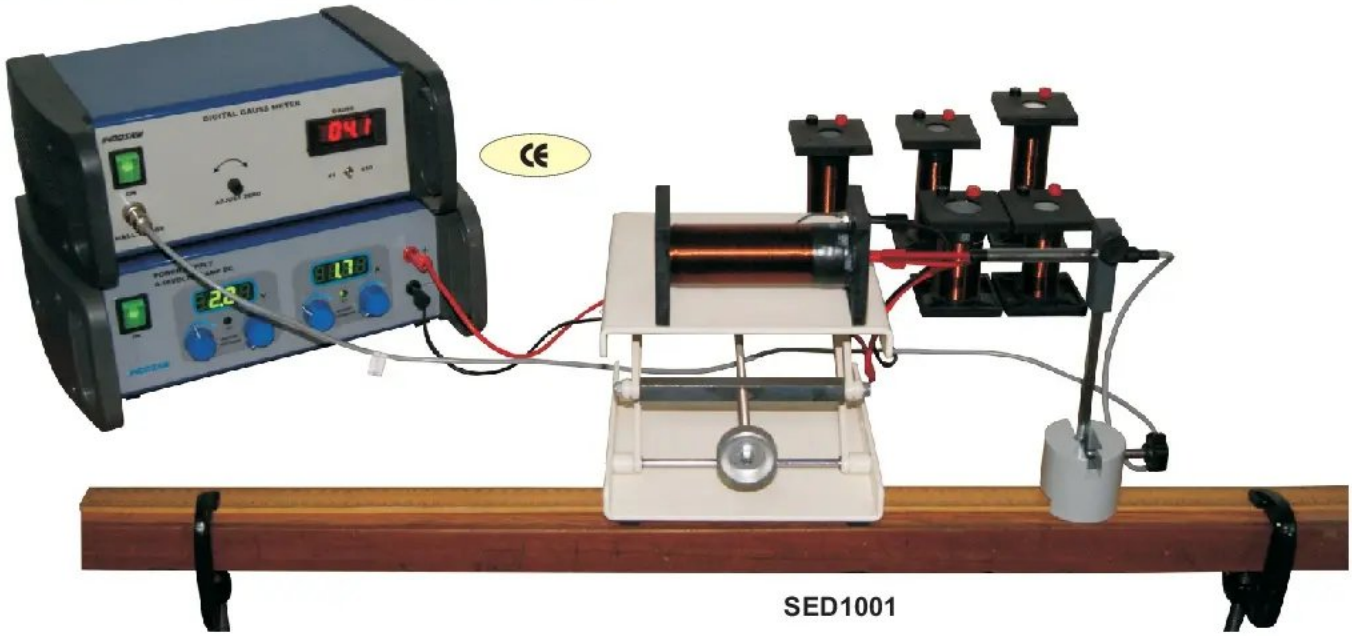
Exp-2 To study the magnetic field along the axis (at different point on the axis) of a single coil.

Exp-3 To study the dependancy of magnetic field on coil diameter and number of turns.

PHYSICS, Class XII, Part - 1, Chapter - 4, Moving Charges & Magnetism, the solenoid.

Special Features :

- Modular approach.
- Multipurpse power supply and gauss meter.
- Different types of circular coil.
- Electrical safety tested for power supply and gauss meter.

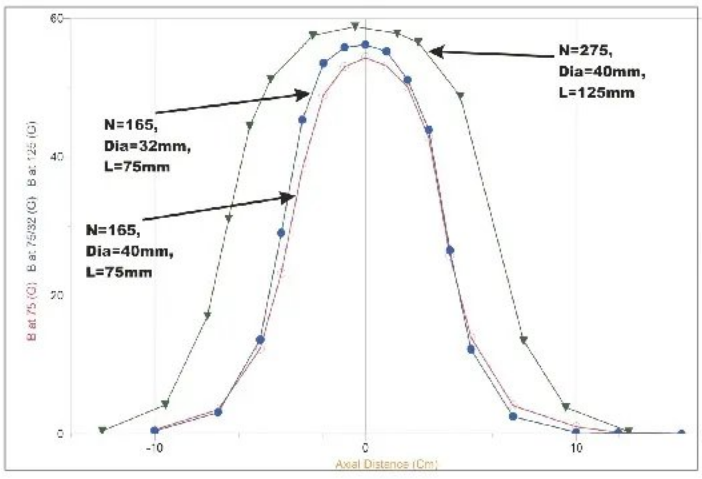


SED1001

Principle and Working:

The magnetic field along the axis of coils of different dimensions is measured with a digital gauss meter with axial probe.

In the present setup, the relationship between the maximum field strength and different point on the axis of a single coil with different dimensions are investigated and a comparison is made between the measured and the theoretical effects of position.



Dependence of Magnetic Field in L, N, & Diameter

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty
SE079	Power Supply DC 0-16V, 5 Amp	1
C4939	Digital Gauss Meter with Axial Probe	1
SW658	Laboratory Jack 200x200mm	1
SG110	Cylindrical base	1
C4238	Axial probe holder	1
SE067	Multimeter	1
SN200	Lead 50cm black	1
SN203	Lead 50cm red	1
SN201	Lead 100cm black	1
SN204	Lead 100cm red	1
CD074	Coil N=165, L=75mm, Dia=32mm	1
CD075	Coil N=220, L=100mm, Dia=32mm	1
CD076	Coil N=275, L=125mm, Dia=32mm	1
CD077	Coil N=165, L=75mm, Dia=40mm	1
CD078	Coil N=220, L=100mm, Dia=40mm	1
CD079	Coil N=275, L=125mm, Dia=40mm	1
SP141	Meter Ruler	1
R6969	Clamp	2
	Instruction manual	1

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MAGNETIC KIT - SN735

Exp-1 Magnet has a force.
Exp-2 Some item are attracted by a magnet, some are not.
Exp-3 Magnetic Poles
Exp-4 Magnetic Force pass through materials.
Exp-5 The rule of pole
Exp-6 Attraction and repulsion of poles.
Exp-7 Compass construction.
Exp-8 North -South Orientation of compass needle.
Exp-9 North south direction by freely movable magnet.
Exp-10 Compass needle is magnet
Exp-11 North south Position of compass needle.
Exp-12 Magnetisation of knitting needle.
Exp-13 Knitting needle as a compass needle.
Exp-14 Utilization of compass.
Exp-15 Use of a hiking compass with a map.

SCIENCE, Class VIII, Chapter - 11, Electricity & magnetism.
SCIENCE, Class X, Chapter - 13, Magnetic effects of electric current.

TAKE IT HOME KIT



SN735

SCOPE OF SUPPLY:

Item Name	Qty.
Test tube	1
Bar magnet	1
Bar Magnet with red marked north pole	1
Cylindrical magnet	1
Knitting needle	1
Spool of thread	1
Plastic box small	1
Wooden disc	1
Rubber eraser	1
Sheet of copper	1
Sheet of iron	1
Sheet of cardboard	1
Piece of cloth	1
Floating platform for compass needle	1
Compass needle	1
Compass card	1
Hiking compass	1
Mini waggons for magnets	1
Floating platform for bar magnet	1
Filter bowl	1
Aluminium screws	1
Paper clips	1
Nails	10
Iron screws	3
Instruction manual	1

WESTMINSTER KIT - SE900

Exp-1 Magnetic properties: attraction & repulsion
Exp-2 Magnetic meridian
Exp-3 Magnetic field due to different arrangements of magnet
Exp-4 Field from electric current
Exp-5 Electromagnetic induction
Exp-6 Current in magnetic field
Exp-7 Alternating current
Exp-8 Eddy currents and damping
Exp-9 Transfer of electrical energy to mechanical energy.

PHYSICS, Class XII, Part - 1, Chapter - 5, Magnetism & matter. Chapter - 6, Electromagnetic Induction.

DO IT YOURSELF APPROACH



SE900

This Kit designed to perform the basic experiments in Electromagnetism. A group of 8 students can perform an experiment in classroom.

SCOPE OF SUPPLY:

Item Name	Qty.
White Cotton Reel	4
Wooden Rods	4
Armature (44 x 30 x 12mm)	4
Mild steel yoke	4
Support base (100 x 47 x10mm)	4
Split pins	8
Rivets Plastic	24
Shafts	6
Slotted Aluminium Rings	4
Compass Holder	4
Plotting Compass	6
Resistors10 ohm, 100 ohm	4
Silicon Tubing (2.5mm Hole)	1
Ferrite Magnet (50 x 19 x 6mm)	8
Alnico Magnet (31 x 6 x 6mm)	4
Bottle of iron filing	1
Iron filing dispenser	4
Instruction manual	1

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MAGNETIC FIELD IN HELMHOLTZ COIL SED1002

Experiments:

Exp-1 To measure the magnetic flux density along the x-axis of the circular coils when the distance between them $a = R$ (R = radius of the coils) and when it is greater and less than this.

Exp-2 To measure the spatial distribution of the magnetic flux density when the distance between coils $a = R$, using the rotational symmetry of the set-up.

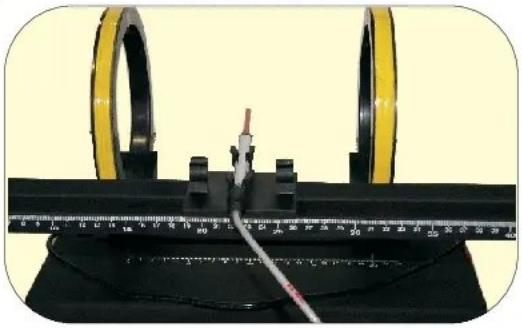
PHYSICS, Class XII, Part - 1, Chapter - 4, Moving Charges & magnetism.

Special Features :

- Magnetic filed measure in boh the direction.
- Distance between coil is adjusted in U channel bench.
- Modular approach.
- Electrical safety tested for Power supply & Gaussmeter.



SED1002

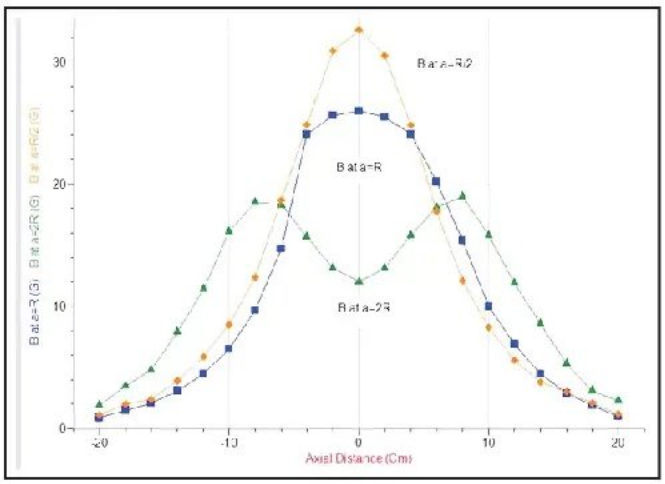


Magnetic Field setup in Plane x=0

Principle and Working:

The magnetic field of the coil arrangement is rotationally symmetrical about the axis of the coils, which is chosen as the x-axis of a system of cylindrical coordinates (x, r, Φ). The origin is at the centre of the system. The magnetic flux density does not depend on the angle Φ, so only the components Bx (x, r) and Br (x, r) are measured.

In the present setup, a fairly uniform magnetic field is to use a pair of circular coils on a common axis with equal currents flowing in the same logic. For a given coil radius, you can calculate the separation needed to give the most uniform central field.



Spatial Distribution of the Magnetic Field

SCOPE OF SUPPLY :

Cat No.	Item Name	Qty
SE079	Power Supply DC 0-16V, 5 Amp	1
C4939	Digital Gauss Meter with Axial Probe	1
SV628	Coil N=390, Dia=150mm	2
C9699	Support Base	2
CD038	Support Rod	2
CD036	U Channel Big	1
CD043	U Channel Small	1
CD042	Deflection Compass with Base	1
CD039	Axial probe holder	1
SE067	Multimeter	1
SN201	Lead 100cm black	2
SN204	Lead 100cm red	1
SN203	Lead 50cm red	1
SN206	Lead 50cm yellow	1
	Instruction manual	1

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DIA-, PARA-, AND FERROMAGNETISM SK048/SK100

Experiments:
Exp- To demonstrate dia-para-ferro magnetism in an inhomogeneous magnetic field.
This experiment demonstrates the magnetic behaviour of Bismuth, Nickel and Aluminium samples when suspended freely in an inhomogeneous magnetic field. These metals are attracted or repelled by magnetic field depending upon the magnetic property of the metal under investigation.
PHYSICS, Class XII, Part - 1, Chapter - 5, Magnetism & matter.

Special Features:
- **Reversible pole pieces for centric and homogenous magnetic field.**
- **Coils** are enamelled Cu wire wound round on high impact plastic moulded bobbins.
- Multipurpose components.
- **Each coil is enclosed on the same housing.**
- **Presence(or absence) of a significant magnetic moments for atoms will govern how they respond to magnetic fields.**

Pole piece





Multipurpose Power Supply 30V DC, 10A can be used in other experiments.

SK048



Diamagnetism shown by Bi
(Possess no magnetic moment)
Paramagnetism shown by Al
(unpaired valence electrons)
Ferromagnetism shown by Ni
(Significant attraction to other magnetic materials.)

All Indosaw power supplies are tested for CE safety requirements. Like insulation resistance test, ground bond test and dielectric strength test etc.

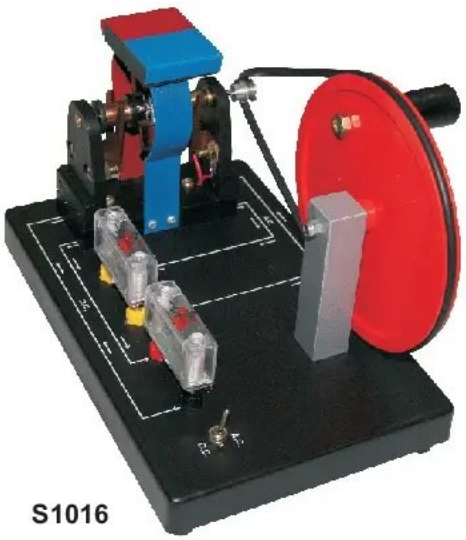
SCOPE OF SUPPLY :

Cat No.	Item Name	SK048	SK100
SE1004	Power Supply 30V DC,10A	1	
R5167	U-Core	1	1
C7553	Pole piece with hole(pair)	1	1
C7759	Pointed Attachment for pole pieces(pair)	1	1
C7766	Coil 250 turns	2	2
SG101	'A' shaped Base	1	1
C7758	Rod 'L' shaped	1	1
C7759	Attachment assembly	1	1
C7761	Ni, Bi and Al sample	1	1
R0412	Digital Multimeter	1	1
SN203	Flexible Plug lead, Red	1	1
SN200	Flexible Plug lead, Black	2	2
SN206	Flexible plug lead, yellow	1	1
	Instruction manual	1	1

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DEMONSTRATION DYNAMO AC/DC - S1016

SCIENCE, Class X, Chapter - 13, Magnetic effects of electric current.



S1016

It consists of a hand driven pulley attached to the pulley of dynamo by means of a rubber belt. It generates both a.c & d.c current. The whole unit is mounted on a plastic base. Provided with two pairs of 4mm sockets. Supplied with two nos. of LEDs.

MOTOR WITH ADJUSTABLE BRUSHES SV242A



SV242

Observable components of motor. A variety of demonstrations can be performed on this basic apparatus e.g. Magnetic fields,D.C. Motors,series and shunt fields and generators. There is a two-pole D.C. Armature which can be connected to a mechanical device or to another motor for motor and generator demonstrations. Adjustable brushes for contact with commutators. White plated spring brass clamps, which shows the effects of pole separation, supports the two permanent bar magnets .

SCOPE OF SUPPLY :

Cat No.	Item Name	Qty.
SV244	St. LOUIS MOTOR	1
	Instruction manual	1

Additionally required items not in scope of supply.
1. Power supply (Cat No. SE080)

DEMONSTRATION MOTOR - SH534



SH534

Suitable for demonstration of a DC motor, having a two pole armature wound with enamelled copper wire and a detachable permanent magnet (N-S indicated) mounted on a base. External connections via 4mm sockets.
Operating voltage : 4-6 V DC
Height : 125mm(approx.)

DECADE RESISTANCE BOX - SE097

PHYSICS, Class XII, Part - 1, Chapter - 3, Current electricity.



SE097

These resistance boxes incorporate specially designed switches for precision and rapid measurement of resistance. The dial assembly is mounted on a panel and enclosed in a box for protection from dust and acid fumes.

Salient features

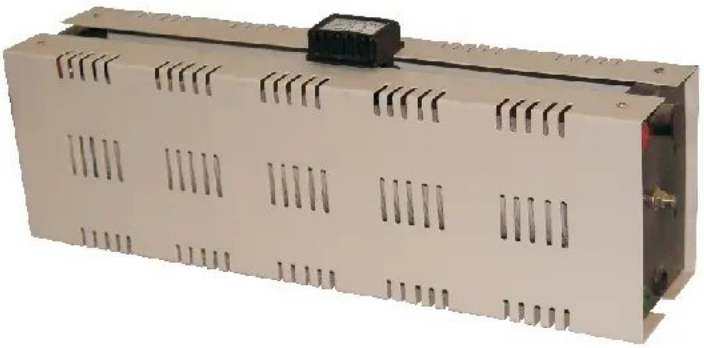
- **It uses metallic film resistance which is better than coils.**
- **4 mm safety sockets are provided.**

Range in ohms: 1,10,100,1000
Total Resistance in ohms: 11110
Dials: 4

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RHEOSTAT



Resistance wire wound on a pipe having dia 5.6cm,perforated cover for touch protection. Electrical connections via three 4 mm safety sockets. It can be used as fixed resistor and potentiometer. Fourth socket is used as earth.

Porcelain Pipe Closed	Enamelled Pipe Closed	Length (cm)	Resistance (Ohms)	Current (Amps.)
SN771	SF819	25	10	5.7
SN774	SF820	25	33	3.1
SN772	SF821	25	100	1.8
SN775	SF822	30	330	1.0
SN773	SF823	35	1000	0.57
SN776	SF824	30	3300	0.31

DECADE CAPACITANCE BOX - SE774



Each dial operated by a knob. Special type of switches are provided to minimize the residual capacitance.

Salient features:

- **High quality switches to minimize residual capacitance.**
- **4 mm safety sockets are provided.**

Range in Microfarad (µF): 0.001, 0.01 & 0.1
Total Capacitance (µF): 1.11
Dials: 3

MAGNETIZING/ DEMAGNETIZING COIL SH521



Ideal for demonstration of magnetizing or demagnetizing iron bar or strips etc. It consists of a solenoid mounted on a plastic base with switch and 4mm sockets.

Solenoid: 250 x 25 mm approx. (L x ID)
Operating voltage: 12 V AC or DC at 6A

DIGITAL METER



Housed in rectangular shaped plastic body provided with LCD display. Size 14 x 10 x 10 cm approx. Fitted with two terminals and on / off switch. Operating voltage 9V DC battery. Supplied without battery.

Display : LCD type 3½ digit

Cat. No.	Ranges DC
SA594	199.9µA
SA595	1.99mA
SA596	19.99mA
SA597	199.9mA
SA598	1.99A
SW173	19.99A
SA599	199.9mV
SA600	1.99V
SW174	19.99V
SA601	199.9V
SA602	500V

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LINEAR AIR TRACK WITH DATA LOGGING - SK076

Experiments:

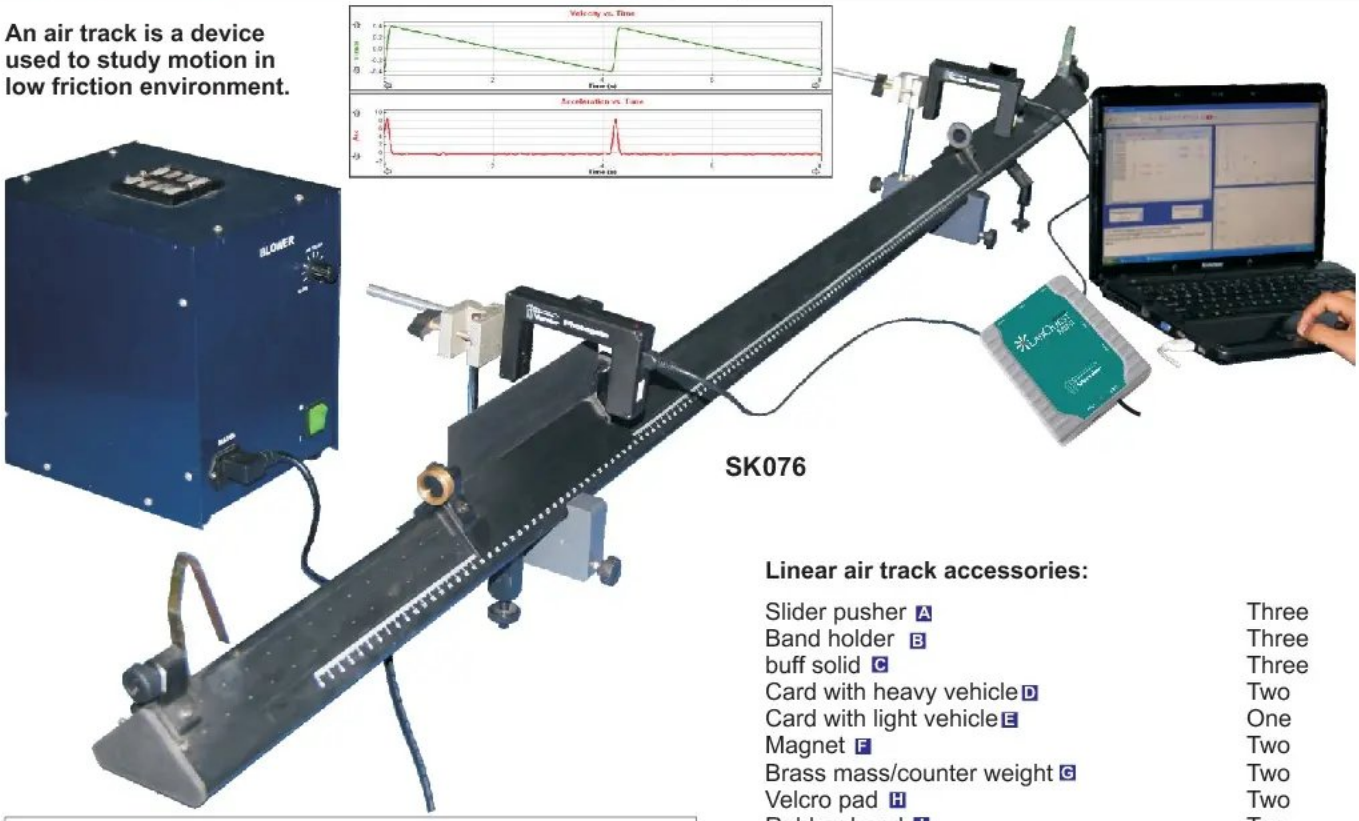
Exp-1 To study the linear motion under virtually frictionless conditions.
Exp-2 To study the elastic and inelastic collision.
Exp-3 To study the concept of velocity.
Exp-4 To study the concept of accelerations.
Exp-5 To study the conservation of momentum & energy.
Exp-6 To study the dependency of mass ratio to kinetic energy.

SCIENCE, Class IX, Chapter-8, Motion.
PHYSICS, Class XI, Part-1,Chapter-3, Motion in straight line.
PHYSICS, Class XI, Part-1,Chapter-6, Work, Energy & Power.

Special Features:

- Accessories simply plug into the ends of vehicle.
- **The magnet on buffers are identically polarised so they will repel producing elastic collisions between two vehicles.**
- Interrupter cards----These are for interrupting light gates for timing applications.
- **Facilitates the study of mechanics.**
- Linear motion under frictionless condition.
- Precise and accurate data.
- Computer connectivity.

An air track is a device used to study motion in low friction environment.



SK076

Linear air track accessories:

Slider pusher A	Three
Band holder B	Three
buff solid C	Three
Card with heavy vehicle D	Two
Card with light vehicle E	One
Magnet F	Two
Brass mass/counter weight G	Two
Velcro pad H	Two
Rubber band I	Ten
Allen key 5/32"	One



ACCESSORIES

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SH501	Linear air track with accessories	1
SV041	Air Blower	1
IMC13	Photogate sensors	2
IMC23	Mini labquest interface	1
LTS	Logger lite software	1
SW092	Bosshead	2
SG114	Base	2
C7083	Stand rod	2
	Instruction manual	1

Note: Computer is not supplied with this setup.

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LINEAR AIR TRACK WITH TIMER - SK099

Experiments:

Exp-1 To study the linear motion under virtually frictionless conditions.
Exp-2 To study the elastic and inelastic collision.
Exp-3 To study the concept of velocity.
Exp-4 To study the concept of accelerations.
Exp-5 To study the conservation of momentum & energy.
Exp-6 To study the dependency of mass ratio to kinetic energy.

SCIENCE, Class IX, Chapter-8, Motion.
PHYSICS, Class XI, Part-1,Chapter-3, Motion in straight line.
PHYSICS, Class XI, Part-1,Chapter-6, Work, Energy & Power.

- **Special Features:**
- Accessories simply plug into the ends & top of vehicle.
- **Facilitates the study of mechanics.**
- Linear motion under frictionless condition.
- Multipurpose hand-held digital timer with data storage facility.
- Photogate with sensitivity-adjustment knob.
- Precise and accurate data.
- Many other experiments can also be performed with the same timer.

Economical Model Air Track



SK099



SP059

Linear Air Track accessories **SP059**

Vehicle 200 g A	Two
Plug with aluminium strip B	Three
Plug with screen C	One
Plug with clay D	One
Plug with pin E	One
Fork for rubber band F	Three
Weight 50 g G	Four
Plug with card(black Al sheet) H	One
Plug with hook for attaching card I	One
Plug with pulley J	One
Rubber band K	Ten

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SJ190	Linear air track	1
SV041	Air Blower	1
SP059	Linear Air track accessories	1
C8601	Photogate sensors	2
C8599	Digital timer	1
SW092	Boss head	2
CD425	Tripod Base	2
C7083	Stand rod	2
	Instruction manual	1

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LAW OF MOTION KIT - SW470A

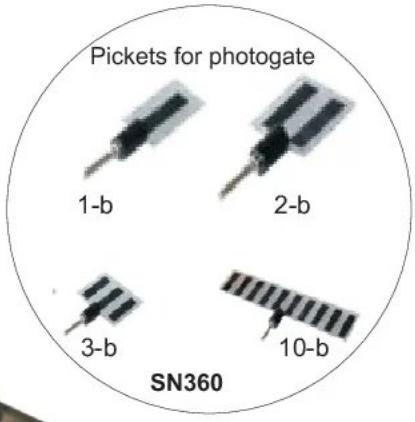
Experiments:
Exp-1 To find the velocity of an object.
Exp-2 To determine the average speed of an object.
Exp-3 To determine the acceleration of a moving object.
Exp-4 To demonstrate the elastic collision.
Exp-5 To demonstrate the law of conservation of energy.
SCIENCE, Class IX, Chapter-8, Motion.
Chapter-9, Force & Law motion.
PHYSICS, Class XI, Part-1,Chapter-3, Motion in straight line.
PHYSICS, Class XI, Part-1,Chapter-6, Work, Energy & Power.

Special features:
- No noise as in Air Track experiment.
- **Facilitating the study of mechanics both qualitatively & quantitatively.**
- **Low friction wheels of trolley.**
- Superior quality SS track.
- 4 mm socket on trolley for attaching various accessories & weight.
- **Multipurpose hand-held digital timer with data storage facility.**
- **Photogate with sensitivity-adjustment knob.**
- Precise and accurate data.

Law of motion kit has been designed to study the linear motion of the object, elastic collision, Newton's law of motion and recording the path time diagram of linear motion using phototiming gates.

No Noise

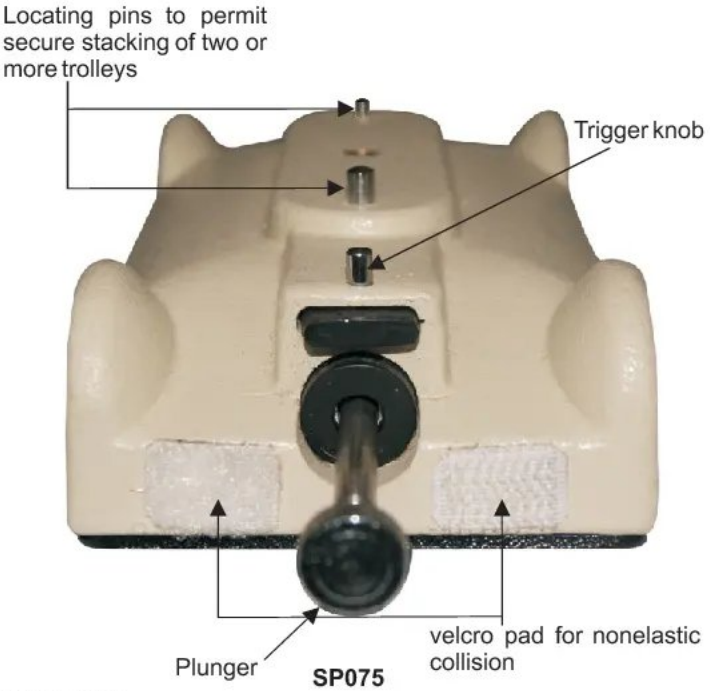






Mass set with hanger

SW470A



SP075

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SP075	Dynamic trolley metallic	2
C8601	Photogate sensors	2
CD425	Tripod base	2
SW092	Bosshead (bilateral)	2
C1795	Stand rod	2
SN581	Masses and detachable rod	1
SN360	Accessories for dynamic trolley	1
C7324	Picket fence	1
SP067	Track for dynamic trolley	1
SJ162	Intelligent timer	1
	Instruction manual	1

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FREE FALL APPARATUS - SK021,SK021A & SK021B

Experiments:

Exp-1 Determination of the value of 'g' using pendulum.
Exp-2 Determination of the value of 'g' by dropping metal ball using a solenoid.
Exp-3 Determination of the value of 'g' using 2L picket.
Exp-4 Value of 'g' using picket fence with ten slits.

SCIENCE, Class IX, Chapter-10, Gravitation.
PHYSICS, Class XI, Part-1,Chapter-3, Motion in straight line.
Chapter -14, The simple pendulum.
PHYSICS, Class XI, Part-2,Chapter-14, Oscillation.

Special features:

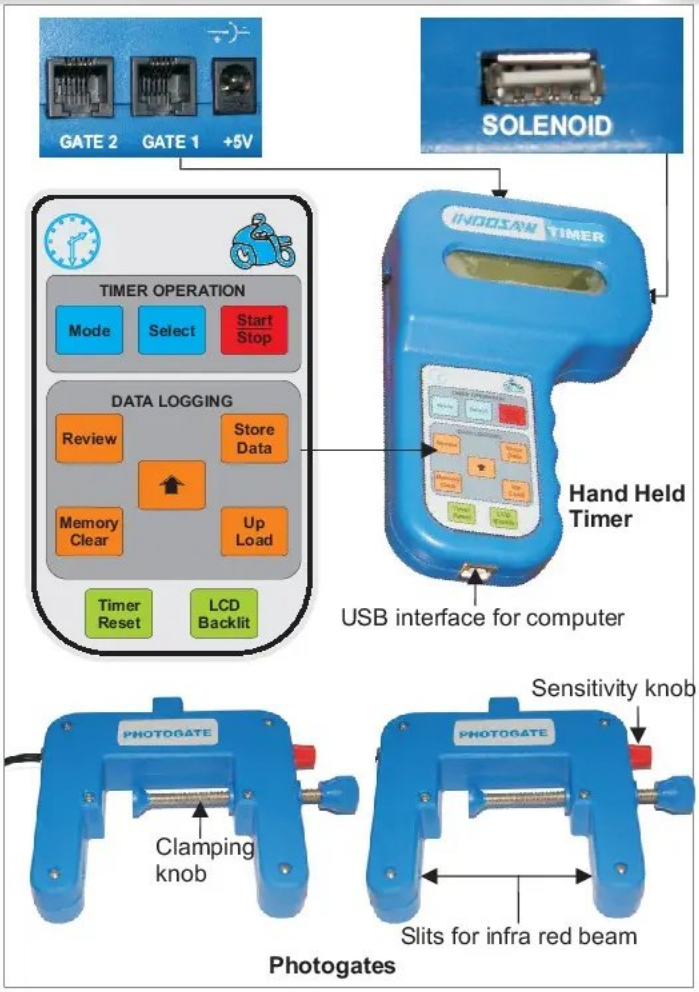
- **Hand-held digital timer with data logging facility & membrane keypad.**
- **Small slits on the inside edge of the photogate for emitting & receiving infra red beam.**
- Many other experiments can also be performed with the same timer.
- Quick & accurate results.



Cat. No. SK021 for Exp- 1, 2, 3 & 4.
Cat. No. SK021-A for Exp- 1.
Cat. No. SK021-B for Exp- 2,3 & 4.

SK021





SCOPE OF SUPPLY:

Cat No.	Item Name	SK021	SK021-A	SK021-B
SP775	'g' by free fall apparatus	1	1	1
C8599	Digital Timer	1	1	1
C8601	Photogate sensors	2	1	2
SN202	Lead, black(200cm)	1		1
SN205	Lead, red(200cm)	1		1
SW923	2 L Picket	1		1
SW924	Steel Ball	1		1
SP352	Pendulum bob (Brass)	1	1	
SP306	Pendulum bob (Iron)	1	1	
SN612	Picket fence ten slits	1		1
SJ164	Solenoid driver	1		1
CD526	Pendulum support	2	2	
SU0293A	Thread reel	1	1	
	Instruction manual	1	1	1

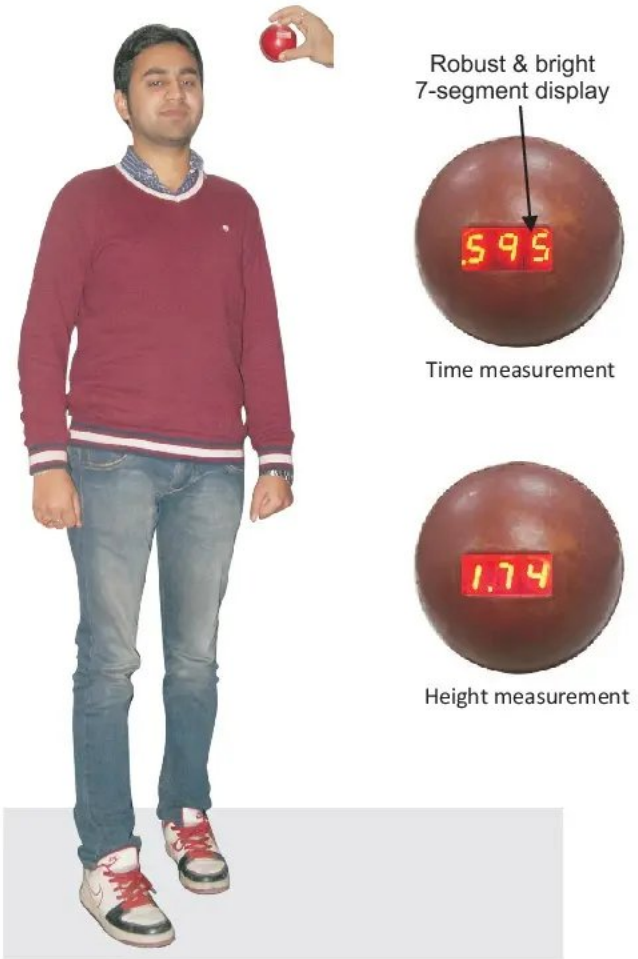
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TIMING BALL SV684

Experiments:
Exp-1 Measurement of Acceleration due to Gravity.
Exp-2 Measuring Height of a Person.
Exp-3 Measuring acceleration on sloping terrain.
Exp-4 Measuring angle of a sloping terrain.
Exp-5 Effect of gravity during Projectile Motion.
Exp-6 As a Stopwatch.
Exp-7 Plotting height vs. time graph under free fall.

Science, Class IX, Chapter-10, Gravitation.
Physics, Class XI, Part-1, Chapter-3, Motion in straight line.

Special Features:
- No setup time.
- Very accurate and economical ball.
- Very easy to use to measure value of 'g'.
- Inbuilt two axis impact detection mechanism.
- Start/Stop/Mode switch (Act as Start, Stop function in stopwatch & to display time and height under free fall after impact in mode function).
- Auto Shutdown after 30 sec
- Fun experiments.





The Timing ball is a unique device that records time from moment of release of ball to the moment of impact (on ground or object). It can be used to conduct a number of experiments involving acceleration due to gravity (g).

Calculation of Momentum
Calculate the velocity of the ball upon impact, using v = g*t where t is the time in seconds after it is dropped and g is acceleration due to gravity.
Calculate the momentum p of the ball upon impact, using p = m*v, where m refers to the mass of the ball.

Value of 'g' may be calculated using equation:

$$S = \frac{1}{2} gt^2,$$

where S is distance in meter and t time taken in seconds.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SV684	Timing ball	1
	Instruction manual	1

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CIRCULAR FORCE APPARATUS SV241A

Exp- To measure the force required under static conditions to displace the mass the same distance against the pull of the spring.



SV241A

A hanging mass and a counter-balance are attached to a horizontal bar mounted a top a vertical shaft about 45cm high,and the vertical shaft ties the suspended mass with a horizontal spring. When the shaft is spun ,the suspended mass swings away. The displacement at any given speed is marked by a vertical mounted pointer which moves laterally to match the pointed tip of the suspended mass. By knowing the mass, the speed of rotation and the radius , the centripetal force can be calculated.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SV241	Circular force apparatus1	
SV250	Slotted weight set (0.1N-5N)	1
	Instruction manual	1

VELOCITY OF SOUND APPARATUS SV243A

Used for determining velocity of sound in air or quantitative experiments on resonating columns. It contains a 120cm long plastic tube, graduated in cm. A water reservoir which can be easily moved up or down, connects the tube which is mounted on a support stand. A clamp for mounting tuning fork over the resonance tube is given. A detailed manual is included.



SV243A

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SV243	Velocity of sound apparatus	1
	Instruction manual	1

MECHANICS KIT - SH305

Exp-1 Verification of Archimedes Principle
Exp-2 Law of equilibrium system (torque or moments)
Exp-3 Verification of Hook's Law
Exp-4 System of Resolving force
Exp-5 Law of Parallelogram Law
Exp-6 Law of Frictional force
Exp-7 Motion in Inclined Plane
Exp-8 Motion of cart

SCIENCE, Class IX, Chapter-10, Gravitation.
PHYSICS, Class XI, Part-1,Chapter-4, Motion in Plane.
Chapter -5, Laws of motion.









This kit is designed to study basic principle of mechanics.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
C7082	Base Support	2
C7083	Rod 35cm	2
C8003	Rod with hole 40cm	1
C7084	Rod 25cm	1
C7085	Rod 50cm	2
C8003	Connecting rod	1
C7089	Double scale with bosshead (mm)	1
CB208	Bosshead	4
CB564	Beam balance with needle pointer	1
CB562	Pan with hook	2
CB551	Solid aluminium cylinder	1
SCA46	Beaker 250ml	1
SC995	Graduated cylinder 100ml	1
CB549	Archimedes bucket	1
SG207	Weight box	1
C7088	A scale with clip	1
C7086	S-shaped hook	2
R8332	Dynamometer 1.5N	1
R8331	Dynamometer 3N	1
C7092	Friction wooden block	1
Sp816	Digital watch	1
R8333	A spring 1N	1
R8334	A spring 2.5N	1
C7387	A pair of indicator	1
Cb553	A aluminum parallelogram	1
R8330	Meter tape	1
R3825	A thread 10m	1
Sn030	Trolley Plash	1
	Instruction manual	1

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MONKEY HUNTING APPARATUS - S1023

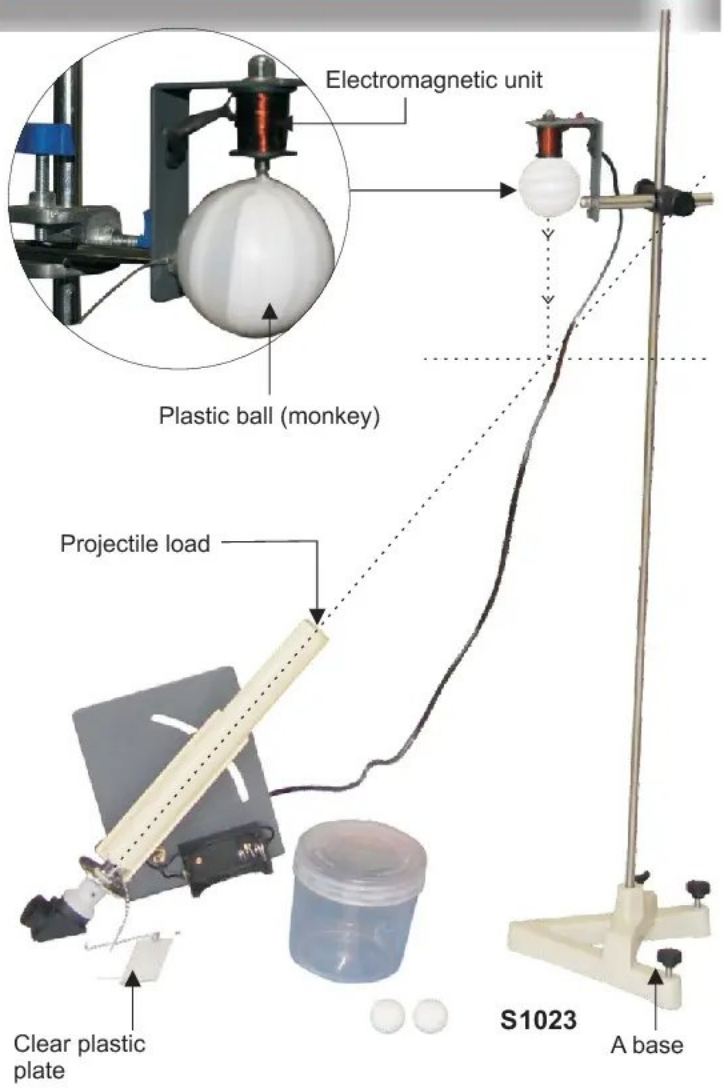
An electromagnet, which is battery operated, attracts a ball (monkey). After firing the projectile, the electromagnet circuit breaks,
The monkey falls and accelerates downwards at g. The bullet starts off travelling along the aiming line, but it is also accelerated downwards at g. So its motion as 'falling below the aiming line'. At equal times, it will fall below this line by an amount equal to the distance fallen by the monkey. At the time when both have the same horizontal position, they will both have fallen the same distance. The monkey and the bullet collide.

PHYSICS, Class XI, Part-2,Chapter-4, Motion in a plane.

Special features:

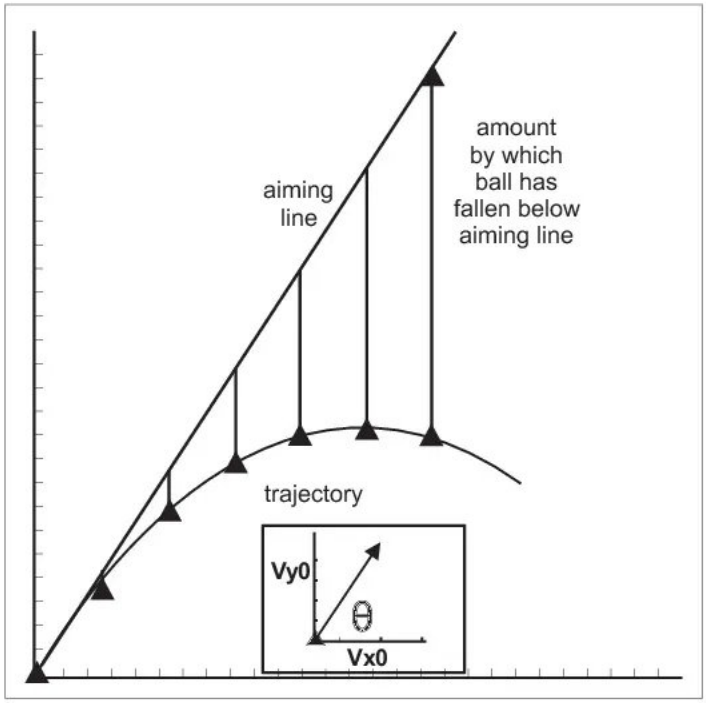
- Parabolic Collision with minimum setup time.
- **Projectile and target fall at the same rate , they collide.**
- Electromagnet operated by 1.5 V dry cell holds a plastic ball(Monkey).
- **Angle Mirror for adjusting sight.**

Demonstration of collision & parabolic trajectories.
The tube (hunter's gun) is a spring loaded launching piston allowing to adjust launch angle of ball.





Fun Class Room Demo



SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
C9980	Launcher with variable angle	1
R8168	Target ball	2
C9984	Electromagnet unit	1
R8376	Angle mirror	1
C8257	Spherical plastic ball (monkey)	1
CA707	Clamp	1
SG038	Rod	1
SG101	A base	1
CB208	Boss-head	1
R0603	Dry cell	1
	Instruction manual	1

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PROJECTILE LAUNCHER - SH332

PHYSICS, Class XI, Part-2,Chapter-4, Motion in a plane.



SH332

Projectile launcher is used for investigating the motion of projectile at different angle of projection (0-90°). The angle is read by means of a plumb line that is attached to the unit. A spring loaded rod is used to project a ball (Projectile). This set up can be easily mounted on the edge of laboratory table.

SCOPE OF SUPPLY:

Item Name	Qty.
Project tile launcher	1
Small balls	2
Instruction manual	1

WAVE FORM HELIX SLINKY - SP254



SP254

It is used for illustrating wave motion. A flat section anodized steel wire is wound in 75mm dia helix coil. Closed length 150mm and fully extended to approx. 3m.

SNAKY SPRING- SN786



SN786

For demonstrating transverse waves, wave propagation, wave reflection, standard waves & nodal points. Plated steel dia. 20mm and length 2 meters.

FORCE TABLE - SN720

Exp- To demonstrate the vector addition of forces.

PHYSICS, Class XI, Part-2,Chapter-4, Motion in a plane.



SN720

Dual scale allows to take readings clock or anticlockwise.
Free movement of Pulley reduces friction.
Precise measurement of angle with the built-in-scale.
By changing mass or angle a little equilibrium position changes immediately.

SCOPE OF SUPPLY:

Item Name	Qty.
Disc graduated in degrees scale	1
Pulleys with clamp	4
Detachable legs	1
Tripod Base	1
Slotted weight Set (50gx9)	4
Balance Pin	1
S- Shaped hook	4
O ring with thread	4
Instruction manual	1

SONOMETER WOODEN - SH250



SH250

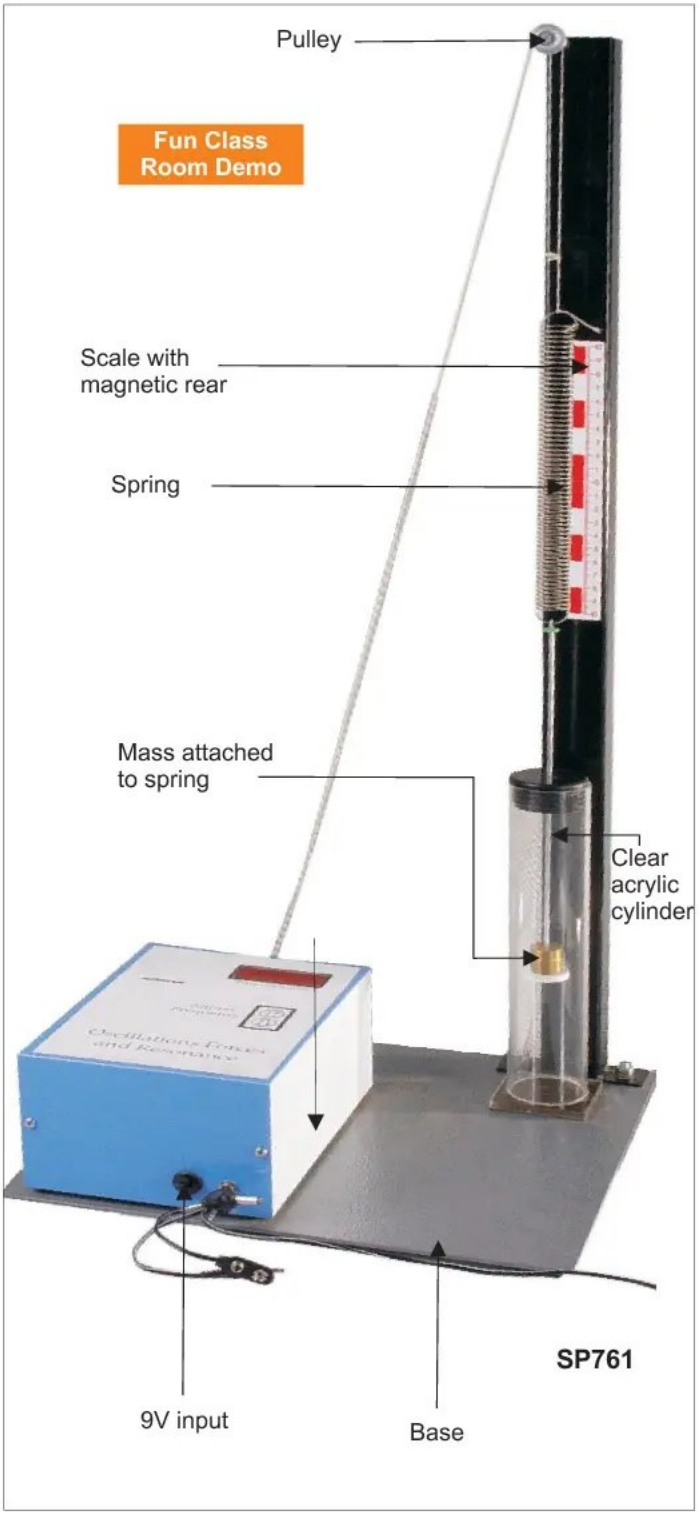
It is a device developed in order to study vibrating strings. Investigation on the dependancy of the pitch on length, tension and thickness of a vibrating string can be done.
Provided with three wires, two scales (scale length 50cm), one number of spring balance (capacity 100N), two fixed and three moveable bridges. A pulley is also attached on the corner of sonometer. Over all size 67.5x10x10.5cm approx.

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FORCED OSCILLATORS & RESONANCE SP761

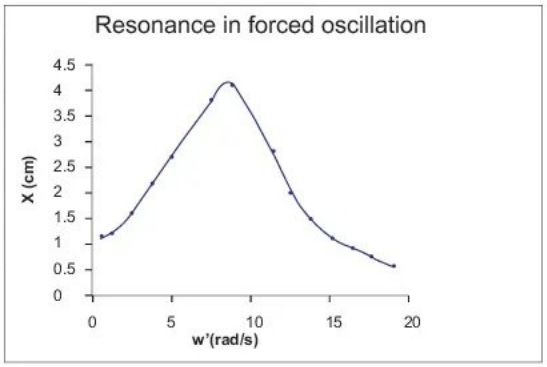
Experiments:
Exp-1 To investigate resonance in forced oscillations.
Exp-2 To find spring constant of a spring.
PHYSICS, Class XI, Part-1, Chapter-6, Work, Energy & Power.
PHYSICS, Class XI, Part-2, Chapter-14, Oscillations.

Special features:
- **System can be driven at various frequencies.**
- Bright LED display of frequency.
- **Easy to measure Amplitude .**
- Mass on the spring oscillates free or damped in water.



Sample results showing resonance in forced oscillations for spring with k=19.0Nm^{-1}, M_s=150gm. M_s= 5.5 gm, M_w=18.2 gm.

ω=2nf	X
1.26	1.2
2.51	1.6
3.77	2.2
5.02	2.7
7.54	3.8
8.80	4.1
11.30	2.8
12.56	2.0
13.82	1.5
15.07	1.1
16.33	1.0
17.59	0.7
18.84	0.6





Frequency generator

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
C5146	Base unit with frequency generator	1
C5157	Spring	1
C5155	Weight (50g)	4
C5170	Scale (10cm-0-10cm)	1
	Instruction manual	1

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BOYLE'S LAW APPARATUS - SH302

Exp-1 Verifying the Boyle's law when air is decompressed.
Exp-2 Verifying the Boyle's law when air is compressed.

PHYSICS, Class XII, Part - 2, Chapter-13, Kinetic Theory.

Fun Class Room Demo



SH302

A horizontally mounted acrylic tube having a graduated scale (0-300cm^3) along one side. A gas tap closes the tube. Pressure gauge is present next to gas tap. By changing the position of rubber stopper, the effective length of the tube can be selected. The scale measures volume and pressure by means of pressure gauze. Boyle's law is investigated by changing position of the stopper.

NEWTON'S DEMONSTRATOR - SF149

Exp- To Demonstrate the Newton's third Law of motion.

SCIENCE, Class IX, Chapter-9, Force & laws of motion.
PHYSICS, Class XI, Part - 1, Chapter-5, Laws of motion.



Fun Class Room Demo

SF149

It demonstrates that for every action there is an equal and opposite reaction. Lift and drop one ball to see one ball pop out from the other side. Lift two balls and two pop out. Six steel balls dia. 19mm approx, suspended from a chrome steel frame.

LIQUID LEVEL APPARATUS - SP613

PHYSICS, Class XII, Part-2, Chapter-10, Mechanical Properties of Fluids, Variation of Pressure with depth.



Fun Class Room Demo

SP613

It is used to demonstrate that the level of liquid is same irrespective of size or shape of vessel. A common horizontal tube is connected with 4 nos. of vertical tubes (different in shape & size). The unit is mounted on a wooden base 230 x 100 x 22 mm, total height 160mm.

HYDRAULIC PRESS - SH272

Exp-1 To study the principle of Hydraulic press.
Exp-2 Transmission of fluid pressure.

PHYSICS, Class XI, Part-2, Chapter-10, Mechanical Properties of fluids.



Fun Class Room Demo

SH272

It has two graduated syringes situated on a metal frame, having capacities of 100 cm^3 and 20cm^3 respectively with ground pistons. Both the syringes are connected through a 3 position tap. These syringes may be exposed to atmosphere through this tap, isolated or interconnected as desired. Both the pistons are provided with platforms for loading. This item is used for demonstrating how fluid pressure is transmitted and mechanical advantage can be achieved.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SH272	Hydraulic Press	1

NEWTON'S SECOND LAW APPARATUS -SF840

Exp- To Demonstrate the Newton's second Law of motion.

SCIENCE, Class IX, Chapter-9.
PHYSICS, Class XI, Part-1, Chapter-5.



SF840

This apparatus effectively demonstrates newton's second law of motion. It comprises of a metal base that mounts a spring-loaded bar and two metal spheres. The spring is compressed and locked into place by a lever. One of the spheres slides onto one end of the bar while the other is mounted in the depression adjacent to the opposite end.
On release of the lever the rod imparts a horizontal velocity on the second sphere whilst the other sphere simply falls vertically. Thus, this proves that the vertical and horizontal velocities are independent, as both spheres should fall at the same rate.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SF840	Newton's Second Law Apparatus	1

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LASER RAY KIT - SV144A

Experiments:

Exp-1 Working of Human Eye (Normal eyes, near sighted eyes, far sighted eye).
Exp-2 Principle of photographic camera.
Exp-3 Principle of Galileo telescope & periscope.
Exp-4 Principle of Kepler telescope.
Exp-5 Principle of Spherical aberration.

SCIENCE, Class VIII, Chapter-10, Refraction of light.
SCIENCE, Class X, Chapter-11, The human eye.
PHYSICS, Class XII, Part-2,Chapter-9, Ray optics & optical instruments.

Easy visualisation by laser

Rays travelling by laser





Accurately cut lenses made on CNC for accuracy

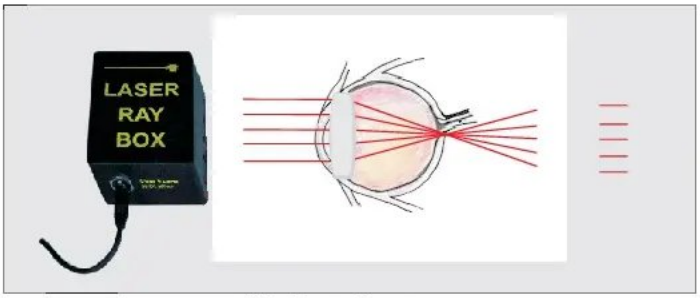
Fun Class Room Demo

Magnetic Board



SV144A

Vertical demonstration for whole class



Working of eye

Laser ray box consists of five independent laser modules with peak wavelength 635nm. The laser is very effective in the demonstration of light trace.

Accessories



SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
CB521	Diode laser box	1
R8688	Power adaptor	1
CB528	Beam selector	1
CB522	Human eye sheet	1
CB523	Photo camera sheet	1
CB524	Galilean telescope sheet	1
CB525	Kepler telescope sheet	1
CB526	Spherical aberration sheet	1
CB624	Periscope sheet	1
CB527	Hartles circle sheet	1
CB503	Bi-convex lens no 1	1
CB504	Bi-convex lens no 2	1
CB505	Bi-convex lens no 3	1
CB506	Bi-convex lens no 4	1
CB507	Bi-concave lens no 5	1
CB508	Plane convex lens r=45mm	1
CB509	Plane convex lens r=75mm	1
CB510	Plane concave lens	1
CB511	Concave mirror	1
CB512	Convex mirror	1
CB513	Plane mirror	1
CB514	Rectangular slab	1
CB515	Prism	1
CB516	Optical Fiber	1
R8160	Magnetic board	1
	Instruction manual	1

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RAY OPTICS KIT - SN639A / SN640A

Exp-1 To study law of reflection.
Exp-2 To study reflection by spherical mirrors.
Exp-3 To study refraction.
Exp-4 Total internal reflection.
Exp-5 Refraction through lens.
Exp-6 Refraction through prism.
Exp-7 Colour mixing of different colours.

SCIENCE, Class X, Chapter-10, Light -reflection & refraction.
PHYSICS, Class XII, Part-2,Chapter-9, Ray optics & optical instruments.



The Light box kit is specially designed for demonstrating basic concepts of reflection, refraction & colour mixing of different colours using various optical components. The kit can be used by an individual student or it can be used for demonstration to a small group of students.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.	
		SN639A	SN640A
C7472	Light Box	1	1
SE080	Power Supply	1	1
C2993	1 & 2 Slots Diaph.	1	1
C2995	3 & 5 Slots Diaph.	1	1
C3012	Right Angled Prism	1	1
	Plano Concave Lens	1	1
	Plano Convex Lens	1	1
	Trapezoid acrylic body	1	1
	Semi Circular body	1	1
C8564	Parabolic Mirror	1	1
R2073	Plane Mirror	1	1
SL021	Set of colour filters	1	1
R3350	Flexible Lead (Set)	1	1
C7489	Optical disc	1	1
R8160	Magnetic board	1	
	Instruction manual	1	1

TEACHER VERSION - SN639A
Ray optics kit provided with above scope of supply with magnetic board and magnetic component for vertical demonstration of experiment by teacher.

STUDENT VERSION - SN640A
Ray optics kit provided with above scope of supply without magnetic board and magnetic component for individual student experimentation.

DIODE LASER KIT - SA006

Exp-1 To demonstrate Young's fringes.
Exp-2 To demonstrate diffraction pattern by pinhole, single slit, double slit & grating.
Exp-3 To demonstrate Fresnel's diffraction.
Exp-4 To determine the slit or pinhole width.
Exp-5 Light spreads when passed through a narrow aperture.
Exp-6 To measure wavelength using a millimeter scale as a grating.

PHYSICS, Class XII, Part - 2 ,Chapter-10, Wave optics.



The kit has been designed to perform a lot of experiment related to the light experiments to find out the wavelength of the light, width of the narrow slit or any type of pattern.

SCOPE OF SUPPLY FOR SA006

Cat No.	Item Name	Qty.
C4941	Diode laser	1
C7296	Optical bench	1
C1734	Object screen with clip	1
R5199	Set of 13 objects(Supplied with R5199)	1
SL744	Diffraction slides (supplied with SN611)	1
C4910	Slit holder	1
SN938	-10 cm bi concave lens in holder	1
SN937	-5 cm bi concave lens in holder	1
SN931	+10 cm bi convex lens in holder	1
SN934	+20 cm bi convex lens in holder	1
SL233	Prism table	1
SP124	Measuring tape (3 m)	1
C0496	Glass scale	1
SG110	Cylindrical base	1
C7292	Laser mount	1
	Instruction manual	1

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SPECTROMETRY KIT - SK001

Exp-1 To determine the Refractive index of the material of Prism using Sodium Light.
Exp-2 To determine the Dispersion power of a prism.
Exp-3 To determine the resolving power of the prism.
Exp-4 To determine the wavelength of Sodium Light using a plane diffraction Grating.
Exp-5 To determine the Resolving Power of a plane diffraction grating.

PHYSICS, Class XII, Part-2,Chapter-9, Ray optics & optical instruments.

Basic measuring instrument for quantitative spectroscopy

Accessories for Spectrometer


SL439


SW915


SL795


Magnifier


Allen Key


SK001

The theory of the prism spectrometer indicates that a spectrum of maximum definition is obtained when the angular deviation of a light ray passing through the prism is a minimum.

Specification of Spectrometer:	
Scale	: Brass scale, Dia 150mm.
Objective	: Achromatic, focal length178mm, aperture 32mm
Slit	: German silver.
Reticle	: 90° cross on glass.
Least count	: 1 minute.
Base	: Aluminium Casting

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SL274	Spectrometer (L.C=1 minute)	1
SL930	Sodium light source	1
SW915	Prism (EDF) 38mm	1
SL795	Diffraction grating 15000Lines/Inch	1
Sl439	Micrometer slit (least count 0.005mm)	1
	Instruction manual	1

SPECTROSCOPE (DIRECT VISION) - SL281

PHYSICS, Class XII, Part-2,Chapter-9, Ray optics and optical instruments, Dispersion by a Prism.


SL281

It is used to observe dispersion of light. Body made of brass. Supplied in wooden case.
Length : 100 mm.

SPECTROMETER STUDENT - SL273


SL273

It is used for quantitative light experiments. The collimator is fixed on the base and the telescope can be rotated. Concealed helical focusing is provided on the telescope and collimator tubes. The collimator slit has spring loaded jaws. The graduated prism table has a vernier attached which is fixed on the telescope arm. The prism table is adjustable with the help of 3 knurled screws and it has screwed holes for attaching prism & grating holder.

Scale	: German Silver
Objective	: Achromatic, Focal Length178, Aperture 23mm
Slit	: Brass
Reticle	: 90° cross on glass
Least Count	: 6 minutes
Base	: Aluminium

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COLOUR MIXER - SV195

Exp-1 To demonstrate Nature of Primary & Secondary Colour.
Exp-2 Verification of colour triangles.
Exp-3 Explore the colour perception.
Exp-4 Mixing of primary colours in different ratio.
Exp-5 To create a colour and identify the colour ratio.

SCIENCE, Class X home science ICSE syllabus primary & secondary colour.



Nature of primary & secondary colour may be shown using this apparatus. Colour mixing takes place when two or more colours come together to form a different colour. This apparatus demonstrates how different colours of light form - from the three primary colours. The three basic colours for mixing light are red, green & blue. There is a control box which controls the intensity of six numbers of LEDs (diodes) which are mounted on a stand. Additive and subtracting colour mixing are demonstrated on the screen.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
C8581	Color mixer control box	1
R8792	Power adaptor	1
CD500	Six leds in circular frame	1
C 8590	Circular frame with hole	1
C8589	Circular frame screen	1
C7296	U-channel bench 50cm	1
C3915	Object rider	3
	Instruction manual	1

MIRAGE - MIR100

Exp-1 To demonstrate the phenomenon of optical illusion

PHYSICS, Class XII, Part - 2, Chapter - 9, Ray optics & optical instruments.



SCOPE OF SUPPLY:

Item Name	Qty.
Base mirror	1
Top mirror	1
Object	1

PLASMA GLOBES (PLS-100)

SCIENCE, Class-IX.Chapter 1,



The small Tesla Coil produces an alternating high voltage potential which attracts or repels free electrons. When the electrons collide with the gaseous atoms and molecules inside the globe, the gas particles are ionized creating even more electrons, as well as, positive ions. A plasma is formed. When electrons return to the ionized gas, light is produced. Touching the globe with your finger provides a ground, an addition source or sink of electrons. You can also observe super, neat, wow effects by moving a fluorescent tube or neon light near the plasma globe. They will light up in your hands!

POLARIMETER - SH294

Exp- To Measure optical rotation of optically active substances e.g. Sugar.

PHYSICS, Class XII, Part - 2, Chapter - 10, Wave optics.



It is a kind of instrument for measuring the optical rotation of optically active substances e.g. Sugar. The unit is mounted in a steel box. A 6V bulb present in the base works as a source of light. Light passes through a polarising filter and again through yellow filter to the sample tube. Rotation of the polarised light can be measured by rotatable analyser which is mounted in the top panel with a fixed 0-360° scale. The sample tube may be taken out for sample keeping purpose. Suppled with polarisers, yellow filter and sample tube.

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OPTICS KIT - SA025

Experiments:

Exp-1 To find out the focal length of convex & concave lens.
Exp-2 To find out the focal length of concave & convex mirror.
Exp-3 Image formation by plane mirror.
Exp-4 Real & virtual images formed by lens & mirror.
Exp-5 Lens Magnification.

SCIENCE, Class VIII, Chapter - 10,Refraction of light.
SCIENCE, Class X, Chapter - 10, Reflection & refraction.
PHYSICS, Class XII, Part - 2, Chapter - 9, Ray optics & optical instruments.

Special features:

- Easy set up.
- **Multiple letters & symbols to demonstrate optics of symmetric and asymmetric objects.**
- **Transluscent screen to view image from both sides.**
- Multipurpose cylindrical base.

Optics kit is suitable for understanding the basic optics of lenses and mirrors in class room.

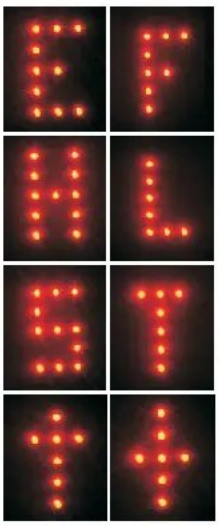


SA025

Plastic moulded lens holder



LED matrix front view



Multiple letters & symbols shown by matrix

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SF880	Metric Ruler 100cm	1
SL064	Convex lens, dia 5cm, f=+200	1
SL062	Convex lens, dia 5cm, f=+100	1
SL070	Concave lens, dia 5cm, f= -50	1
SL072	Concave lens, dia 5cm, f= -100	1
SL099	Flat Mirror Dia 5cm	1
SL064	Convex Mirror Dia 5cm	1
SL087	Concave Mirror Dia 5cm	1
C3640	Lens/Mirror Holder	6
SV023	LED Matrix Source	1
R7950	Power Adaptor 5VDC	1
S2033	Object Screen Size 30x30cm	1
SG110	Cylindrical Base	4
	Instruction manual	1

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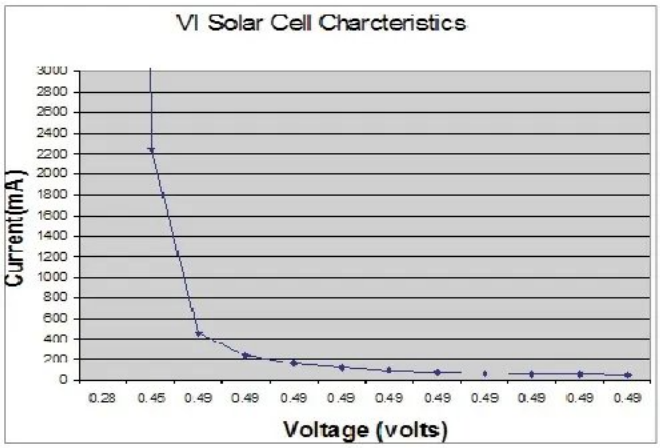
SOLAR CELL CHARACTERISTICS - SA027

Exp-1 Recording the current-voltage characteristics of a solar cell as a function of the irradiance.
Exp-2 Recording the current-load characteristics of a solar cell as a function of the irradiance

PHYSICS, Class XII, Part - 2, Chapter - 14,material device & simple circuits.



V-I characteristic of a solar cell can be obtained using this apparatus. The ratio of maximum useful power and ideal power can also be calculated. The maximum useful power is the area of largest rectangle that can be formed under the V-I curve. If the voltage and current corresponding to this largest area are denoted by Vm & Im, then the maximum useful power is Vm x Im. The ratio of useful power to the ideal power is called the fill factor. It consists of solar module, decade resistance box module, lamp source, switch and circuit board.



SCOPE OF SUPPLY:

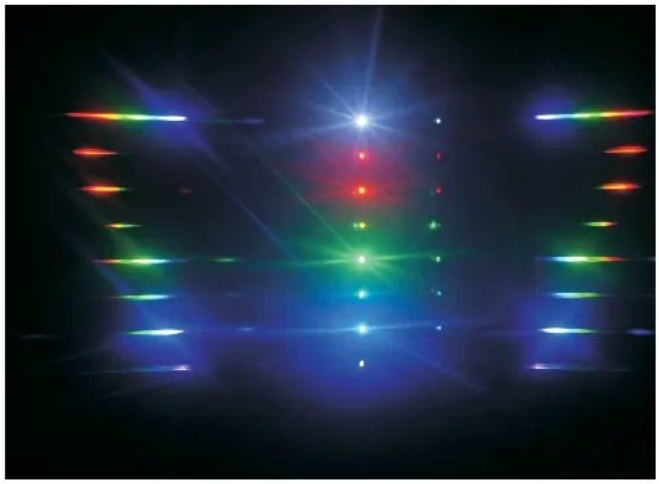
Cat No.	Item Name	Qty.
SEB21	Circuit Board	1
C4160	Decade Resistance Box	1
SE067	Digital Multimeter	2
LP17	Flexible Lead Set (50cm)	6
R5740	Lamp Source	1
SEC14	Solar Module	1
SEB53	Switch Module	1
SE080	Power Supply	1
SG110	Cylindrical Base	1
	Instruction manual	1

LED ARRAY KIT - SA028

Exp-1 To measure voltage and current across each LED.
Exp-2 To demonstrate diffraction of different wavelengths.

PHYSICS, Class XII, Part - 2, Chapter - 10,Wave optics.
Chapter 11,Dual nature of radiation &matter.
Chapter 14,Semiconductor electronics.





LED array is seven color LEDs & a white LED, used to demonstrate diffraction at different wavelength. Measure current & voltage across each LED. LED array has a selector switch for all LED's or individual LED mode.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
C8617	LED Array	1
R7950	Power Adopter 5V DC	1
SL795	Diffraction grating	1
SN200	Connecting lead	4
SE067	Multimeter	2
	Instruction manual	1

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HEAT AND THERMOMETER KIT - SN641

Exp-1 Heating and cooling water
Exp-2 Heating and cooling methylated spirits
Exp-3 Functioning of a thermometer
Exp-4 Converting a liquid into a gas
Exp-5 Water evaporates, vaporizes too
Exp-6 Conversion of a gas into liquid
Exp-7 Condensation
Exp-8 Evaporation
Exp-9 How water particles unite
Exp-10 How thermometer works

SCIENCE, Class VII, Chapter - 2,water a wonder liquid.
SCIENCE, Class IX, Chapter - 2,Is matter around us pure.



This kit is used in heating and cooling of water or any inflammable liquid, converting a liquid into a gas and other basic experiments related to heat.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
R8704	Thermometer without graduation	1
SG402	Thermometer with graduation	1
SG386	Wall thermometer	1
C8694	Insulating case for beaker	1
R6282	Plastic bowel	1
R8701	Erlenmeyer flask	1
R8705	Food coloriser	1
R8699	Plastic dropper	1
R8702	One glass tube 165 x 5 mm	1
SC226	Beaker glass 100ml	2
SF532	Beaker (graduated plastic) 100ml	1
C8693	Bridge shaped stand	1
R8706	Candle in metal holder	2
R8799	Pegs	3
SC055	Rubber stopper with bore	1
	Instruction manual	1

MELTING POINT APPARATUS - SA198

Exp-1 To determine melting point of different compounds up to 400°C.

PHYSICS, Class XI, Part - 2, Chapter - 11, Thermal Properties of Matter, Change of State.
SCIENCE, Class VIII, Chapter - 4, Transformation of substances, Characterization of Substances.



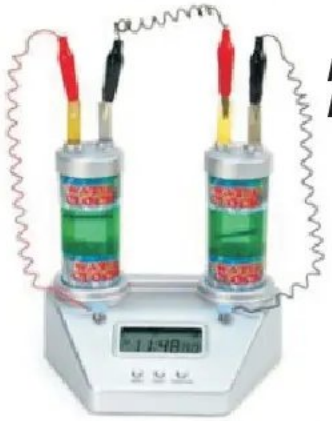
It can be used in determining repeatable melting point of different compounds up to 400°C in 5 minutes by continuously adjustable with built-in variable transformer. Temperature resolution 0.1°C with low mass thermocouple and precision thermometer. Its housing is made of aluminum. It accepts up three capillaries. Samples are illuminated and clearly visible through the precision 6-power lens. Operatable at 220V AC.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
C7345	Melting point unit	1
R8765	Digital thermometer	1
R8010	Capillaries 3" long	1 pkt
	Instruction manual	1

CHEMICAL CLOCK & WATER CLOCK - TIM800

PHYSICS, Class XII, Part - 1, Chapter - 3,current electricity.
SCIENCE, Class X, Chapter - 1,Chemical reaction & equation.



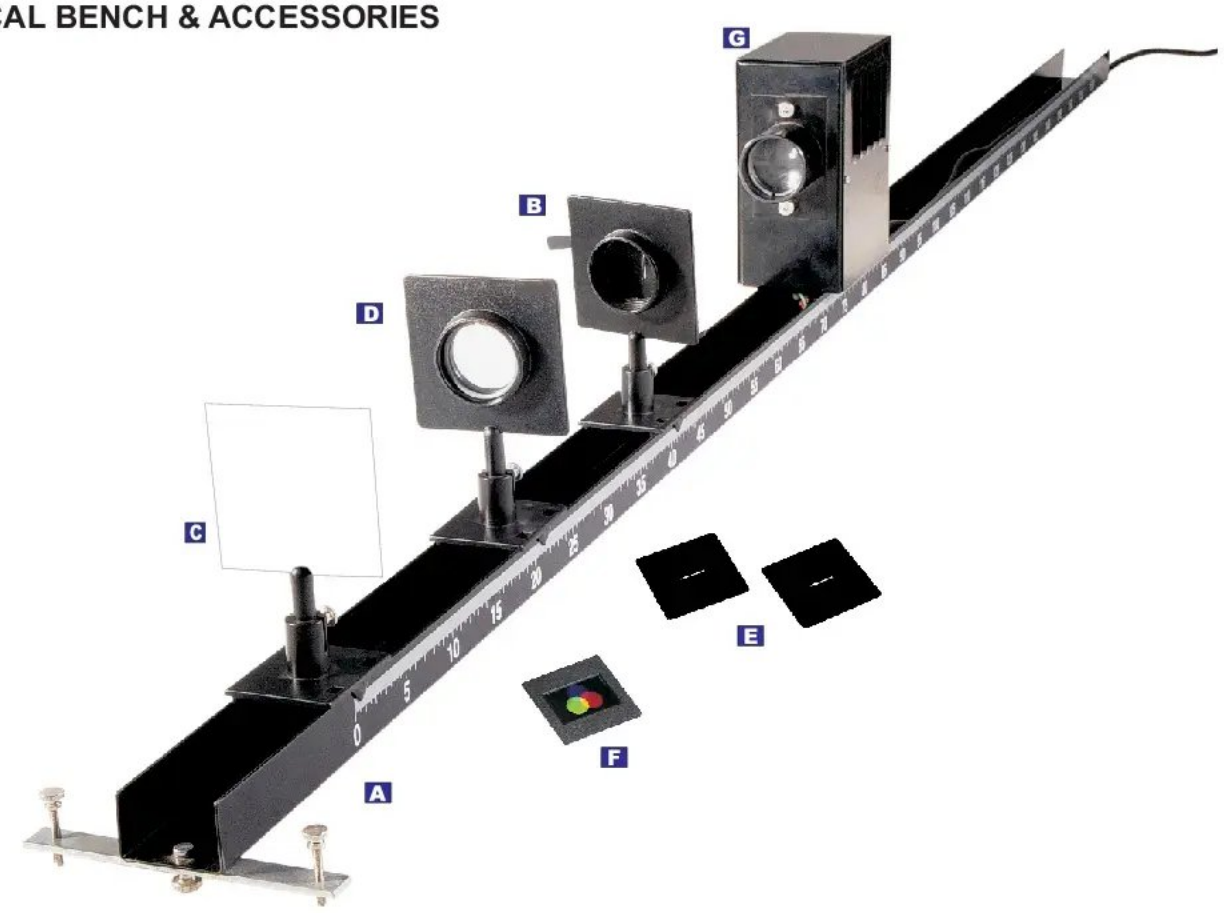
FUN SCIENCE EXPERIMENT

This clock keeps accurate time using energy from a battery that you make. Simply add weird liquids such as soda, fruit juice, dilute ketch-up, salt water, etc. to the two containers, insert four metal electrodes, and connect with three wires.

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OPTICAL BENCH & ACCESSORIES



OPTICAL BENCH 'U' SHAPE A **SL668**

Optical Bench having a 'U' channel with scale printed. It has three feet of which two are adjustable and one is fixed. It is provided with four sliding saddles having pointer. The saddle accepts holders with 10mm dia rod. It is supplied complete with two Lens Holders, Light Source, Slit, White Screen, Translucent Screen (15 x 15 cm). Power Supply for Light source is not included in the scope of supply.
Scale: 160cm, graduated in mm.
Saddle: Plastic moulded, hole dia. 10mm
Holder: Plastic moulded, rod dia. 10mm, aperture 36 mm, Lens dia.40 mm

ADJUSTABLE SLIT B **SW751**
Rectangular plastic frame . With provision to hold Metallic slit plate and movable lever. Slit width 2mm. Height 15mm. Suitable to use with optical bench SL668.

WHITE SCREEN C **SW753**
Size: 15cm X 15cm. Suitable to use with optical bench SL668.

LENS HOLDER D **SW754**
Rectangular plastic frame lens holder. With provision to hold filters also. Lens of Dia 40mm can be held through round spring rings. Suitable to use with optical bench SL668. Focal length 10cm.

DIAPHRAGM – ARROW SLIT/SINGLE SLIT E **SO023**
The set consists of a single slit diaphragm and Arrow head diaphragm.
Length of Arrow : 1.5 cm
Length of Single slit : 1.5 cm
Dimensions : 5 x 5 cm (approx.)

FILTER FOR COLOUR MIXING F **SO022**
For experiment on colour mixing.
Dimensions : 5 x 5 cm (approx.)

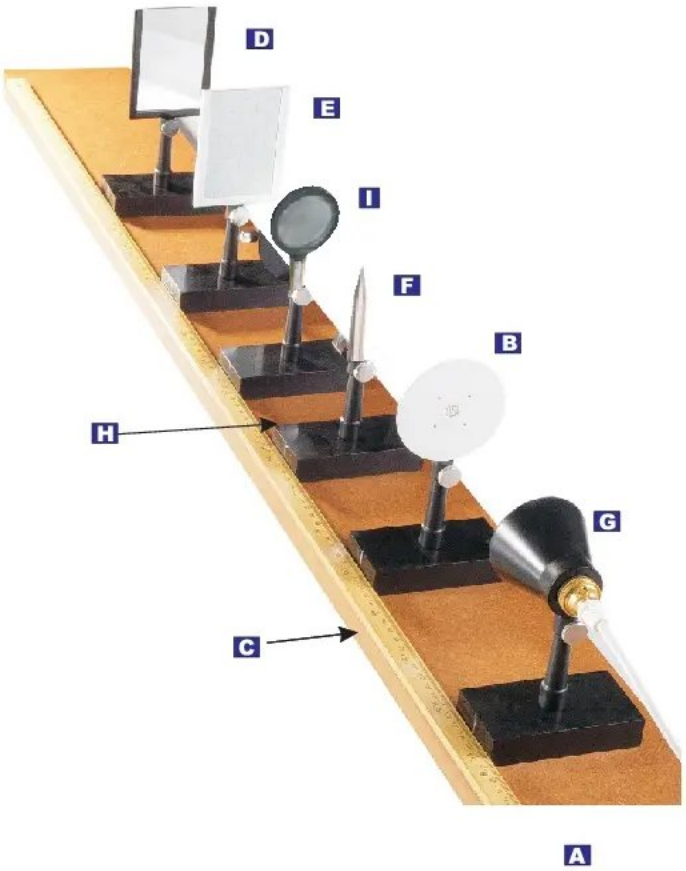
LIGHT SOURCE HALOGEN ('U' BASE) G **SL674**
It is a high intensity halogen light source (12V, 50W). A condenser and a draw adjustment make it possible to obtain an adjustable convergent beam. Proper ventilation through side frame windows. Suitable to use with 'U' shaped optical bench SL668
Input: 12V DC through 4mm safety sockets.

LENSES

Double convex lens dia 40mm, F.L. 100mm. 1pc.	SN931
Double convex lens dia 38mm, F.L. 100mm. 2pcs.	SL042
Double convex lens dia 40mm, F.L. 200mm. 1pc.	SW556
Double concave lens dia 38mm, F.L. 50mm. 1pc.	SL050
Double concave lens dia 38mm, F.L. 150mm. 1pc.	SL053



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OPTICAL BENCH WOODEN WITH LAMP HOUSE A SL701
It is made of smooth (fine polished) wooden base board with a wooden scale fixed on it. All accessories are mounted on a rod and can be accommodated in holders. It is supplied complete with Pygmy Lamp in housing, Stands(6 Nos.), Lens holder clip type), Receiving screen, Object needle, Plane mirror and White metal object screen.

WHITE METAL OBJECT SCREEN B **SW665**
Round shaped Diameter 75 mm with gauze.

WOODEN BASE BOARD C **SW613**
Size: 1.6 meter x 14 cm. Having wide scale of 1500 x 10mm.

PLANE MIRROR D **SL666**
Rear silvered mirror mounted in metal frame.

RECEIVING SCREEN E **SL665**
A White painted metallic frame 100 x 75mm with a graph paper.

OBJECT NEEDLE MOUNTED F **SL224**
A steel needle pointed at one end. Mounted on a rod.

PYGMY LAMP G **SL702**
A white BC type bulb housed in conical housing. It is fitted with a special grommet so that the wire is held securely and is properly earthed.
Operating voltage 220V AC

STAND PLASTIC H **SL703**
A plastic base of size 100 x 50mm and a pillar with clamping screw attached on it. An index line at one end has been provided for calculating center of base. It can accommodate any accessory mounted on a 10mm rod

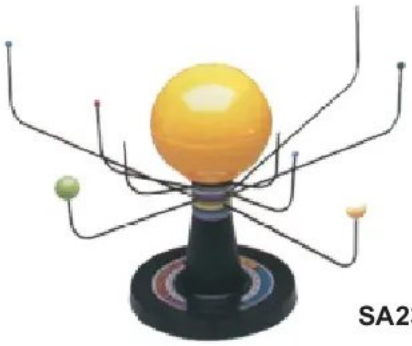
LENS HOLDER SIMPLE I **SW841**
Lens holder with a plastic frame and metallic handle for accommodating lenses of 50mm diameter and clear aperture 45mm. A retaining ring is provided for holding the lenses.

LENS IN HOLDER
All the following lenses are fitted in the lens holder SW841.

Double convex lens dia 50mm, F.L. 100mm	SL714
Double convex lens dia 50mm, F.L. 50mm	SL712
Double convex lens dia 50mm, F.L. 150mm	SL715
Double concave lens dia 50mm, F.L. 50mm	SL722
Double concave lens dia 50mm, F.L. 150mm	SL725



SG190



SA232

THE NEW SCHOOL TELLERIUM **SG190**
This apparatus demonstrates the relative movements of the Sun, Earth and Moon. Thus causes of various phenomena can be understood such as seasons of the year, day and night, changing length and direction of different shadows, seasons, phases of the Moon, eclipse etc.

SOLAR SYSTEM MODEL **SA232**
An illuminated three dimension model of the Sun and planets teaches planet identification, sizes, distances and colors. The planets may be set by month to show their relative positions. A sturdy base supports the 6-in. diameter Sun with the outer planet 18 inches from the Sun. Illustrated study guide includes planet position tables. All plastic, with electric fitting to illuminate the Sun.

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Planetarium -SV240/ Earth-centered Model -SV240A

Experiments:
Planetarium
Exp-1 View all major stars and constellations in your hemisphere
Earth-centred model
Exp-2 Demonstrate more complex principles with the earth-centred model.

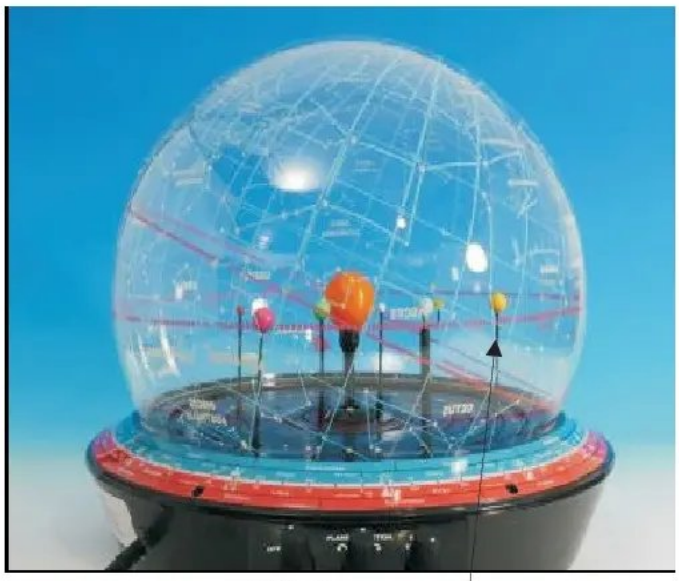
SCIENCE, CLASS VIII Chapter 1.

A transparent hemisphere shows the stars visible from earth for your latitude and time of year. You can see that planets revolve the sun whereas stars and constellations are at fixed locations. All the major constellations & stars around the ecliptic and over the Northern or southern hemispheres can be viewed.



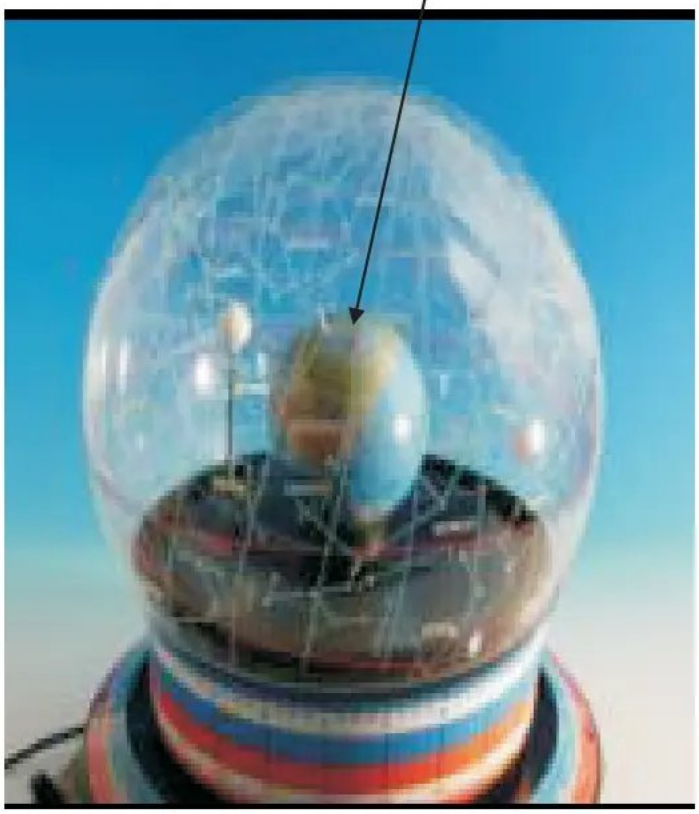
Fun Class Room Demo

Additional subjects to study with the star dome:
The ecliptic and the Zodiacal constellations
How the planets appear to move against the night sky
Use of the Helios outside at night - where should the stars appear in the sky?



SV240

Earth-centered Model SV240A



SV240A



Rotation of earth on its axis and moon revolves it every 29.5 'days'. It will also show months,seasons and pattern of tides. Demonstration of varying length of day by creating shadows. Identification of the pole star and others from different positions on earth.

Additional subjects to study with the Earth-centred model:
Day and night
Shadows and the seasons
The Moon's month, phases and eclipses
The Pole Star, circumpolar stars and a nocturnal
The Moon and stars from different positions on Earth
The tides
Space travel.

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WAVE DEMONSTRATION KIT- SA009

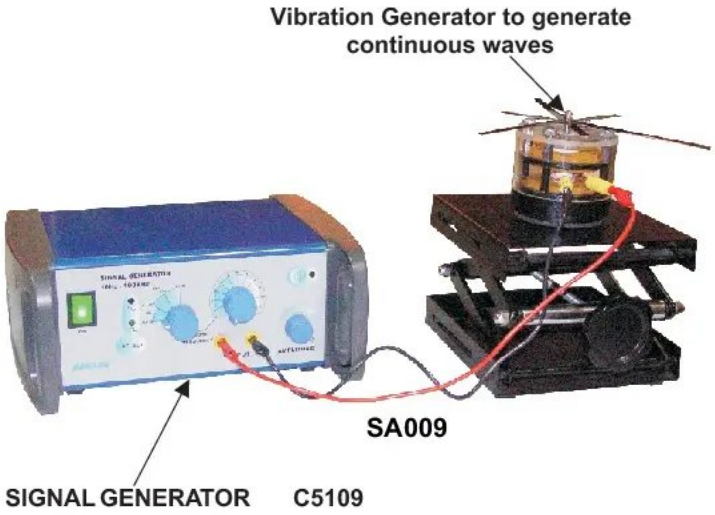
Experiments:

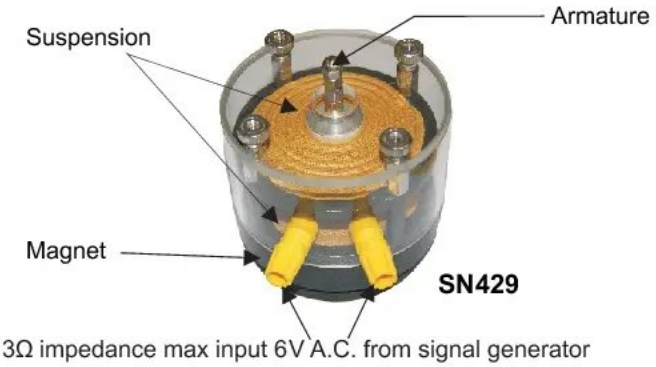
EXP-1 To demonstrate the Kinetic Theory.
EXP-2 Longitudinal and transverse waves.
EXP-3 Resonance with a non constant wave length.
EXP-4 To demonstrate resonance of metal strips.
EXP-8 To demonstrate interference & doppler effect.
EXP-6 To demonstrate reflection, refraction & diffraction.

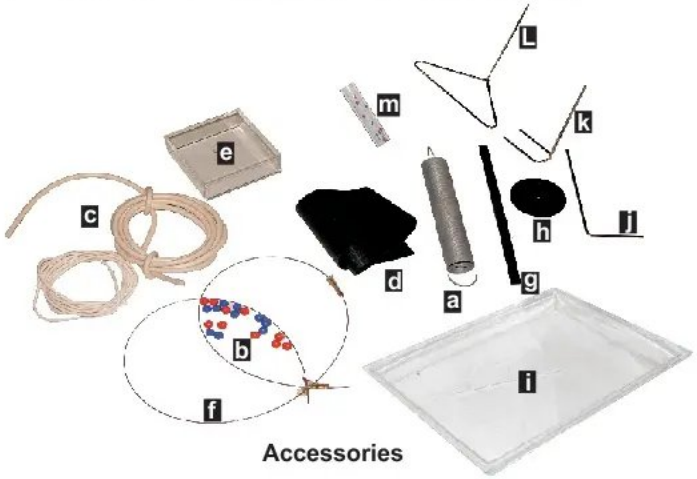
PHYSICS, Class XI, Part - 2, Chapter - 13, Kinetic Theory.
PHYSICS, Class XI, Part - 2, Chapter - 15,Waves.
PHYSICS, Class XII, Part - 2, Chapter - 10,Wave optics.

Special Features:

- **Give mechanical oscillations.**
- **Max peak to peak displacement -12mm.**
- Total frequency range: d.c. to 10k Hz.
- Coil and magnet assembly are enclosed.
- **Armature allows attachment of the item to be vibrated.**





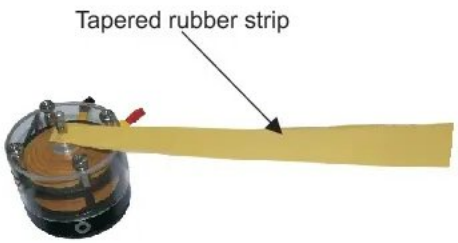


Accessories

TECHNICAL SPECIFICATION : **C5109**

Parameters	Remarks
Range	10Hz to 110 KHz in four decade ranges.
Wave form	Sine & Square.
Output	Continuously variable from 0-7V p-p,5W.
Working Voltage	230V AC, 50Hz.


Kinetic theory



Variation of wavelength with width of the strip.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
SN429	Vibration generator	1
C5109	Signal generator	1
SW653	Jack	1
CA384	Spring (a)	1
CA554	Acrylic pipe (m)	1
CA448-49	Plastic balls set (b)	1
CA542-43	Rubber cords (c)	1
CA553	Tapered rubber strip (d)	1
CA540	Chladni plate (e)	1
CA552	Wire loop (f)	1
CA549-51	Steel strips (g)	1
CA541	Disc (h)	1
CA556	Transparent tray (i)	1
CA546	Single point dipper (j)	1
CA545	Double dipper (k)	1
CA544	Plane dipper (L)	1
SN201	Lead 100cm black	1
SN204	Lead 100cm red	1
	Instruction manual	1

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BELL EXPERIMENT - SA007

Experiments:
Exp-1 To demonstrate that sound require a medium to transmit.
Exp-2 To demonstrate the atmospheric pressure.

Bell experiment : A sound wave is a longitudinal wave and it requires a material medium to transmit. Sound originates from bell. As the air is pumped out of the sealed bell jar, the sound from the bell jar fades. After sometime, no more sound is heard from the bell.

SCIENCE, Class IX, Chapter-12,Sound
SCIENCE, Class VIII, Chapter-11,Force & Pressure .

Superior quality mechanical bell (5-8V AC/DC)that functions by electromagnet



Fun Class Room Demo



CE marked multipurpose power supply operatable at 220 V ac,50Hz.



Well transparent acrylic jar used for creating vacuum

Oil filled low noise vacuum pump



SA007

Base

MAGDEBURG'S HEMISPHERES



No lubrication reqd, with effective O ring seal
Plastic Valve -6mm
Evacuated through vacuum pump.

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
C4946	Jar	1
SH506	Pump plate	1
LP039	Electric bell	1
SV111	Rubber stopper with two socket	1
R2749	Tubing	1
CK345	Power supply	1
SN201	Connecting lead black 1m	1
SN204	Connecting lead red 1m	1
R8776	Vacuum pump	1
SN732	Magdeburg hemisphere	1
	Instruction manual	1

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RIPPLE TANK KIT - SA005

Exp-1 To demonstrate the wave phenomena of reflection, diffraction, refraction and interference.
Exp-2 To demonstrate the coherent addition of waves.
Exp-3 To demonstrate reflection at circular obstacles.
Exp-4 To demonstrate constructive and destructive Interference.

PHYSICS, Class XII, Part-2, Chapter-10, Wave optics.

The apparatus is designed to study waves. It consists of a metal frame provided with a transparent acrylic tray and can be used as standing bench model. This demonstration model can be used with an overhead projector or as an economical model. An illuminant unit is provided for illumination of ripples. Ripples are produced using a small motor fixed on a beam.
Power supply has one continuously variable DC outputs from 0-5V DC suitable for the vibrator motor & one AC output 12V, 21W is provided for illumination.



SA005

Ripple Tank



Multipurpose power supply 0-12V AC DC



Accessories



Hand Stroboscope

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
CH174	Ripple Tank	1
CH196	Hand Stroboscope	1
SV050	Power Supply	1
CB223	Parabolic Barrier	1
CB224	Big L Shape Barrier	2
CB225	Small L Shape Barrier	1
CB221	Acrylic plate with spacer knob for refraction	1
SB289	Dropper	1
R3943	Suspension bands	10
	Instruction manual	1

WAVE DEMONSTRATOR - SP252

Exp- To show longitudinal and transverse waves.

SCIENCE, Class IX, Chapter-12, Sound.

It demonstrates longitudinal and transverse motions, consisting of a number of eccentric discs supporting a series of metal rods. On revolving the handle, transverse waves are obtained with bent rods running in a metal guide. It consists of 24 nos. of Aluminium pulleys.



SP252

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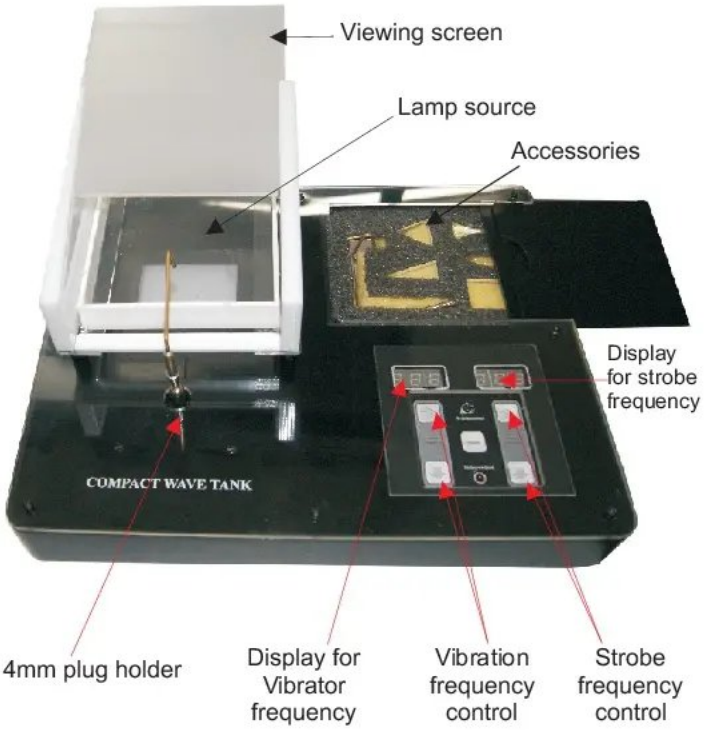
COMPACT WAVE TANK SA704

Experiments:
Exp-1 Wave phenomena of reflection, diffraction, refraction and interference.
Exp-2 Coherent addition of waves.
Exp-3 Reflection at circular obstacles.
Exp-4 Constructive and destructive interference.

PHYSICS, Class XII, Part-2, Chapter-10, Wave optics.

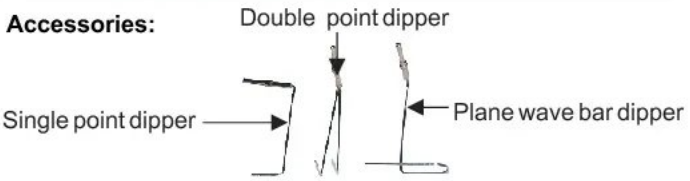
Special features:
- **Microcontroller based digital control.**
- **To study almost all the wave properties: reflection, refraction, interference and diffraction.**
- Setting up and disassembling the ripple tank is not required. accessories included in the body of wave tank.
- Led illumination in 2-ways "synchronous" & "independent" mode.
- **Easy observation of propagation of waves.**
- Fixed angle 15° for visibility of ripples.

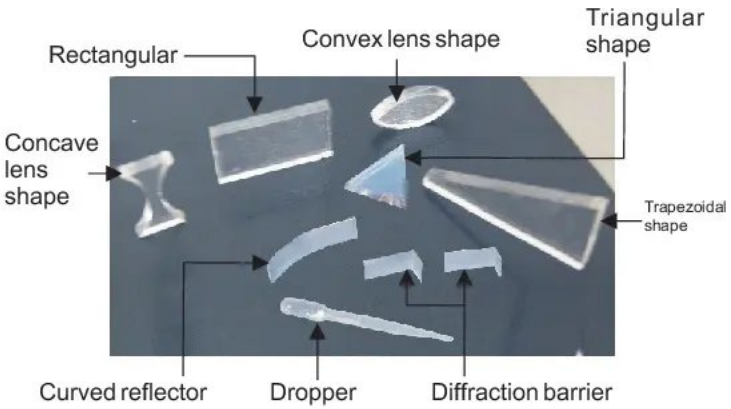
Fun Class Room Demo



SA704

Accessories:

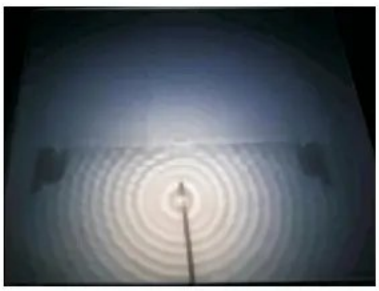






Synchronized waves from single dipper and double point dipper

There are two settings "synchronous" and "independent" mode. Perfectly stationary images are observed by the 'SYNC' which has wave frequency synchronised to light frequency, independent control of the light frequency for slowly moving images are observed by "independent" mode.



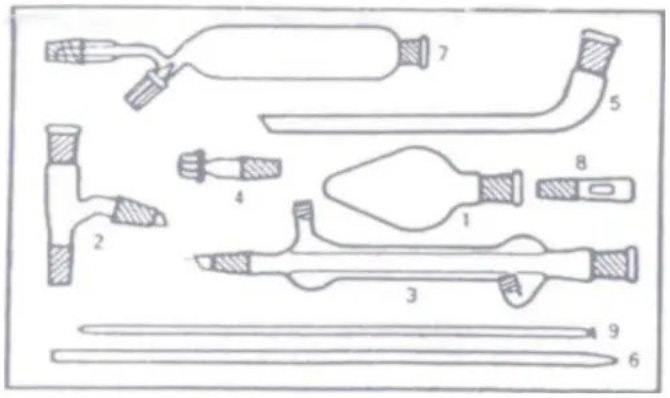
Diffraction phenomenon using two diffraction barriers

SCOPE OF SUPPLY:

Cat No.	Item Name	Qty.
C9992	Ripple tank base unit	1
C8606	Tank	1
D7585	Power adaptor	1
C8612	Single point dipper	1
C8613	Double point dipper	1
C8614	Plane wave bar dipper	1
C8455	Curved reflector	1
C8454	Diffraction barrier	2
C8611	Rectangular block shape	1
	Convex lens shape	1
	Concave lens shape	1
	Triangular shape	1
	Trapezoidal shape	1
	Instruction manual	1

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ORGANIC CHEMISTRY SET OF 9 - SF525



A highly popular set in schools, colleges and universities. It has been purposely designed to cover the essential requirements for the teaching of organic chemistry and is suitable for preparations up to 30 g. This is a set which is difficult to beat for versatility.

SCOPE OF SUPPLY:

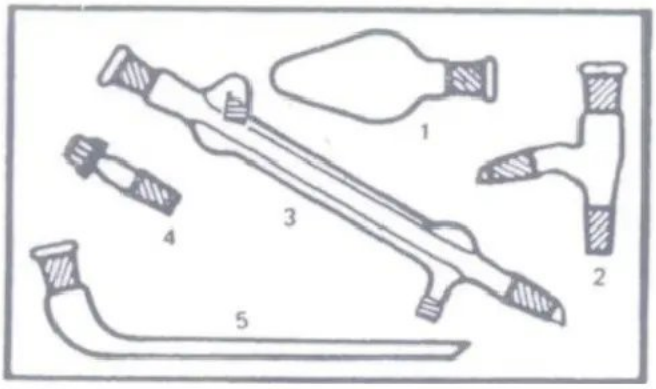
Item Name	Socket Size	Cone Size	Qty.
Pear shaped flask, 50 ml	14/23		1
Stopper		14/23	1
Dropping funnel, 50 ml	14/23	14/23	1
Still-head	14/23	14/23	1
Liebig condenser	14/23	14/23	1
Screw cap adapter		14/23	1
Air leak/steam inlet tube		14/23	1
Receiving adapter, bent	14/23		1
Thermometer 0° to 360°C			1

KIPP'S APPARATUS - SCA41



Kipp's Apparatus made of Polyethylene has three main portions. The top portion is fitted with a thistle funnel and a bulb structure through which dilute acid can be poured which reacts with a metal sulphide in the base of the Apparatus. H_2S gas then evolved collects in the middle dome from where it can be released through a leakproof stopcock fitted with a self lubricating PTFE plug. The base is provided with a residual outlet fitted with a cap for easy cleaning.

ORGANIC CHEMISTRY SET OF 5 - SF524



This set is ideal for introducing student to the principal techniques of preparative organic chemistry. Although the set is very simple, a surprising number of preparations on the 30 g scale can be carried out. Complete set comprising five items.

SCOPE OF SUPPLY:

Item Name	Socket Size	Cone Size	Qty.
Pear shaped flask, 50 ml	14/23		
Still-head	14/23	14/23	1
Liebig condenser	14/23	14/23	1
Screw cap adapter		14/23	1
Receiving adapter, bent	14/23		1

TITRATION SET - SW827



This set allows students to conduct titration precisely and effectively in less time.

SCOPE OF SUPPLY:

Item Name	Qty.
Burette	1
Pipettes	2
Safety Pipette Filler	2
Conical Flasks	6
Burette Clamp and Stand	1

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FRACTIONAL DISTILLATION SET - SW829



SW829

SCOPE OF SUPPLY:

Item Name	Qty.
Fractionating column, 24/29, 24/29	1
Double neck flask, capacity 1000ml (24/29, 24/29)	1
Liebig condensor,24/29,24/29	1
Burner	1
Distill head	1
Screw cap adapter 14/23	1
Receiving adapter,24/29	1
Receiving flask, 500ml, 24/29	1
Thermometer 0°C to 150°C	1
Thermometer 0°C to 360°C	1
Stand with clamp and bosshead	2
Rubber tubing	1set

STEAM DISTILLATION SET - SN599



SN599

SCOPE OF SUPPLY:

Item Name	Qty.
Two necked round bottom flasks-1000ml	1
Receiving adapter	1
Adapter screwcap 14/23	1
Adapter screwcap 19/26	1
Steam generating flask,1000ml	1
Distill head 14/23,24/29,24/29	1
Leibig condenser 24/29,24/29	1
Round bottom flask 250ml	1
Bunsen burner	2
Wire gauze	2
Tripod stand	2
Rubber tubing	1set
Thermometer-0-150°C	1
Folded tube	1
Safety tube	1
Stand with clamp & bosshead	3set

pH METER HAND HELD - SG380



SG380

Specification: **SG380**

Display	: 3 ½ digit LCD
Ranges	: pH 0 to 14.00
Resolution	: pH 0.01
Working voltage	: 9V Battery
Temperature Compensation	: Manual 0 to 100°C
Working Voltage	: 9V battery
Dimensions	: 85 x 165 x 28mm.
Sensor	: Combined pH electrode

Provided with 4 & 7 pH buffer tablets, buffer bottles and combination pH electrode.

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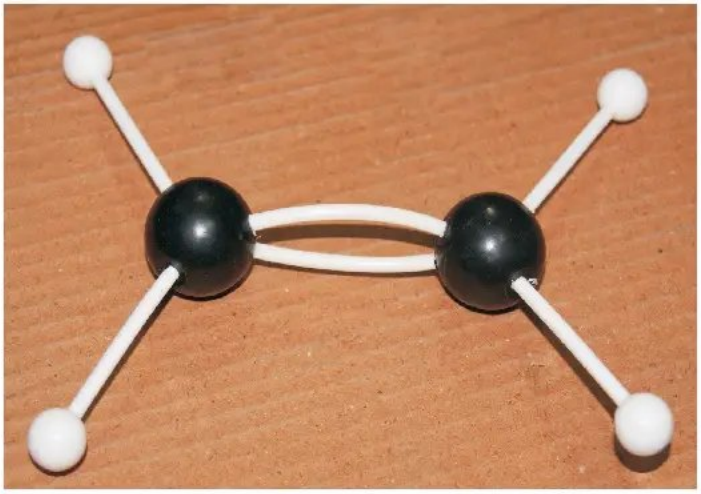
ATOMIC MODEL SET - SCA50/SCA27

Experiment:
To make structure of various organic & inorganic molecules.

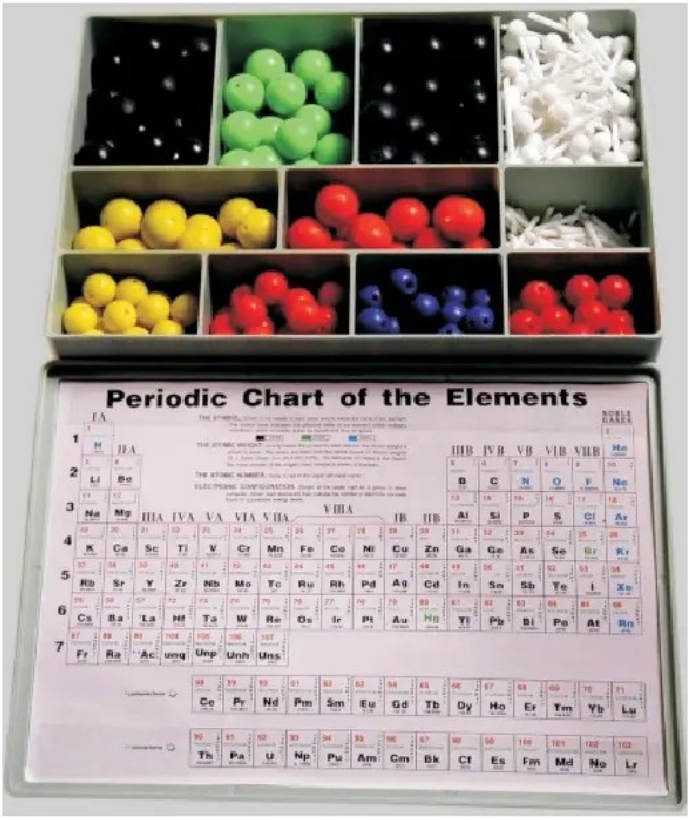
SCIENCE, Class X, Chapter - 4.
CHEMISTRY, Class XI.

Recommend for class room demonstration.

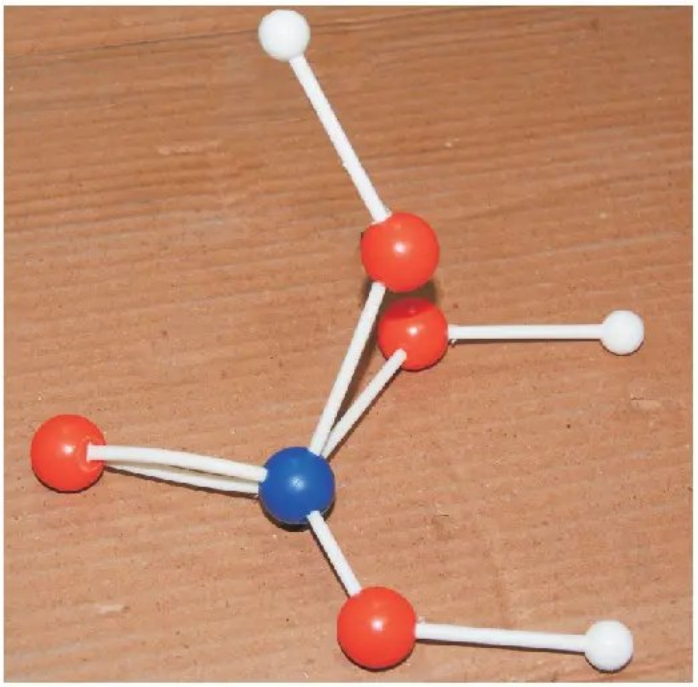
Special features:
- Moulded balls of different colour & sizes alongwith connecting lugs of different sizes.
- Separate space for every particular colour & size of ball.
- The colours of balls are black, blue, dark red, green, red, white and yellow.
- 370 balls of different colours & sizes with 150 lugs (SCA50).
- 75 balls of different colours & sizes with 30 connecting lugs (SCA27).



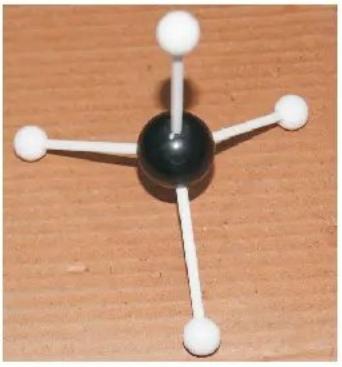
C_2H_2



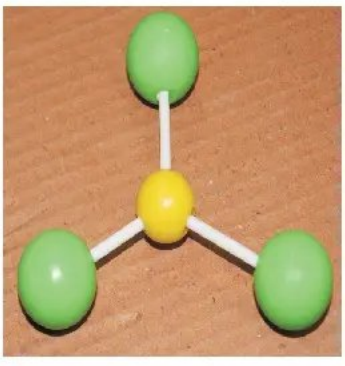
SCA50/SCA27



H_3PO_4



CH_4



$AlCl_3$

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POWER SUPPLY FOR HOFFMAN'S VOLTAMETER - SN542



Power supply unit with EMI/EMC filter for Holffman's voltameter.

Parameters

Output Voltage	12 V DC unregulated
Output Current	2.5 Amp
Working Voltage	230 V AC, 50 Hz

SPIRIT LAMP STAINLESS STEEL-SC009

Capacity: 100ml



SC009

BUNSEN BURNER

Nickel plated burner tube with easily rotatable air regulator and a cylindrical riffled connector. The burner is mounted on an enamelled pressed-steel base. Burner tube: 100x13mm, heightxdia, base: 80 mm dia. Overall height: 140mm, Connector: 10 mm o.d.



SH315

Natural gas(Methane) Burner	**SH314**
Bottled gas (Propane & Butane gas) Burner	**SH315**

HOFFMAN'S VOLTAMETER - SC140

Chemical composition of water by volume and the electrochemical equivalent of hydrogen by electrolysis of water can be demonstrated using this. It is provided with a platinum electrode pair, carbon electrode pair, two stop cocks and a graduated limbs (capacity 50ml). Platinum electrodes can be mounted in rubber stoppers at the base of two limbs for electrolysis of water. After electrolysis hydrogen and oxygen gas will be collected in two limbs at the apex. Carbon electrodes are used for electrolysis of HCl or NH_3 solutions. It is fixed on a metal stand. Operatable at 12 V DC, 2.5 Amp.



SC140

HOFFMAN'S VOLTAMETER **SA395**

Same as above SC140 but supplied without stand and clamp.

ELECTRODES PAIR MOUNTED IN STOPPER **a**

SC672 Platinum
SC673 Carbon

SPRING BALANCE TUBULAR PLASTIC SET OF SIX-SV193



Made of Transparent acrylic pipe. Spring mechanism is clearly visible. Provided with zero adjustment and two hooks. Scaled and calibrated in both grams and newtons. Capacity 250gm/2.5N Blue, 500gm/5N Green, 1000gm/10N Biege, 2kg/20N Red, 3kg/30N White & 5kg/50N Yellow.

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DIGITAL ZOOM STEREO MICROSCOPE-SN242



Digital Zoom Stereo Microscope with integrated camera,software and USB connection to a PC.
Provided with USB port,DC-12 V port(CCD power supply) and Video port (Video signal output).

TECHNICAL SPECIFICATIONS:

Eye piece	: WF 10x
Eye piece total magnification	: 7x-45x
Eye piece tube	: Binocular,inclined 45°
Pupil Distance	: 55mm-75mm
Objective magnification	: 0.7x-4.5x
Upper light	: Fluorescent lamp 8W
Focussing	: Wheel tightness adjustable, moving range 60mm
View field	: ø5mm -ø30 mm

PROSCOPE HR - BD-HRB



The ProScope HR is a USB handheld digital microscope designed for use with your computer. With a high-quality CMOS sensor and universal lens mount, the ProScope HR is a powerful addition to any classroom.
ProScope HR includes a software that allows you to capture still images, time lapse photography, and movies.

TECHNICAL SPECIFICATIONS:

Image sensor: 1/4″ high resolution 1.3 megapixel sensor
Connection type: USB
Image capture resolutions:
- 320×240 pixels
- 640×480 pixels
- 1280×1024 pixels

Video capture resolutions:
- 320×240 pixels @ 30 fps
- 640×480 pixels @ 15 fps
- 1280×1024 pixels @ 3.75 fps

STUDENT MICROSCOPE - SB101



U-shaped, well balanced base with heavy inclinable body. It has two spring clips, built-in condenser, disc-diaphragm. It has provision for fitting mechanical stage. Separate coarse and fine focussing is provided by rack and pinion arrangement. (Triple revolving nosepiece has accurate click stop arrangement for perfect centering and identical repeated settings).
Objectives 5x,10x and 45x, Eyepieces 10x, 15x.

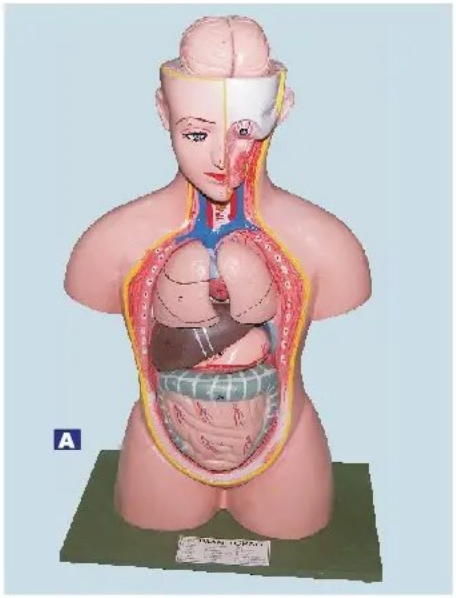
STUDENT INCLINED MICROSCOPE - SB102



This microscope has a built-in illumination system and both coarse and fine focussing arrangements. It has an angled head that is rotatable through 360° for easy viewing. Objectives 5x, 10x,45x and 100x, Eyepieces 5x, 10x and 15x.

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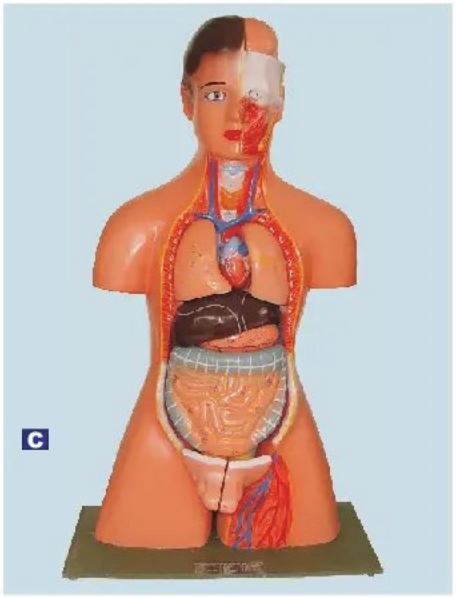
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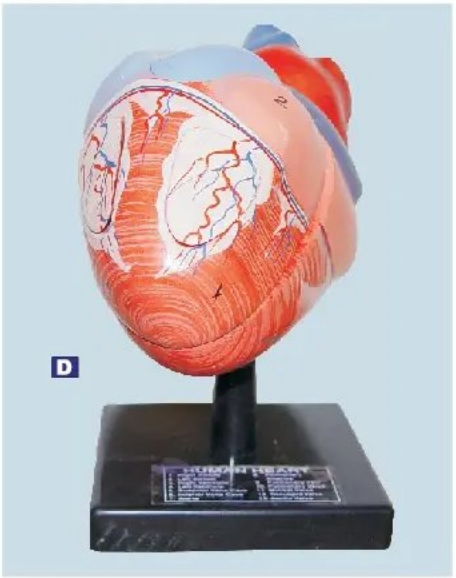
MINI HUMAN TORSO (FEMALE) **A**
SB062
Made of Fibre Glass. Various details shown include :-
Brain, Eyes, Ear, Nose, Lips, Chin, Wind pipe, Diaphragm, Spleen, Kidney, adrenal gland, Ureters, Bladder, Heart, Lungs, Stomach, Liver, Gall Bladder, Large Intestine & Small Intestine. Mounted on a wooden board.



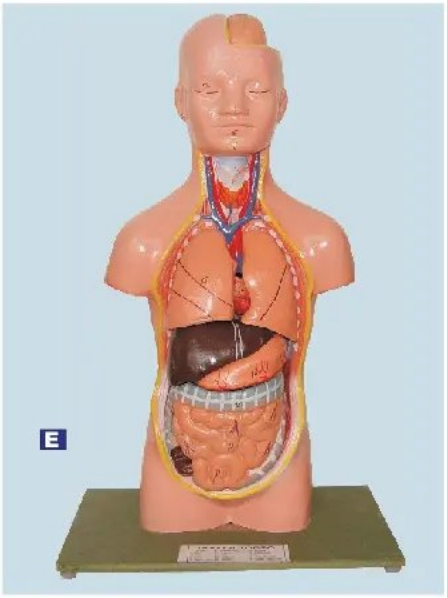
HUMAN SKELETON WITH STAND **B**
SB063
It has a movable folding stand. Skeleton is complete upto Phalanges. Every part is made in a manner so that all joints move freely. Made of fibre glass and moulded plastic.



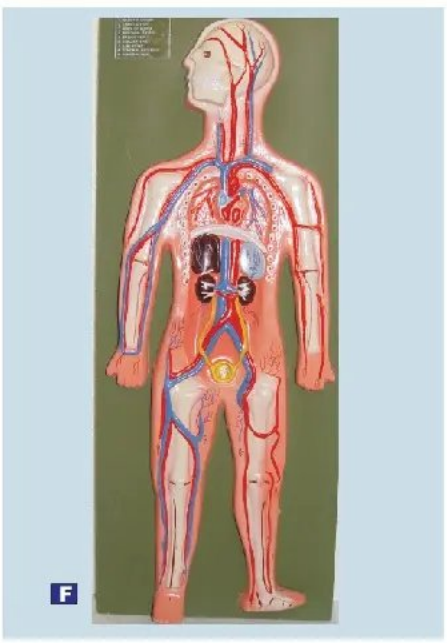
HUMAN TORSO (MALE) **C**
SB061
Made of Fibre Glass. Various details shown include :-
Brain, Eye, Tongue, Hyoid Bone, Trachea, Superior Vena Cava, Aorta, Heart, Right Lung, Left Lung, Duodenum, Pancreas, Spleen, Kidney, Adrenal Gland, Liver, Gall Bladder, Stomach, Large Intestines, Small Intestines, Urethra, Penis, Symphysis Pubic, Urinary Bladder & Testis. Mounted on a wooden board.



HUMAN HEART (4PARTS) **D**
SB071
Made of Fibre glass. This model is dissectable into four parts,easy identification of all parts. Model shows :
Right Atrium, Left Atrium, Right Ventricle, Left Ventricle, Superior Vena Cava, Inferior Vena Cava, Aorta, Pulmonary Arteries, Pulmonary Vein, Pulmonary Valve, Mintral Valve, Tricuspid Valve, Aortic Valve. Mounted on a plastic base.

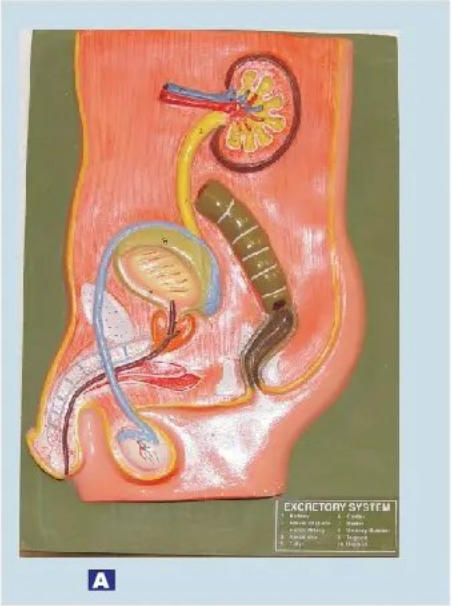


MINI HUMAN TORSO **E** **SB603**
Made of Fibre Glass. Various details shown include :-
Brain, Eyes, Ear, Nose, Lips, Chin, Wind pipe, Diaphragm, Spleen, Kidney, adrenal gland, Ureters, Bladder, Heart, Lungs, Stomach, Pancreas, Liver, Gall Bladder, Large Intestines & Small Intestines. Mounted on a wooden board.



BLOOD CIRCULATORY **F** **SB074**
Made of Fibre Glass. Various details shown include :-
Carotid Artery, Carotid Vein, Arch of Aorta, Brachial, Artery, Basilic Vein, Iliac Arteries, Iliac Veins, Femoral Arteries and Femoral Vein.All parts are numbered for easy identification.

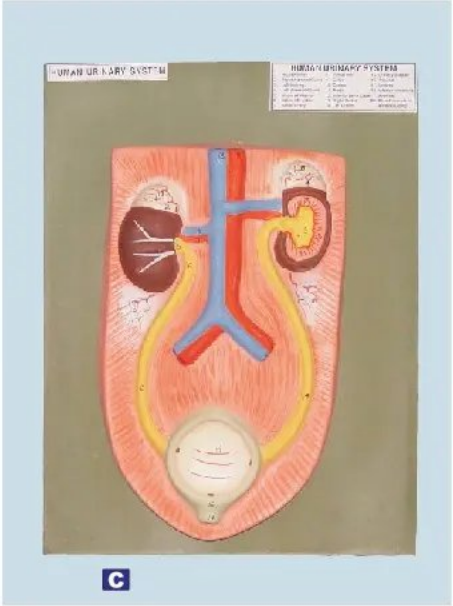
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A

HUMAN EXCRETORY SYSTEM A SJ046

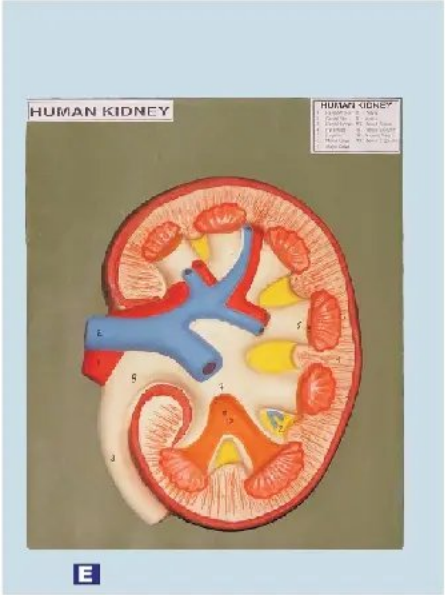
Made of Fibre Glass. Various details shown include :-
Kidney, Pelvis of Ureter, Renal Artery, Renal Vein, Calyx, Cortex, Ureter, Urinary Bladder, Trigone, Urethra. Numbered with english key card.
Mounted on a wooden board.



C

HUMAN URINARY SYSTEM C SJ054

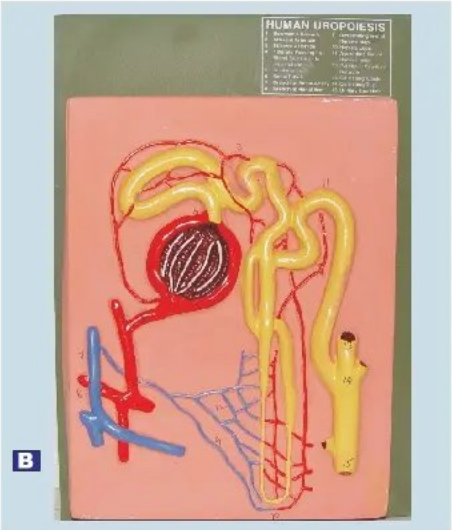
Right Kidney, Right Adrenal Gland, Left Kidney, Left Adrenal Gland, Pelvis of Ureter, Renal Artery, Renal Vein, Calyx, Cortex, Aorta, Interior Vena Cava, Right Ureter, Left Ureter, Urinary Bladder, Urethra and Blood Vessels in adrenal gland.



E

MODEL OF HUMAN KIDNEY, L.S. E SB073

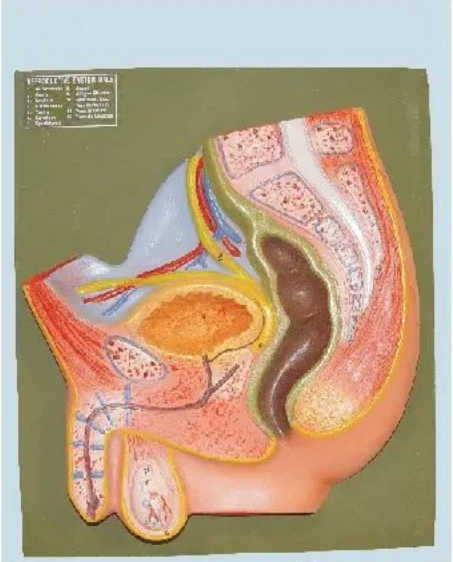
Made of Fibre Glass. All important structures are numbered and identified. Various details shown include :-
Ureter, Pyramid, Major Calyx, Cortical Substance, Minor Calyx, Artery and Vein, Pelvis & Papilla. Mounted on a wooden board. Mounted on wooden board.



B

HUMAN UROPOIESIS B SJ045

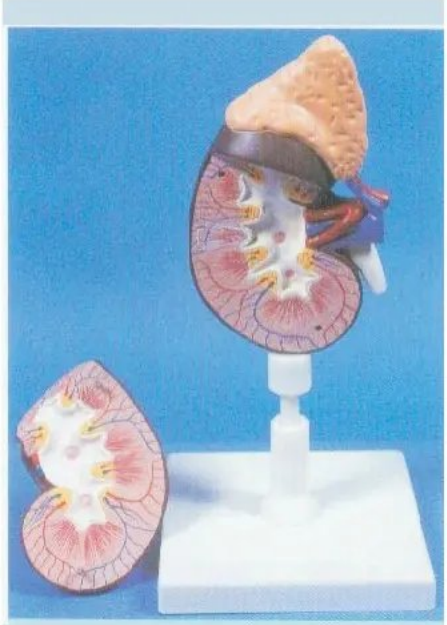
Made of Fibre Glass. Uropoiesis is production & excretion of urine from body. Various details shown include:
Bowman's Capsule, Afferent Arteriole, Efferent Arteriole, Filterate Passing from Blood System into Renal Tubule, Glomerulus, Renal Tubule, Branch of Renal Artery, Branch of Renal Vein, Descending lind of Henle's loop, Henle's loop, Ascending lind of Henle's loop, partibnlar Capillary Network, Collecting Tubule, Collecting Duct and Urinary Excretion. All parts are numbered for easy identification.



D

REPRODUCTIVE SYSTEM MALE SB076 D

Made of Fibre Glass. Various details shown include :-
Pubic Bone, Penis, Urethra, Glans Penis, Testis, Scrotum, Epididymis, Ureter, Urinary Bladder Spermatic Duct (Vas Deferens), Prostat Gland & Erectile Muscles. Mounted on a wooden board.

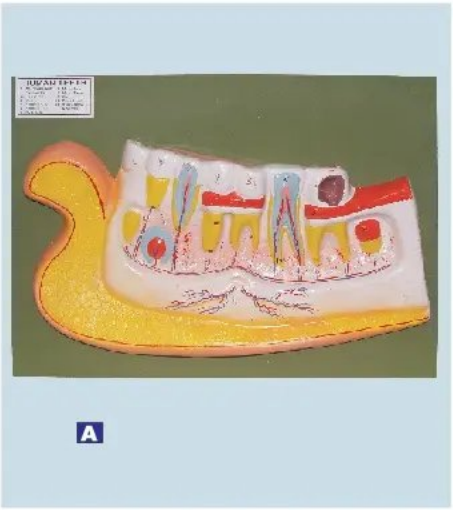


F

KIDNEY MODEL, 2 PARTS F (DISSECTIBLE) : SV248

Natural size, durable plastic, the kidney model is separated into two parts, longitudinal section with gland, mounted on a stand.

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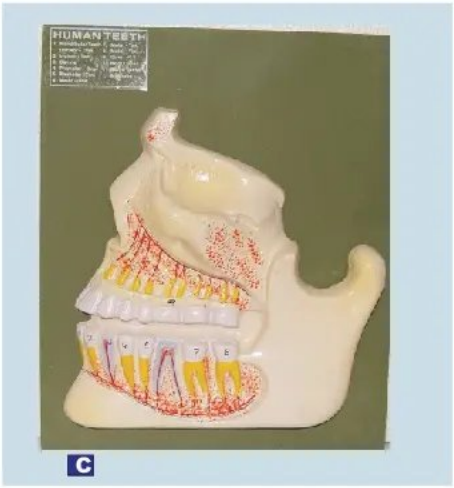
A

HUMAN TEETH A **SB069**
Made of Fibre Glass. Various details shown include :-
Mandivular Teeth (Incisor-One), Incisor-Two, Canine, Premolar-One, Premolar-Two, Molar-One, Molar-Two, Molar-Three, Gum, Root Canal and Blood Vessel & Nerves. All parts are numbered for easy identification.
Mounted on a wooden base.



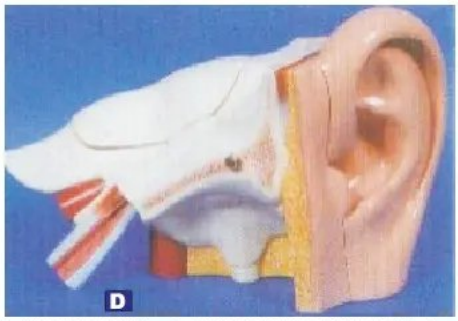
B

MODEL OF HUMAN EAR B **SB068**
Made of Fibre glass. It represents outer, middle and inner ear. Various details shown include :-
Pinna, External Auditory Canal, Middle ear cavity, Eustachian Tube, Semicircular Canals, Stapes, Anvil and Hammer, Eardrum, Cochlea, Auditory Nerve, Tympanic Cavity & Cartilage etc.Numbered with english key card. Mounted on a wooden board.



C

HUMAN TEETH C **SJ044**
Made of Fibre Glass. Various details shown include :-
Mandibular Teeth (Incisor-One), Incisor-Two, Canine, Premolar-One, Premolar-Two, Molar-One, Molar-Two, Molar-Three, Gum, Root Canal and Blood Vessel & Nerves. All parts are numbered for easy identification.
Mounted on a wooden base.



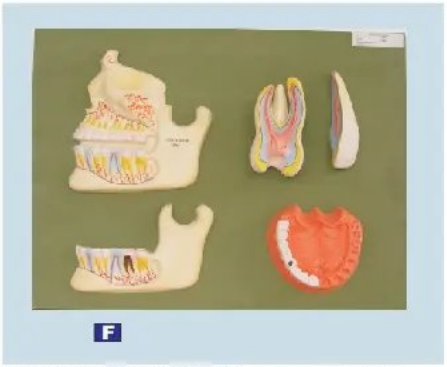
D

EAR MODEL , 6 PART (DISSECTIBLE): SV246 D
Enlarged about 3 times, durable plastic, showing outer and inner ear. The parts of temporal bone and auditory canal are removable. The labyrinth is also removable and opened, on a base.



E

EYE MODEL, 6X (DISSECTIBLE): E SV249
Enlarged about 6 times, durable plastic, separated into two hemispheres, 2 removable lens, iris, cornea, vitreous body, mounted on a stand.



F

CARIOUS TOOTH F **SJ042**
Made of Fibre Glass. Various details shown include :-
Pulp Cavity, Enamel, Dentine, Blood Vessels & Nerves, Crown, Neck, Root, Cavity and Caries. All parts are numbered for easy identification.
Mounted on a wooden base.



G

DENTAL CARE G **SJ043**
Enlarged model to demonstrate cleaning techniques with tooth brush.



H

MODEL OF HUMAN EYE H **SB067**
Made of Fibre Glass. Various details shown include :-
Sclera, Cornea, Lens, Muscles, Iris, Retina, Vitreous Humour, Blind Spot, Optic Nerve, Pupil.Numbered with english key card.
Mounted on a plastic base.

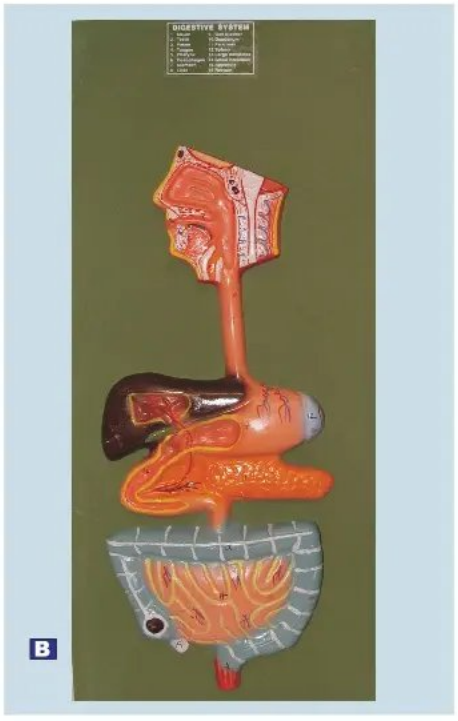
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A

NEURON A SJ081

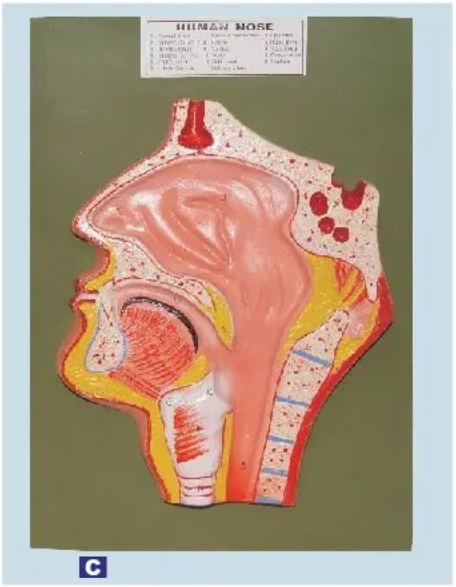
Made of Fibre Glass. All important structures are numbered and identified. Various details shown include:
Dendron, nucleus, nerve cell, neurilemma, axon, schwann cell, medullary sheath, node of ranvier, direction of impulse and nerve ending.



B

DIGESTIVE SYSTEM B SB078

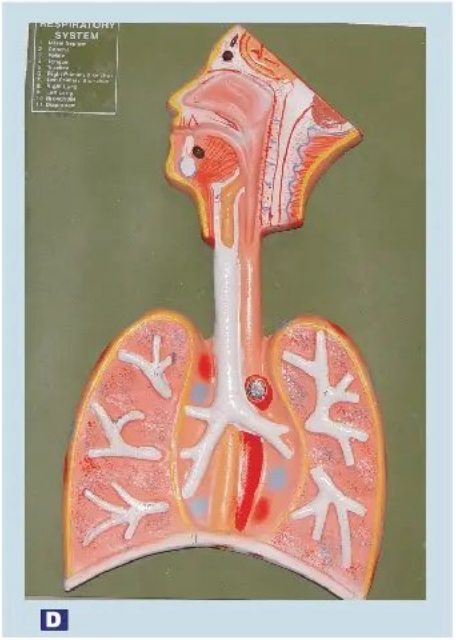
Made of Fibre Glass. Various details shown include :-
Mouth, Teeth, Palate, Tongue, Pharynx, Oesophagus, Stomach, Liver, Gall Bladder, Duodenum, Pancreas, Spleen, Large Intestines, Small Intestines, Appendix and Rectum.All parts are numbered for easy identification.



C

HUMAN NOSE C SJ048

Made of Fibre Glass. Various details shown include :-
Frontal Sinus, Sphenoidal Sinus, Nasal Septum, Superior Concha, Mid Concha, Inferior Concha, Mucous Membrane, Palate, Tongue, Vulve, Sublingual Salivary Gland, Epiglottis, Hyoid Bone, Vocal Cord, Oesophagus & Trachea.
Mounted on a wooden board.Numbered with english key card.



D

RESPIRATORY SYSTEM D SB079

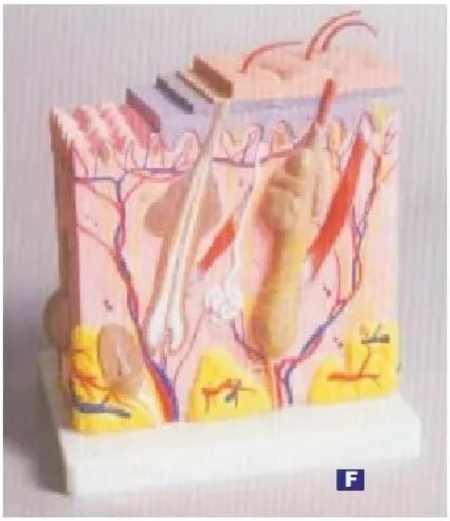
Made of Fibre Glass. Various details shown include :-
Nasal Septum, Concha, Palate, Tongue, Trachea, Right Primary Bronchus, Left Primary Bronchus, Right Lung, Left Lung, Bronchiole and Diaphragm.All parts are numbered for easy identification.
Mounted on a wooden board.



E

HUMAN SKIN E SB070

Made of Fibre Glass. Various details shown include :-
Epidermis, Horni Layer, Germinal Layer, Hari Shaft, Basal Calls, Subaceous Gland, Merkels Discs, Hair Bulb, Hair Follicle, Capillary Knot in Papilla, Arterial Capillary, Venous Capillary, Sweat Gland, Sweat Pores & Duct, Root Hair Plexes, Pacinian Corpuscle, Subcutaneous Fat and Dermis.All parts are numbered for easy identification.
Mounted on a wooden board.



F

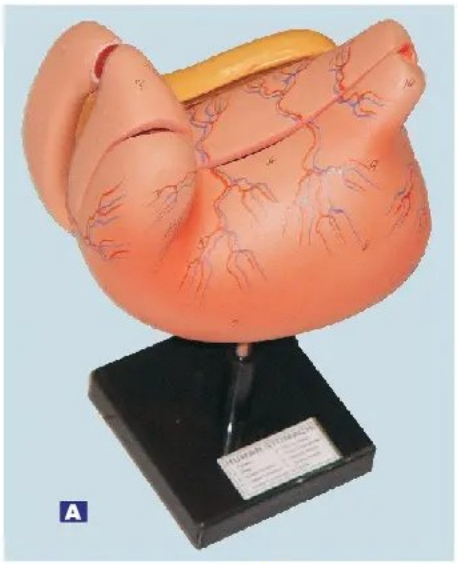
BLOCK MODEL OF THE SKIN (DISSECTIBLE): SV247 F

About 70 times, durable plastic, showing the scalp with hair in different planes of section. In one piece, on a base.

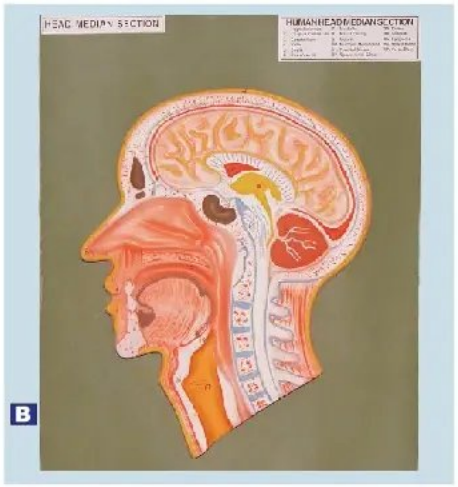
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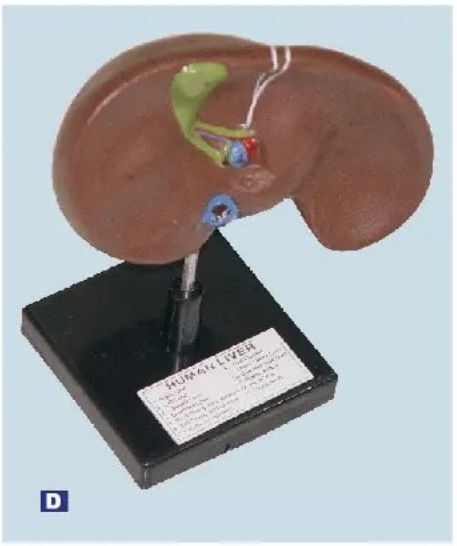


HUMAN STOMACH A **SJ052**
The oesophagus continues into the stomach which is a muscular bag located in upper left part of the abdominal cavity just below diaphragm. Stomach opens in duodenal part of intestine. All parts numbered with english keycard. Provided with plastic base.



HUMAN HEAD MEDIAN SECTION B **SJ050**
Hypothalamus, Corpas Callosum, Cerebellum, Skin, Skull, Medulla, Nasal Cavity, Mouth, Mucous Membrane, Frontal Sinus, Sphenoidal Sinus, Palate, Tongue, Epiglottis, Hyoid Bone and Voice Box.



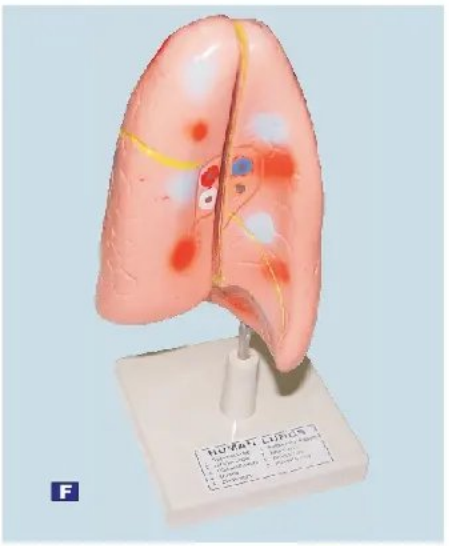


HUMAN LIVER D **SJ053**
Carbohydrates, proteins and fats are digested into simpler forms which, inturn, are stored or converted for storage in the liver. It is human body's most vital organ. The liver failure causes fall in blood sugar level leading to brain damage, failure of protein synthesis, excessive bleeding etc. Various details shown include: Right Lobe, Left Lobe, Caudate Lobe, Quadrate Lobe, Right Triangular Ligament, Left Triangular Ligament, Falciform Ligament, Gall Bladder, Inferior Vena Cava, Common Bile Duck, Heptic Artery, Portal Vein and Heptic Veins.



BABY WITH PELVIS E **SJ056**
Made of Fibre Glass. All important structures are numbered and identified. Various details shown include:
L-5 Vertebra, ampulla of rectum, anal canal, anus, vaginal orifice, vaginal canal(birth canal), labium minus, labium Majus, urinary bladder, urethral orifice, symphysis pubis, clitoris, pelvis, utorus, placenta, foetus, umblical cord and peritoneum.

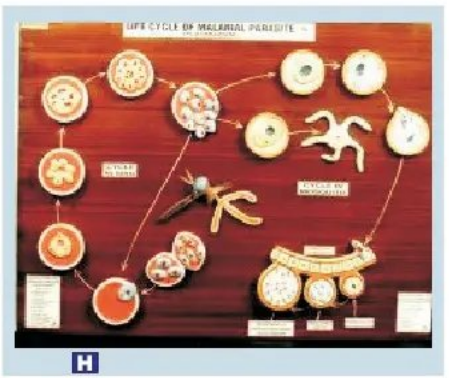
SPINAL CORD C **SJ055**
Showing sections of spinal cord. Mounted on board.



HUMAN LUNGS F **SB072**
Made of Fibre Glass, Dissectable into two parts. Various details shown include :-
Superior Lobe, Inferior Lobe, Oblique Fissure, Opices, Diaphragm, Pulmonary Vessels, Bronchioles & Pleural Cavity. Mounted on plastic base. Numbered with English key card.

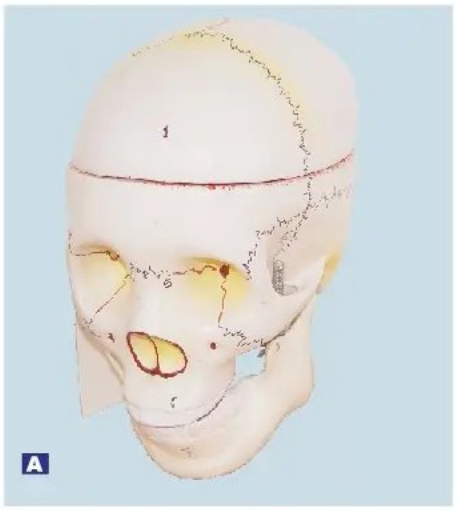


FIFTH CERVICAL VERTEBRA G **SJ051**
It is found in the neck. Group of seven cervical vertebra are present in the neck. It has a short axis like peg of bone around which the head and atlas pivot during shaking.

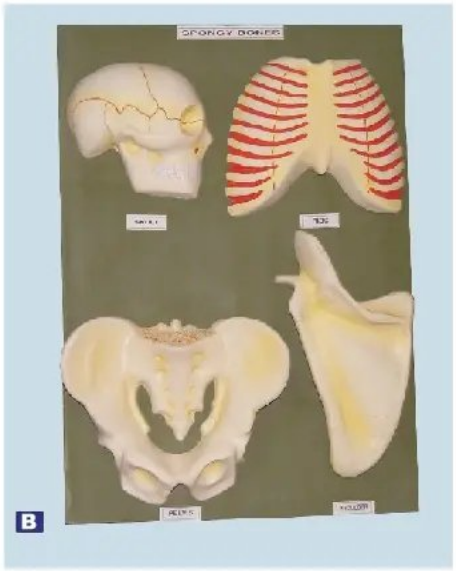


LIFE CYCLE OF MALARIAL PARASITE
SJ049 H
The model shows various stages of malaria.

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HUMAN SKULL A **SJ057**
Frontal Bone, Temporal Bone, Parietal Bone, Occipital Bone, Lacrima Bone, Maxilla, Mandiblel.

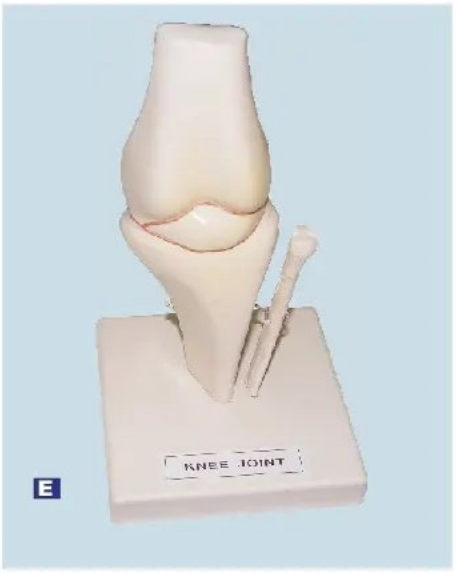


SPONGY BONGS B **SJ060**
All the spongy bones of human body shown.





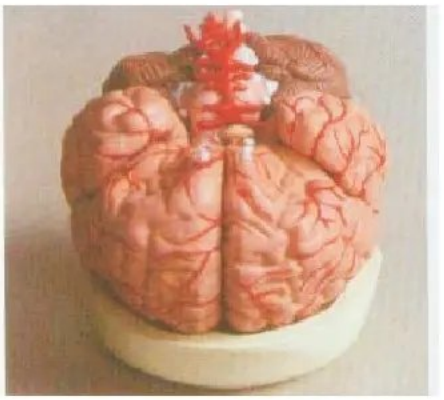
HUMAN BRAIN 4 PARTS D **SB066**
Made of Fibre Glass. All structures are numbered and identified. Various details shown include :-
Spinal Cord, Cerebellum, Corpus callosum, Lateral ventricle, Temporal & Frontal lobe, Parietal and occipital lobe, Medulla Oblongata, Thalamus & Pituitary Gland.



KNEE JOINT E **SJ061**
Accurately moulded articulated model on plastic base. Showing lateral femoral condyle, patella, tibia and fibula.

ELBOW JOINT C **SJ063**
Accurately moulded articulated model on plastic base. Radius and ulna are the two bones of the lower part of the arm. Radius is concerned with bending and straightening of the elbow. Showing radius and ulna. Upper end of ulna grasp the lower end of the humerous.

SHOULDER JOINT H **SJ064**
Accurately moulded articulated model on plastic base. Humerous is the bone of the upper arm with a knob like upper end forming a ball to fit into the ball & socket joint of shoulder. Showing humerous, scapula and clavicle.



BRAIN WITH ARTERIES, 9 PARTS (DISSECTIBLE) : F **SV245**
Natural size, durable plastic, with showing the arterial network of vessels. Both halves can be separated into following:
• 2-temporal and occipital lobes • 2-medulla •2-cerebellum •2-basilar artery.

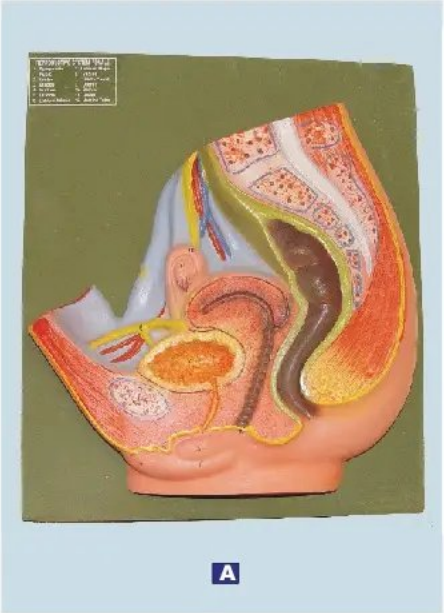


HIP JOINT (BALL & SOCKET JOINT) SJ062 G
Accurately moulded articulated model on plastic base. Showing ilium, head of femur (ball) and acetabulum (socket).



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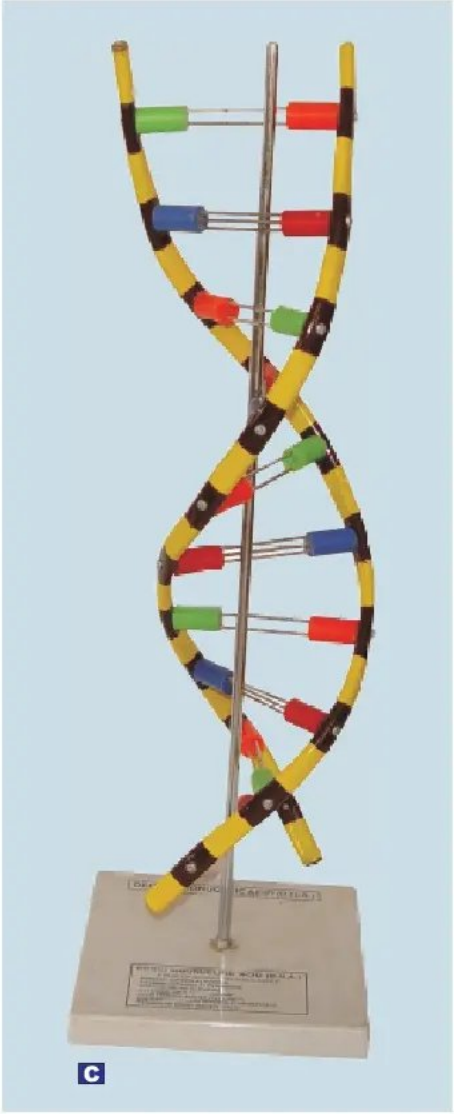
A

REPRODUCTIVE SYSTEM FEMALE A **SB077**
Made of Fibre Glass. Various details shown include :-
Symphasis Pubic, Ureter, Bladder, Urethra, Clitoris, Labium Minus, Labium Majus, Vagina (Birth Canal), Uterus, Cervix, Ovary & Uterine Tube.Numbered with english key card. Mounted on a wooden board.



B

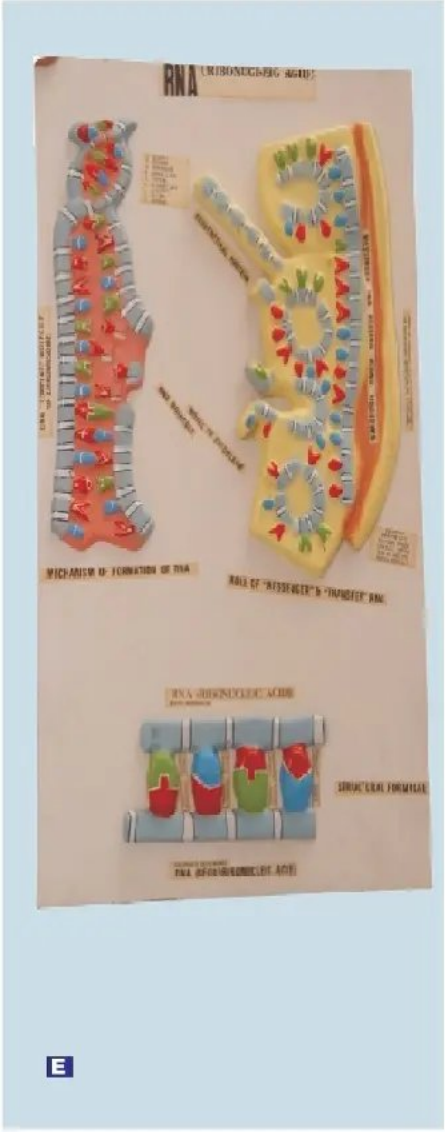
ANIMAL CELL B **SJ072**
Made of Fibre Glass. Various details shown include :-
Secretory Granules, Endoplasmic reticulum, Hyaloplasm, Cell Membrane, Mitochondria, Golgi Bodies, Centrosome, Nuclear Membrane, Nucleus, Nucleolus, Vacuole, Tonoplast, Sap, Starch Grains and Fat Droplets. All parts numbered with english key card. Mounted on a wooden base.



C

DNA MODEL (HELICAL) C **SB425A**
It is plastic moulded and mounted on wooden board.

JAWS OF NEW BORN BABY D **SB438**
Made of fibre. Set of four. Mounted on a rectangular base.



E

R.N.A.(RIBO NUCLEIC ACID) E **SB084**
Made of Fibre Glass. Various details shown include :-
Alanine, Arginine, Asparagine, Aspartic Acid, Cysteine, Glutamic Acid, Glutamine, Glycine and Histidine. Mounted on a wooden board.



D

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A

FROG DISSECTION A **SJ065**
Made of Fibre Glass. Various details shown include :-
Premaxilla, Maxilla, Cranium, Bulging of Eye Ball, Vomer, Nasal, Squamosal, Quadrate Cartilage, Heart, Liver, Lungs, Pancreas, Spinal Cord, Stomach, Ovary, Small Intestines, Rectum, Urinary Bladder, Cloaca, Cloacal aperture. Mounted on a wooden base.



B

ANIMAL CELL MITOSIS B **SJ070**
Made of Fibre Glass. All the stages of mitosis are shown. Various details shown include :-
Interphase Cell, Early Prophase, Mid Prophase, Early Telophase, Middle Telophase, Early Anaphase, Late Anaphase, Early Metaphase, Late Metaphase and Cytokinesis.
Mounted on a wooden base.

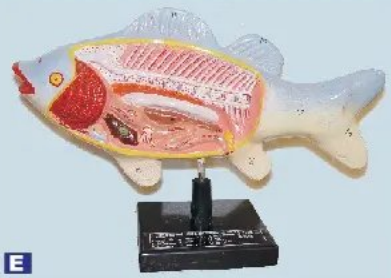


C



D

ASCARIS D **SJ066**
The model shows male and female Ascaris. All parts are numbered for easy identification.



E

FISH DISSECTION E **SJ069**
Made of Fibre Glass. Various details shown include :-
Mouth, Upper Jaw, Lower Jaw, Nostril, Gill Backers, Gill Cavity, Gill Arch (operculum), Heart, Liver, Spinal Cord, Kidney, Swim Bladder, Intestines, Roe, Pelvic Fin, Ventral Fin, Dorsal Fin, Lateral Fin, Scales, Caudal Fin.
Mounted on a plastic base.

CAT SKULL C **SJ058**
Mounted on plastic base.



I



F

PIGEON DISSECTION F **SJ067**
Made of Fibre Glass. Various details shown include :-
Showing all internal structures. All structures are numbered and identified. Mounted on a wooden base.



G

STAR FISH G **SJ068**
Showing arms, spines, stomach, intestinal, caeca, pyloric caica, ampullae, ring canal, polian vesicles, skeleton of arm with nervous system. Stomach, axial organ, stone canal and madreporite are seen in the cut section. All parts are numbered for easy identification.



H

ANIMAL CELL MEIOSIS H **SJ071**
Made of Fibre Glass. This model clearly shows all stages of meiosis in animal cell. Various details shown include :-
Leptotene, Zygotene, Pachytene, Diplotene, Diakinesis, Metaphase-I, Anaphase-I, Telophase-I, Prophase, Metaphase-II, Anaphase-II and Telophase-II.

RABBIT SKULL I **SJ059**
Mounted on plastic base.

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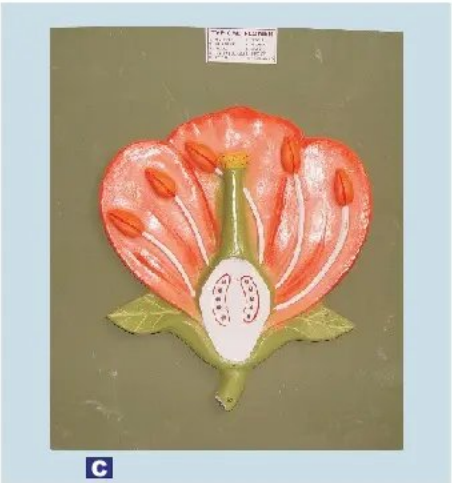
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MONOCOT STEM A **SJ076**
Made of Fibre Glass. All important structures are numbered and identified. Various details shown include:
Epidermis, Hypodermis, Ground Tissue, Vascular Bundle, Phloem, Cambium and Xylem.

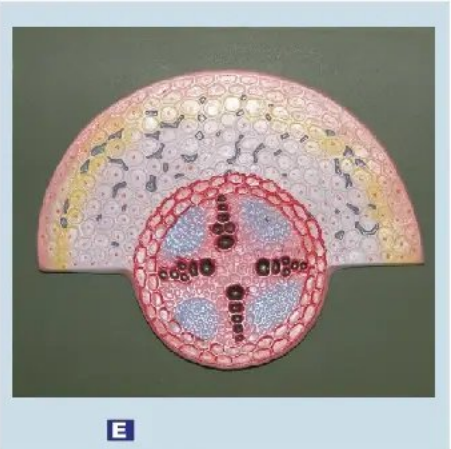


T.S. DICOT LEAF B **SB228**
Made of Fibre Glass. Various details shown include :-
Cuticle, Upper Epidermis, Palisade Parenchyma, Xylem, Medullary Ray, Phloem, Inter Cellular Spaces, Lower Epidermis. Mounted on a wooden board.



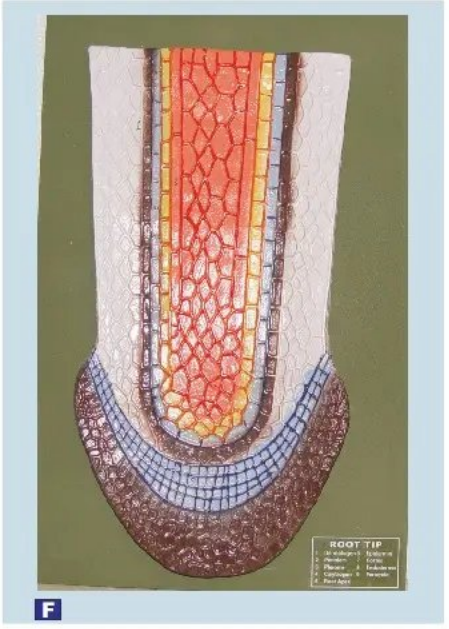


DICOT ROOT L.S D **SJ075**
Made of Fibre Glass. Various details shown include :-
Root Hair, Epidermis, Collenchyma, Parenchyma, Endodermis, Sclerenchyma, Phloem, Cambium, Metaxylem, Protoxylem, Wood Parenchyma & Pith. Mounted on a wooden board.

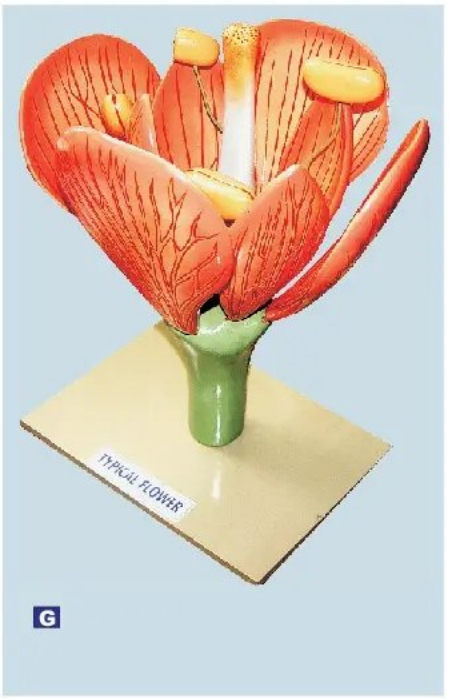


DICOT ROOT E **SJ073**
Made of Fibre Glass. Various details shown include :-
Epiblema, Exodermis, Cortex Endodermis, Pericycle, Phloem, Xylem Bundle, Metaxylem, Protoxylem, Pith. Mounted on a wooden board.

TYPICAL FLOWER C **SB093**
All important structures are numbered and identified. Various details shown include:
Anther, Filament, Petal, Calyx (Sepal), Stigma, Style, Ovary, Ovule, Pedicel and Thalamus.



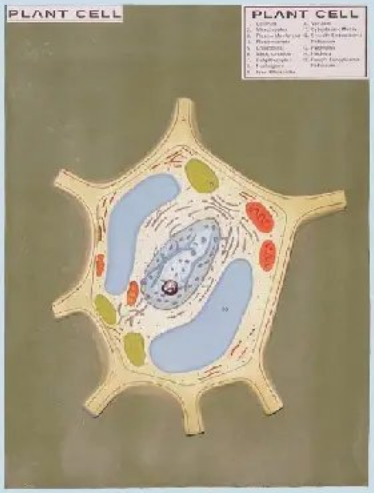
ROOT TIP F **SJ074**
Made of Fibre Glass. All important structures are numbered and identified. Various details shown include:
Dermatogen, Periblem, Plerome, Calytrogen, Root Apex, Epidermis, Cortex, Endodermis and Pericycle.



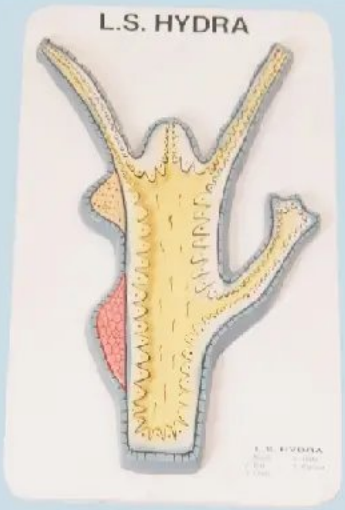
FLOWER SECTION MODEL G **SB424**
This is a flower model made of moulded plastic showing all parts of flower. The whole unit is situated on a rectangular base. Model clearly shows 5 petals of corolla, 5 sepals of calyx, Ovary and 5 Anthers. All parts can be taken out separately.

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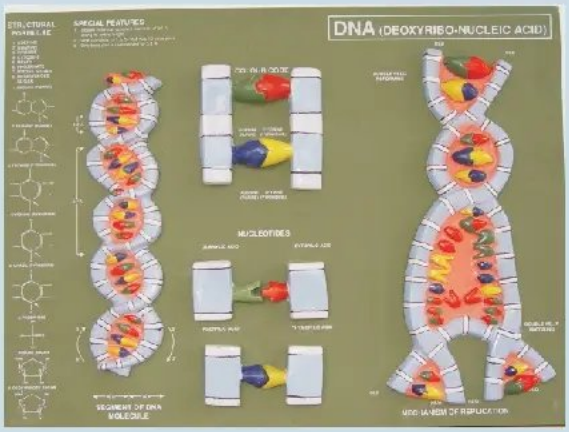
A



B



C



PLANT CELL A **SJ077**
Made of Fibre Glass. All important structures are numbered and identified. Various details shown include:
Cell wall, microtubules, plasma membrane, plasmodermis, chloroplast, mitochondria, golgi complexes, free ribosomes, vacuole, cytoplasmic matrix, smooth endoplasmic reticulum, nucleolus, nucleus and rough endoplasmic reticulum.

HYDRA L.S. B **SB086**
Made of Fibre Glass. Various details shown include :-
Mouth, Bud, Ovary, Testis and Clavicle.All parts numbered with english key card. Mounted on a wooden board.

DNA (DEOXYRIBO-NUCLEIC ACID) STRUCTURAL FORMULA C **SJ079**
Adenine, Guanine, thymine, Cytosine, Uracil, Phosphate and Deoxyribose Sugar.

SPECIAL FEATURE
- Double helix has constant diameter of 20A° along its entire length.
- One complete turn is 34A° & has 10 base pairs.
- One base pair represented by 34A°.

D



E



PLANT CELL MITOSIS D **SJ080**
Made of Fibre Glass. All important structures are numbered and identified. Various details shown include:
Interphase, Prophase, Mid Prophase, Late Prophase, Metaphase, Anaphase, Telophase, Mid Telophase, Late Telophase and cytokinesis.

PLANT CELL MEIOSIS E **SJ078**
Made of Fibre Glass. All important structures are numbered and identified. Various details shown include:
Leptotene, Pachytene, Diakinesis, Anaphase-I, Anaphase-II, Telophase-I, Telophase-II, Zygotene, Diplotene, Metaphase-I, Metaphase-II and Tetrad.

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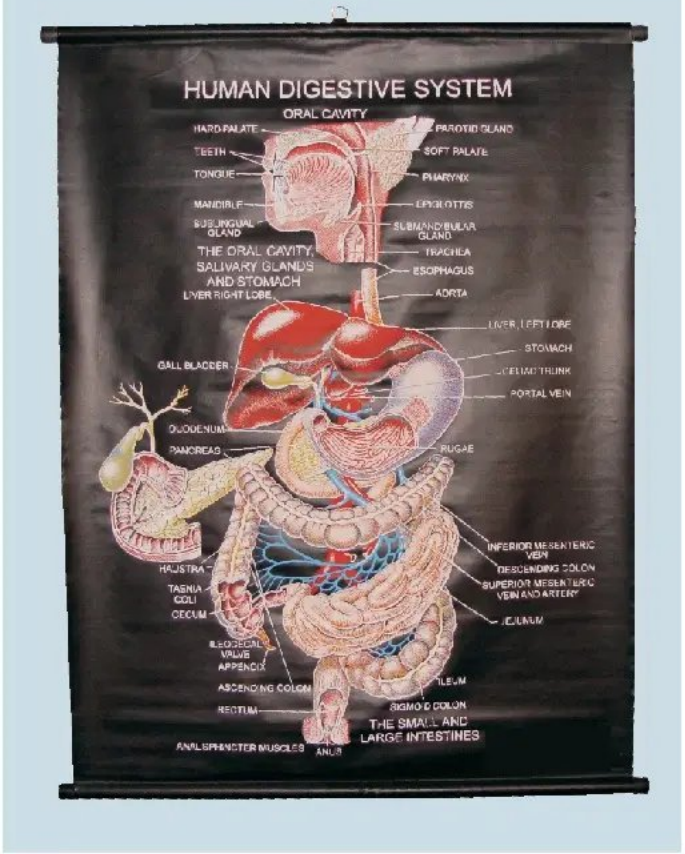
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CHART STAND **SJ041**

Used for keeping charts horizontally. It has capacity to accommodate 24 charts.



Rexine



CHART

Made of Rexine. Size 100 x 75 cm.

CHARTS

SB673 Medicinal Plants
SB679 Compound and simple leaves
SB689 Kinds of Roots
SB696 Section of Human Ear
SB697 Section of Human Skin
SB700 T.S of Dicot Root
SB701 T.S of Dicot stem
SB724 Human Tongue
SB726 Hibiscuss - Flowers and its parts
SB730 Malvaceae
SB734 Types of Joints
SB735 Circulatory System of Cockroach
SB736 Gametogenesis (Mammal)
SB737 Parts of Plant
SB738 Parts of Flowers
SB739 Modification of Roots
SB740 Types of Leaves
SB744 Diseases Caused by Virus
SB745 Diseases Caused by Fungus
SB746 Diseases Caused by Bacteria
SB751 T.S Monocot Root
SB753 Human respiratory System
SB756 Mouth Parts of Cockroach
SB757 Human Heart - Ex. View
SB759 Human Lymphatic System
SB760 Human Nephron
SB761 Autonomous Nervous Sys
SB762 Human Eye
SB765 T.S of Anther
SB766 L.S of Anatropous Ovule
SB767 Human Endocrine System
SB768 Sweet Pea - Floral Diagram
SB769 Wheat (Tritium aestium)
SB770 Allium Cepa(Onion)
SB771 Mustard
SB773 Earthworm (Internal anatomy)
SB774 Type of Tissues in animals
SB775 Cockroch (External morphology)
SB778 Meiosis - Crossing over
SB779 Carlous Linnacus - Scientist
SB780 Vitamins - Chem. Name and Funt.
SB781 Minerals - Functions
SB782 Water purification - Sand Filtering Tec
SB783 Water purification - Compact Integrated elecronic device
SB787 Mixed & Inter Cropping
SB790 Lotus, Paddy, Wheat, Barley plants
SB791 Stages of Phagocytosis in Ameoba
SB792 Tracheal Sys. of an insect
SB793 T.S. of stem
SB794 Artifical Kidney
SB795 Nervous Sys. Of an Insect
SB796 A Typical bag filter
SB797 Electrostatic Precipitator
SB798 Incinerator
SB799 Fertilization in a Flowering Plant
SB800 Mendel - Scientist
SB801 Balance diet
SB802 Safety mesaures to avoid accident
SB803 Sea Breeze & Land Breeze Chart of tongue

Note: Big sized multicloured photographs of Scientists, Biologists, Physicsts, Chemists & mathematicians are available.

CYTOLOGY

SB827 Cell membrane showing structure & function
SB828 Cell wall - showing structure & function
SB829 Endoplasmic reticulum - showing structure and function SB830 Mitochondrion - showing structure & function
SB831 Golgi complex - showing structure & function
SB832 Chloroplast - showing structure & function
SB833 Nucleus - Showing structure & function

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SB834 Chromosome - showing structure & function
SB835 D.N.A. - showing structure & function
SB836 R.N.A. - showing structure & function

GENETICS

SB837 Monohybrid crossing complete dominance
SB838 Dihybrid crossing
SB808 Respiratory sys. Of frog
SB809 The Human body
SB810 The Muscular system Human
SB811 Circulatory system Human
SB812 Blood vessels Human
SB813 Anatomy of the heart Human
SB814 Respiratory system Human
SB815 The nervous system Human
SB816 The brain Human
SB817 Excretory system Human
SB818 The digestive system Human
SB819 Anatomy of the teeth Human
SB820 Showing parts of flower
SB821 Food chain
SB839 Monohybrid crossing
SB840 Mendelian explanation of cross between tall & dwarf races in garden pea
SB841 Sex linked inheritance drosophila
SB842 Mendelian heridity of blue & adulsian fowls
SB843 Mendelian explanation of the breeding behaviour of Red & White flowering in O'Clock
SB844 Ancestors of man

PHYSIOLOGY

SB845 Plant Respiration
SB846 Plant Transpiration
SB847 Plant Osmosis & Root Pressure
SB848 Photosynthesis light reaction
SB849 Photosynthesis dark reaction
SB850 Glycolysis
SB851 Krebs Cycle

GENERAL

SB804 Water Pollution
SB855 Oxygen cycle
SB856 Environmental Pollution
SB857 Food web
SB858 Food chain

BOTANY CHARTS

SB859 Chlamydomonas general structure & life history
SB860 Ulothrix general structure and L.H.
SB861 Oedogonium Life Cycle
SB862 Spirogyra St. & Conjugation
SB863 Batrachospermum structure & L.H.
SB864 Polysiphonia structure & life history
SB865 Rhizopus structure & L.H.
SB866 Mucor structure & L.H.
SB867 Penicillium
SB868 Puccinia graminis structure & L.H.
SB869 Agaricus structure & life history

BRYOPHYTA, PTERIODOPHYTE

SB870 Riccia structure & reproduction
SB871 Marchantia structure & life history
SB872 Anthoceros structure & reproduction
SB873 Moss (Funaria) life history
SB874 Selaginella structure & reproduction
SB875 Marselia structure & Reproduction
SB876 Lycopodium structure & reproduction
SB877 Equistem structure & reproduction
SB878 Fern (Aspidium) structure & L.H.
SB879 Fern (Pteris) structure & L.H.

GYMNOSPERMS

SB880 Cycas life history
SB881 Cycas anatomy
S882B Cycas stem T.S.
SB883 Gnetum structure & life history
SB899 Meisophytic plants
SB900 Epiphytic plants
SB901 Insectivorous plants
SB902 Fossil plants
SB903 Coparison of Dicot & Monocot Plants

SEEDS & FRUITS

SB904 Maize seed germination
Sb905 Gran seed germination
SB906 Bean seed germination
SB907 Castor seed germination
SB908 Pea seed germination
SB909 Dispersal of seeds fruits
SB910 Classification of fruits

ROOTS , STEMS , LEAVES

SB911 T.S. Dicot root
SB912 T.S. Monocot root
SB913 T.S. Dicot stem
SB884 Pinus structure & life history
SB885 Pinus anatomy
SB886 Pinus leaf
SB887 Pinus stem
SB888 Pinus stem sec. Growth

ANGIOSPERMS

SB889 Plant cell ultra strucure
SB890 Mitosis in plants
SB891 Meiosis in plants(1st and 2nd division shown in one chart
SB892 Stucture of chromosome during mitosis
SB893 Stucture of chromosome during meiosis
SB894 Typical plant
SB895 Plant kingdom showing flowering & non Flowering plants
SB896 Flowering plants
SB897 Non-Flowering plants (A classification)
SB898 Xerophytic plants
SB929 Compound Leaves
SB930 Phyllotaxy
SB931 T.S. Dicot root secondary growth
SB932 Leaf Lamina

FLOWERS & EMBRYOLOGY

SB933 Typical flower showing parts
SB934 Fertilization showing. germination of p.grain SB935T.S. anther & its development
SB943 Forms of androecium
SB914 T.S. Monocot stem
SB915 T.S. Dicot Leaf
SB916 T.S. Monocot Leaf
SB917 Root modification
SB918 Stem modification (Arial)
SB919 Leaf modification
SB920 T.S. Dicot stem sec. Growth
Sb921 Vegetative propagation
SB922 Artificial propagation
SB923 Specialised stems
SB924 Typical leaf showing parts
SB925 Types of leaves
SB926 Simple leaves
SB927 Stipules
SB928 Leaf venation
SB945 Development of Monocot embryo
SB946 Placentation
SB947 Aestivation
SB949 Inflorescene Part 1 showing sample racemose & simple cymose
SB950 Inflorescene Part 11 showing compound & special
SB951 Pollination different types
SB952 Forms of ovules
SB953 Forms of calyx & corolla

HISTOLOGY

SB955 Collenchyma & sclerenchyma
SB956 Plant anatomy part 2 showing complex tissues xylem
SB957 Plant anatomy part 3 showing complex tissues phloem
SB958 Taxonomy Ranunculaceae
SB959 Ranunculus sceleratus
SB960 Delphinium Ajacis

PAPAVERACEAE

SB962 Papaver rhoeas (Garden poppy)
SB963 Argemone mexicane (Jangli post)

MALVACEAE

SB966 Althaea rosea (Holly hock)
SB967 Hibiscus rose (Shoe flower)

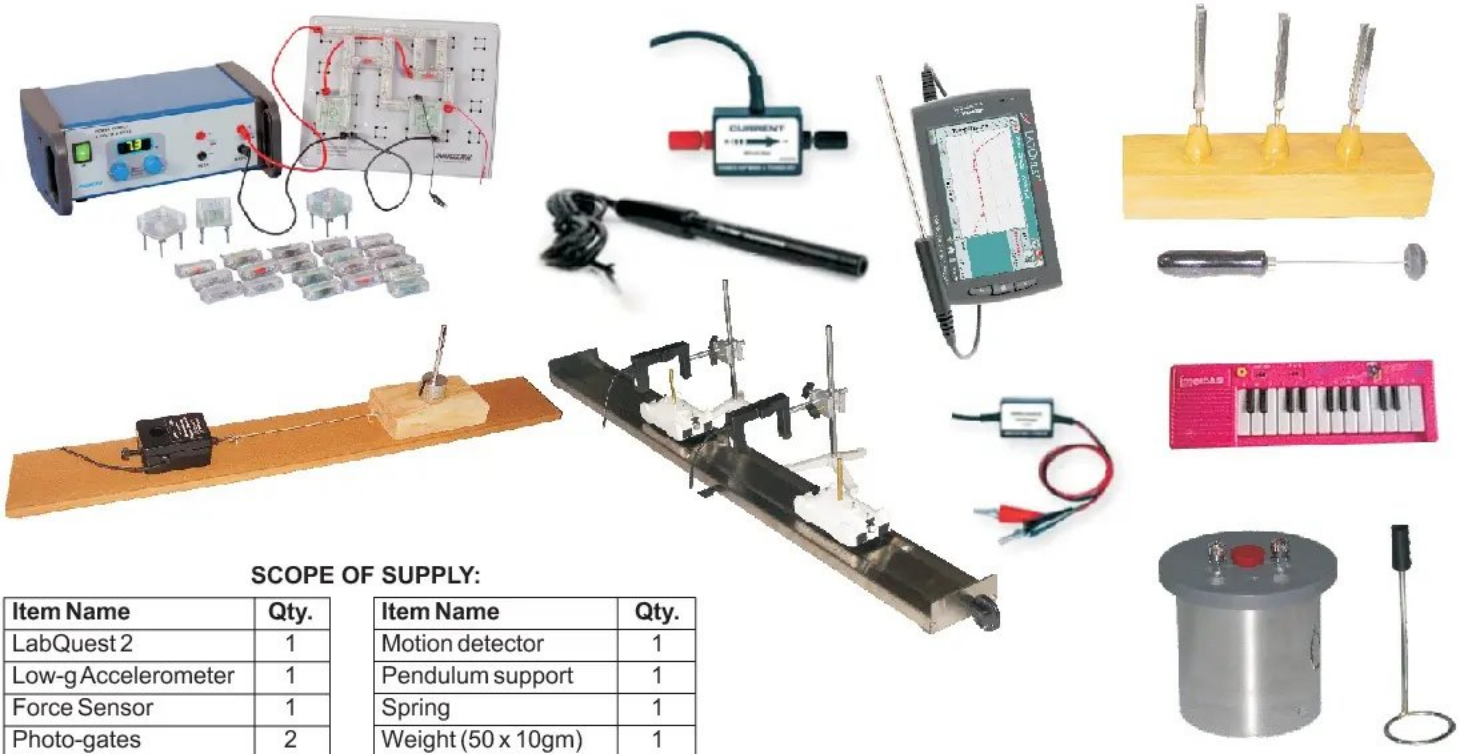
RUTACEAE

SB969 Citrus aurantium
SB970 Murraya Exotica (Marual)

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CBSE PHYSICS EXPERIMENT KIT - SA029

Exp-1 Using a simple pendulum, plot L-T and L-T^2 graphs. Hence find the effective length of second's pendulum using appropriate graph.
Exp-2 To study the relationship between force of limiting friction and normal reaction and to find the co-efficient of friction between a block and a horizontal surface.
Exp-3 To find the downward force, along an inclined plane, acting on a roller due to gravitational pull of the earth and study its relationship with the angle of inclination φ by plotting graph between force and sin(φ).
Exp-4 To study the variation in volume with pressure for a sample of air at constant temperature by plotting graphs between P and V, and between P and I/V.
Exp-5 To find the speed of sound in air at room temperature using a resonance tube by two resonance Positions.
Exp-6 To determine resistance per cm of a given wire by plotting a graph of potential difference versus current.
Exp-7 To draw the I-V characteristic curve of a p-n junction in forward bias and reverse bias.
Exp-8 To draw the characteristic curve of a zener diode and to determine its reverse breaks down voltage.
Exp-9 Characteristics of PN diode.
Exp-10 To study the Simple Harmonic Motion.
Exp-11 Charging and Discharging of the capacitor.
Exp-12 To study the characteristics of a common - emitter NPN or PNP transistor and to find out the values of current and voltage gains.
Exp-13 To verify laws of reflection of sound.
Exp-14 To study the dependence of potential difference (V) across a resistor on the current (I) passing through it and determine its resistance. Also plot a graph between V and I.
Exp-15 To determine the equivalent resistance of two resistors when connected in series.
Exp-16 To determine the equivalent resistance of two resistors when connected in parallel.



SCOPE OF SUPPLY:

Item Name	Qty.
LabQuest 2	1
Low-g Accelerometer	1
Force Sensor	1
Photo-gates	2
Current Probe sensor	2
Voltage Probe sensor	1
Magnetic Field Sensor	1
Temperature Probe	1
Light Sensor	1
Gas Pressure sensor	1
Friction block & Roller	1
Weight (50 x 10gm)	1
Metal Track	1
Inclined plane	1
Base & Rod	2
Boss head	2
Calorimeter	1
Dynamic trolley	2
Pendulum ball	1

Item Name	Qty.
Motion detector	1
Pendulum support	1
Spring	1
Weight (50 x 10gm)	1
Acrylic tube	1
Tube holder	1
Plug in board	1
Resistance board	1
Connecting lead	10
Transistor	2
Zener diode	1
Diode	1
Led	1
Switch	1
Capacitor module	1
Resistance modules	3
Power supply 0-16V	2
Logger Pro3	1

ADDITIONAL EXPERIMENTS:

Exp-1 To demonstrate inter-conversion of potential and kinetic energy.
Exp-2 To demonstrate conservation of linear momentum.
Exp-3 To demonstrate the phenomenon of beats, due to superposition, of waves produced by two sources of sound of slightly different frequencies.
Exp-4 To demonstrate the production of induced emf in a coil due to the movement of (i) a magnet towards and away from it.(ii) a similar coil carrying current towards and away from it.
Exp-5 To demonstrate the effect of intensity of light.
Exp-6 Determining g on an Incline.
Exp-7 The Magnetic Field in a Coil.
Exp-8 Newton's Second Law and Third Law.
Exp-9 Energy in Simple Harmonic Motion.
Exp-10 Newton's Law of Cooling.

Note : Computer will not be provided with SA029 kit.

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SOUND WAVES KIT - SA011

Exp-1 To demonstrate the sound waves and beats.
Exp-2 To find out the frequency of any unknown tunning fork.
Exp-3 To find out the speed of sound.
Exp-4 To demonstrate the Mathematics of Music.



Sound waves consist of a series of air pressure variations. A microphone diaphragm records these variations by moving in response to the pressure changes.

SCOPE OF SUPPLY:

Item Name	Qty.
Vernier microphone sensor	1
Vernier Go Link	1
Tunning forks with stand	1
Hammer	1
Acrylic tube	1
Measuring tape	1
Electronic keyboard	1

BASIC ELECTRONICS WITH COMPUTER - SA031

Exp-1 To study ohm's law.
Exp-2 To study V-I characteristics of Incandescent Lamp.
Exp-3 Study of Diode as Rectifier & its applications.
(I-V characteristics of Rectifier Diode, Half wave rectifier, Full wave rectifier, Positive clipper and Negative clipper)
Exp-4 To study V-I characteristics of a Light Emitting Diode.
Exp-5 Study of Zener Diode & applications.
(a) I-V characteristics of Zener Diode in forward and reverse biased
(b) Zener Diode as Voltage regulator
Exp-6 To investigate Series and parallel combinations of resistors.
Exp-7 To determine resistance per cm of a given wire by plotting a graph of potential difference versus current.
Exp-8 To draw the I-V characteristic curve of a p-n junction in forward bias and reverse bias.
Exp-9 To study the characteristics of a common - emitter NPN transistor and to find out the values of current and voltage gains.
Exp-10 To find the relationship between potential difference across a capacitor and time during its charging and discharging.





SCOPE OF SUPPLY:

Item Name	Qty.
Circuit Board	1
Go! Link	2
Logger lite software	1
Vernier voltage sensor	1
Vernier current sensor	1
Flexible lead (100 cm)	8 Set
Diode Module (1 N4007)	1
Zener Diode Module 3.9V, 5.1V	2
LED Module	1
Half wave rectifier module	1
Full wave rectifier module	1
Resistance Module, 10 Ω, 10W	1
Resistance Module, 100 Ω	1
Resistance Module, 1 k Ω	1
Resistance Module, 10 k Ω	1
Signal generator	1
Power Supply 5V, 0-16V	1
Capacitor 10uF	1
Switch	2
Resistance 47 k Ω	1
Incandescent Lamp Module	1
NPN Transistor module	1
Resistance Board	1

Note : Computer will not be provided with SA011 & SA031 kit.

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BASIC ELECTRONICS KIT SK094/SK095/SK096

Experiments:

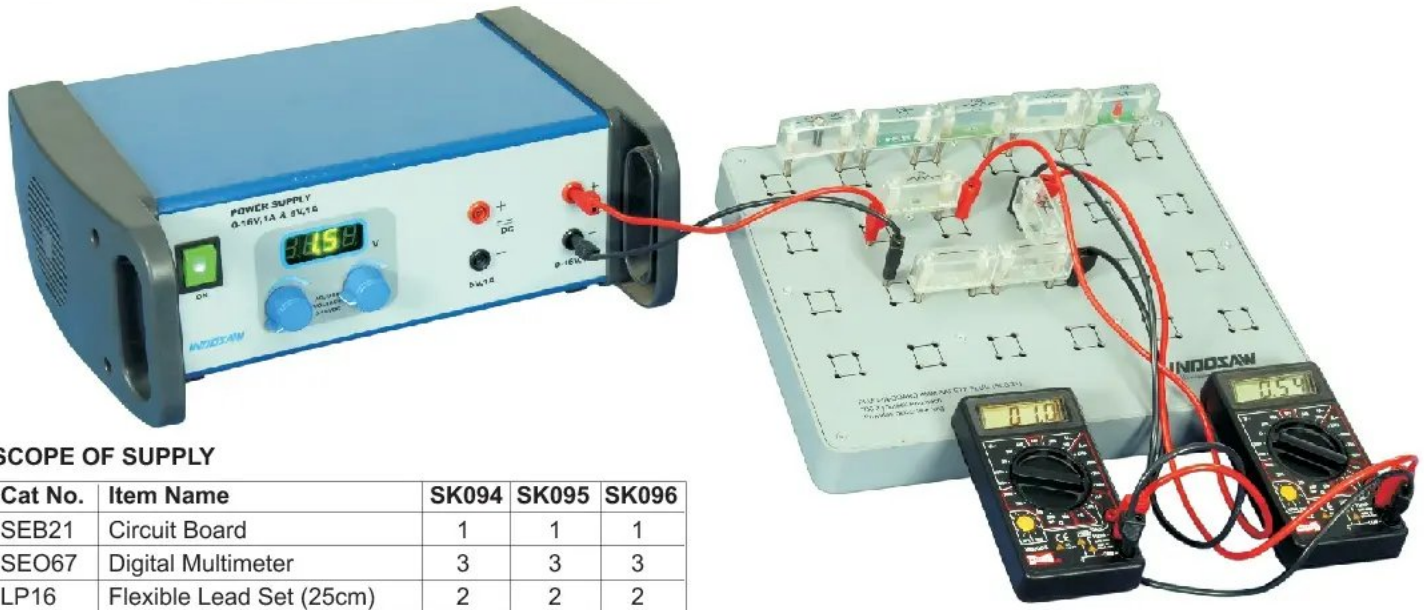
Exp-1 To Study Ohm's Law.
Exp-2 To Study Kirchoff's Law.
Exp-3 To Study Series & Parallel Effect of Resistance.
Exp-4 To Study Resistance as a Voltage Divider.
Exp-5 To Study LDR Characteristics.
Exp-6 To Study Thermistor Characteristics.
Exp-7 To Study PN Junction Diode Characteristics.
Exp-8 To Study LED Characteristics.
Exp-9 To Study Zener Characteristics.
Exp-10 To Study Transistor Input/Output Characteristics.
Exp-11 To Study the RC circuit.
Exp-12 To Study the charging and discharging of a capacitor.

Physics Practical Class XII.

Special Features

- Student uses **Plug- in Modules** himself for preparation of circuit.
- This 'Do It Yourself Approach' provides better learning.
- Very convenient & **easy to use 4mm sockets** provided to Plug the modules in circuit board for preparation of circuits.
- **Economical & Flexible method** of performing all experiment on one circuit board in case you buy a complete set.

Cat No. SK094 : For Exp-1 to Exp-12.
Cat No. SK095 : For Exp-1 to Exp-10.
Cat No. SK096 : For Exp-1 to Exp-9.



SCOPE OF SUPPLY

Cat No.	Item Name	SK094	SK095	SK096
SEB21	Circuit Board	1	1	1
SEO67	Digital Multimeter	3	3	3
LP16	Flexible Lead Set (25cm)	2	2	2
LP17	Flexible Lead Set (50cm)	6	6	6
LP18	Flexible lead Set (100cm)	2	2	2
SEB46	Resistor Module 330Ω	1	1	1
SEB46	Resistor Module 1kΩ	1	1	1
SEB47	Resistor Module 3.3kΩ	1	1	1
SEB76	Resistor Module 4.7kΩ	1	1	1
SEB44	Resistor Module 10kΩ	1	1	1
SEB40	Resistor Module 100kΩ	1	1	1
SEC10	Resistor Module 1kΩ, 1W	1	1	1
SEB15	Capacitor Module 0.1µF	1		
SEB14	Capacitor Module 0.01µF	1		
SEB84	Transistor Module	1	1	
R5740	LAMP Source	1	1	1
CB538	Thermistor Module	1	1	1
CB539	LDR Module	1	1	1
SEB30	LED Module	1	1	1
SEB13	Zener Module	1	1	1
SW926	Variable Power Supply	2	2	1
SW925	Signal Generator	1		
	Instruction manual	1	1	1

WHY INDOSAW ELECTRONIC PLUG IN KIT?

- **Components Are Easily Visible**

Transparent and Protected Plug in Modules



Symbols and Name Printed for Easy Identification



Note: CRO required for Exp-11 & Exp-12 is not in the scope of supply.

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MECHANICS & LIGHT EXPERIMENTS KIT SV235/SV235A

Experiments:

Exp -1 Graph Matching.
Exp -2 Back & Forth Motion.
Exp -3 Cart on a ramp.
Exp -4 Determining g on an incline.
Exp -5 Picket Fence Free fall.
Exp -6 Ball Toss.
Exp -7 Bunjee Jump Accelerations.
Exp -8 Projectile Motion.
Exp -9 Newton's Second Law.
Exp-10 Static & Kinetic Friction.
Exp -11 Air Resistance.
Exp -12 Pendulum Periods.
Exp-13 Simple Harmonic Motion.
Exp -14 Energy Of A Tossed Ball.
Exp -15 Momentum , Energy & Collisions.
Exp -16 Impulse & Momentum.
Exp-17 Centripetal Accelerations On A Turn table.
Exp -18 Acceleration In Real World.
Exp -19 Polarization OF Lights.
Exp -20 Light , Brightness & Distance.
Exp -21 Newton's Law Of Cooling.

Physics Class XI, Part-1, Chapter- 4, 5 & 6.
Physics Class XI, Part-2, Chapter-11, 14.
Physics Class XII, Practical Physics. (Exp-9)

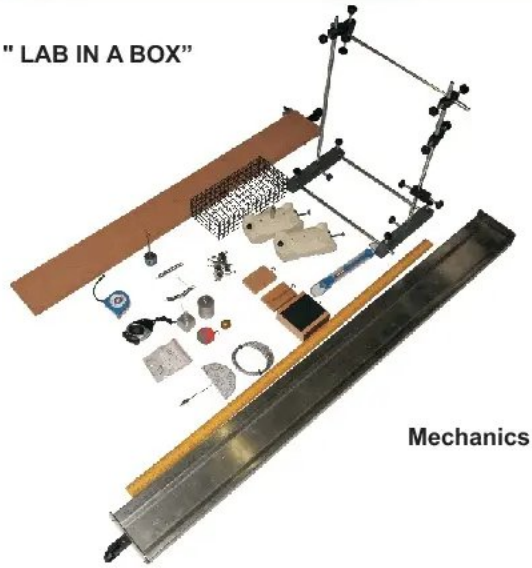
Special features:

- All experiments carried with Data Logger & Sensors.
- Computer connectivity & analysis of data accurately.
- All accessories have been krafted precisely to enhance accuracy of experiment conduction..
- Multiple use of components

In this Kit we can directly find out the results on the computer by using Vernier Logger Pro 3 software and Vernier Labquest interface with appropriate sensor. It gives an opportunity to students to deal with the advanced technology. Use Labquest as a stand-alone device or as a computer interface

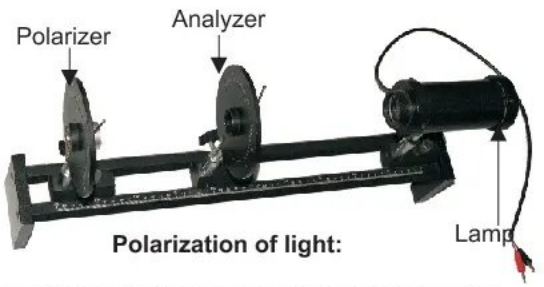


" LAB IN A BOX"



Mechanics kit





Polarization of light:

Note: Computer is not supplied with this setup.

SCOPE OF SUPPLY:

		SV235	SC235A
Cat No.	**ITEM**	**Qty.**	**Qty.**
C7082	Base Support	2	2
C7083	Rod 35cm	2	2
C8003	Rod With Hole 40 cm	1	1
CB208	Boss Head	4	4
C7085	Rod 50 cm	2	2
C7084	Rod 25cm	1	1
C7091	Archimedes bucket & cylinder	1	1
SW488	Brass Pendulum Bob With Hook	1	1
SG207	Weight Box	1	1
CB559,60	Slotted Mass 10g	1	1
R8333,34	Spring (1N & 2.5 N)	2	2
R8331,32	Dynamo-meter (3N) , 1.5N	1	1
SH296	Dynamic Trolley	2	2
SH296	Track For Dynamic Trolley(With Pulley)	1	1
SP254	Helix Slinky	1	1
L8579	Wire Basket	1	1
SH141	Friction Blocks(With Hook) & Wooden Board	3	3
SP816	Digital Watch	1	1
R8330	Meter Tape	1	1
R8340	A Thread 10 m	1	1
C7305	Picket Fence	1	1
CD512	Bungee Jumper	1	1
CD513	Bungee Cord	1	1
SP135	Meter Stick	1	1
SA687	Magnetic Compass	1	1
SL801	Polarizing Filters	2	2
SH332	Projectile launcher	1	1
SL214	Optical Bench	1	1
LABQ2	Lab Quest 2	1	
LP	Logger Pro 3 Software	1	
MOT-BTA	Motion Detector Sensor	2	
VPG-BTD	Photogate Sensor	2	
LGA-BTA	Accelerometer Sensor	1	
DFS-BTA	Force Sensor	1	
LS-BTA	Light Sensor	1	
TMP-BTA	Temperature Sensor	1	
	Instruction manual	1	1

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CBSE CHEMISTRY EXPERIMENT KIT - SA029A

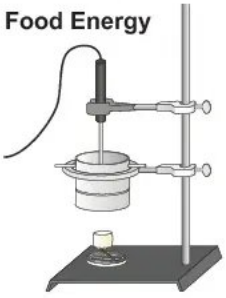
Exp-1 Determination of pH of some solutions obtained from fruit juices, solution of known and varied concentrations of acids, bases and salts using pH paper or pH sensor.
Exp-2 Comparing the pH of solutions of strong and weak acids of same concentration.
Exp-3 Study the pH change in the titration of a strong base.
Exp-4 Study the pH change by common-ion in case of weak acids and weak bases.
Exp-5 Determination of strength of a given solution of hydrochloric acid by titrating it against standard sodium carbonate solution.
Exp-6 Determination of strength of a given solution of sodium hydroxide by titrating it against standard solution of oxalic acid.
Exp-7 Effect of concentration and temperature on the rate of reaction between sodium thiosulphate and hydrochloric acid.
Exp-8 Variation of cell potential in $Zn/Zn^{2+}||\ Cu^{2+}/Cu$ with change in concentration of electrolytes ($CuSO_4$ or $ZnSO_4$) at room temperature.
Exp-9 To determine the melting point of ice and the boiling point of water.
Exp-10 To find the pH of the following samples by using pH paper/ pH sensor.- Dilute Hydrochloric acid, Dilute NaOH solution, Dilute ethanoic acid solution, Lemon juice, Water, Dilute sodium bicarbonate solution.
Exp-11 To find out the molarity of mohr's salt.



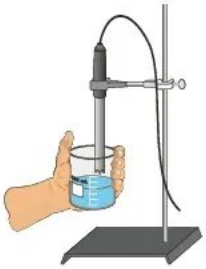




Food Energy



pH MEASURMENT





Note: No chemicals are supplied with this kit. You have to buy your-self.

SCOPE OF SUPPLY:

Item Name	Qty.
LabQuest 2	1
Logger Pro3	1
Temperature sensor	2
pH sensor	1
Drop counter	1
Gas pressure sensor	1
Conductivity Probe	1
Voltage Probe	1
Glass & Plastic accessories kit	1
Clamp & Ring Stand	1
Calorimeter	1
Food holder	1
Spatula	1
Alcohol Burner & Candle	1
3"x5" index Card	1
Thermometer	1
Test Tube Rack	1
18x150 mm test tube	4
Test Tube Clamp	1
Rubber stopper assembly	1
Syringe 20 ml	1
Hot plate	1
Ring with clamp	1
Plastic Tubing with two connectors	1
Two 125 ml Erlenmeyer flasks	1
Glove	1
Wash bottle	1
Magnetic stirrer	1
Stand with base	1
Bosshead double	2
50 ml burette	1
Test tubes	7
Test tube rack	1
Red and blue litmus paper	1
Stirring rod	1
250 ml Beaker	1
Phenolphthalin indicator	1
HCL solution	1
60 ml Reagent Reservoir	1
5 ml Pipet	1
10 ml graduated cylinder	1

ADDITIONAL EXPERIMENTS:

Exp-1 Additivity of heats of reaction: Hess's law
Exp-2 Fractional Distillation.
Exp-3 Evaporation and intermolecular attraction
Exp-4 Endothermic and Exothermic Reaction
Exp-5 Using freezing-point depression to find molecular weight
Exp-6 Energy content of fuels
Exp-7 Energy content of food
Exp-8 To demonstrate the Freezing, melting and boiling point of water.
Exp-9 To demonstrate the Effect of Temperature on Solubility of a salt.
Exp-10 To demonstrate the Pressure temperature relationship in gases.
Exp-11 To demonstrate the Boyle's law.
Exp-12 To demonstrate the Vapor Pressure of Liquids.
Exp-13 Determination of pH Values.
Exp-14 To differentiate the Acidic and Basic solutions.
Exp-15 Titration curve of strong and weak Acids and Bases.
Exp-16 To determine the total concentration of Ca^{2+} and Mg^{2+} in water.

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EXPERIMNETS WITH COMPUTER

PHYSICS, CHEMISTRY AND BIOLOGY WITH COMPUTERS



LABQUEST 2

PHYSICS WITH VERNIER LAB BOOK

USING A MOTION DETECTOR
Graph Matching
Cart on a Ramp
Determining *g* on an Incline
Ball Toss
Air Resistance
Simple Harmonic Motion
Energy of a Tossed Ball
Energy in Simple Harmonic Motion
Momentum, Energy and Collisions
Impulse and Momentum
Back and Forth Motion

USING A FORCE SENSOR
Newton's Second Law
Newton's Third Law
Static and Kinetic Friction
Impulse and Momentum

USING A MICROPHONE
Sound Waves and Beats
Tones, Vowels and Telephones
Mathematics of Music
Speed of Sound

USING A VOLTAGE PROBE
Capacitors

USING PHOTOGATES
Picket Fence Free Fall
Projectile Motion
Atwood's Machine
Pendulum Periods

USING A TEMPERATURE PROBE
Newton's Law of Cooling

USING AN ACCELEROMETER
Bungee Jump Accelerations
Centripetal Accelerations on a Turntable
Accelerations in the Real World
Newton's Second Law

USING CURRENT & VOLTAGE PROBES
Ohm's Law
Series and Parallel Circuits
Electrical Energy

USING A MAGNETIC FIELD SENSOR
The Magnetic Field in a Coil
The Magnetic Field in a Slinky
The Magnetic Field of a Permanent Magnet

USING A LIGHT SENSOR
Polarization of Light
How Light Intensity Varies with Distance

PHYSICS LABQUEST PACKAGES

LabQuest Interface & Sensors Package LQ-PHY-ST LQ-PHY-DX	CODE	Starter Package	Deluxe
Vernier LabQuest Interface	LABQ 2	✔	✔
Motion Detector	MD-BTD	✔	✔
Dual-Range Force Sensor	DFS-BTA	✔	✔
Microphone	MCA-BTA	✔	✔
Differential Voltage Probe	DVP-BTA	✔	✔
Low-g Accelerometer	LGA-BTA		✔
Light Sensor	LS-BTA		✔
(2) Vernier Photogates	VPG-BTD		✔
Ultra Pulley Attachment	SPA		✔
Picket Fence	PF		✔
Stainless Steel Temperature Probes	TMP-BTA		✔
Magnetic Field Sensor	MG-BTA		✔

CHEMISTRY LABQUEST PACKAGES

LabQuest Interface & Sensors	CODE	Starter Package LQ-CH-ST	Deluxe Package LQ-CH-DX
Vernier LabQuest Interface	LABQ 2	✔	✔
(2) Stainless Steel Temperature Probes	TMP-BTA	✔	✔
pH Sensor	PH-BTA	✔	✔
Gas Pressure Sensor	GPS-BTA	✔	✔
Voltage Probe	VP-BTA	✔	✔
Conductivity Probe	CON-BTA		✔
Colorimeter	COL-BTA		✔
Drop Counter	VDC-BTD		✔

BIOLOGY LABQUEST PACKAGES

LabQuest Interface & Sensors	CODE	Starter Package LQ-BIO-ST	Deluxe Package LQ-BIO-DX
Vernier LabQuest Interface	LABQ 2	✔	✔
Stainless Steel Temperature Probe	TMP-BTA	✔	✔
Hand-Grip Heart Rate Monitor	HGH-BTA	✔	✔
Gas Pressure Sensor	GPS-BTA	✔	✔
CO2 Gas Sensor	CO2-BTA	✔	✔
O2 Gas Sensor	O2-BTA		✔
BioChamber 250	BC-250		✔
Conductivity Probe	CON-BTA		✔
pH Sensor	PH-BTA		✔
Colorimeter	COL-BTA		✔
Dissolved Oxygen Probe	DO-BTA		✔
EKG Sensor	EKG-BTA		✔
Respiration Monitor Belt	RMB		✔

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PHYSICS, CHEMISTRY AND BIOLOGY WITH COMPUTERS



CHEMISTRY WITH VERNIER LAB BOOK

USING TEMPERATURE PROBES
Endothermic and Exothermic Reactions
Freezing and Melting of Water
Another Look at Freezing Temperature
Heat of Fusion of Ice
Pressure-Temperature Relationships
Fractional Distillation
Evaporation and Intermolecular Attractions
Vapor Pressure of Liquids
Effect of Temperature on Solubility
Finding Molecular Weight
Energy Content of Foods
Energy Content of Fuels
Hess's Law
Heat of Combustion: Magnesium

USING A pH SENSOR
Household Acids and Bases
Acid Rain
Titration Curves of Acids and Bases
Acid-Base Titration
Titration of a Diprotic Acid
Acid Dissociation Constant, *Ka*
Time-Released Vitamin C Tablet
The Buffer in Lemonade
Phosphoric Acid Content in Soft Drinks
Microscale Acid-Base Titration

USING A VOLTAGE PROBE
Micro-Voltaic Cells
Lead Storage Batteries

USING A GAS PRESSURE SENSOR
Boyle's Law: Gas Pressure and Volume
Pressure-Temperature Relationship
Vapor Pressure of Liquids

USING A COLORIMETER
Beer's Law
Finding an Equilibrium Constant, *Kc*
Rate Law Determination of the Crystal Violet Reaction
Chlorine Content of Swimming Pool Water
Quantity of Iron in a Vitamin Tablet

USING A CONDUCTIVITY PROBE
Electrolytes and Non-Electrolytes
The Effect of Concentration
Using Conductivity to Find an Equivalence Point

USING A DROP COUNTER
Acid-Base Titration
Titration of a Diprotic Acid
Using Conductivity to Find an Equivalence Point

USING NO SENSOR
Find the Relationship: An Exercise in Graphical Analysis

PHYSICS LABQUEST MINI PACKAGES

LabQuest Mini Interface & Sensors	CODE	Starter Package LM-PHY-ST	Deluxe Package LM-PHY-DX
Vernier LabQuest Mini Interface	LQ-MINI	✔	✔
Motion Detector	MD-BTD	✔	✔
Dual-Range Force Sensor	DFS-BTA	✔	✔
Microphone	MCA-BTA	✔	✔
Differential Voltage Probe	DVP-BTA	✔	✔
Low-g Accelerometer	LGA-BTA		✔
Light Sensor	LS-BTA		✔
(2) Vernier Photogates	VPG-BTD		✔
Ultra Pulley Attachment	SPA		✔
Picket Fence	PF		✔
Stainless Steel Temperature Probes	TMP-BTA		✔
Magnetic Field Sensor	MG-BTA		✔
(2) Current Probes	DCP-BTA		✔

CHEMISTRY LABQUEST MINI PACKAGES

LabQuest Mini Interface & Sensors	CODE	Starter Package LM-CH-ST	Deluxe Package LM-CH-DX
Vernier LabQuest Mini Interface	LQ-MINI	✔	✔
(2) Stainless Steel Temperature Probes	TMP-BTA	✔	✔
pH Sensor	PH-BTA	✔	✔
Gas Pressure Sensor	GPS-BTA	✔	✔
Voltage Probe	VP-BTA	✔	✔
Conductivity Probe	CON-BTA		✔
Colorimeter	COL-BTA		✔
Drop Counter	VDC-BTD		✔

BIOLOGY LABQUEST MINI PACKAGES

LabQuest Mini Interface & Sensors	CODE	Starter Package LM-BIO-ST	Deluxe Package LM-BIO-DX
Vernier LabQuest Mini Interface	LQ-MINI	✔	✔
Stainless Steel Temperature Probe	TMP-BTA	✔	✔
Hand-Grip Heart Rate Monitor	HGH-BTA	✔	✔
Gas Pressure Sensor	GPS-BTA	✔	✔
CO2 Gas Sensor	CO2-BTA	✔	✔
O2 Gas Sensor	O2-BTA		✔
BioChamber 250	BC-250		✔
Conductivity Probe	CON-BTA		✔
pH Sensor	PH-BTA		✔
Colorimeter	COL-BTA		✔
Dissolved Oxygen Probe	DO-BTA		✔
EKG Sensor	EKG-BTA		✔
Respiration Monitor Belt	RMB		✔

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CBSE BIOLOGY EXPERIMENT KIT - SA030A

Exp-1 Osmosis by measuring the rate of pressure change as water moves in or out of potato wells filled with various concentrations of sugar solutions.
Exp-2 Comparative study of the rates of transpiration in the upper and lower surface of leaves.
Exp-3 To study the rate of respiration in flower buds/leaf tissue and germinating seeds.
Exp-4 Collect and study soil from at least two different sites and study these for texture, moisture content, pH and water holding capacity of soil. Correlate with the kinds of plants found in them.
Exp-5 Collect water from two different water bodies around you and study the samples for pH, clarity and presence of any living organisms.
Exp-6 To study the effect of the different temperatures and three different pH on the activity of salivary amylase on starch.
Exp-7 To show experimentally that light is necessary for photosynthesis

SCOPE OF SUPPLY:

Item Name	Qty.
LabQuest 2	1
Logger Pro3	1
O_2 sensor	1
CO_2 sensor	1
pH sensor	1
Temperature Probe	1
Gas Pressure sensor	1
Clamp and Ring stand	1
Aluminium foil	1
Ring Lamp	1
String	1
1L & 600 mL Beaker	1
4 nos of 10x100 mm test tube with rack	1
Thermometer	1
Pipette 5 ml	1
Meter stick	1
One hole Rubber stopper assembly	1
Pencil	1
100 ml Beaker	1
10 ml pipette	1

ADDITIONAL EXPERIMENT:

Exp-1 To show experimentally that carbon dioxide is given out during respiration
Exp-2 Cell respiration in germinating seeds.
Exp-3 To determine the effect of light, intensity, humidity, wind & temperature on the rate of transpiration of a plant cutting.
Exp-4 To use an O_2 gas sensor to measure the amount of Oxygen gas consumed or produced by a plant during respiration and photosynthesis.
Exp-5 Photosynthesis and respiration using Co_2 sensor.
Exp-6 To determine the rate of sugar fermentation in yeast.
Exp-7 Biodiversity affects an environment temperature.
Exp-8 Acid Rain
a) To study the effect of dissolved Co_2 on the pH of distilled water.
b)To study the effect on pH of dissolving $H_2 SO_4$ in various waters.

Note : Computer will not be provided with SA030 kit.



PHOTOSYNTHESIS OSMOSIS TRANSPIRATION

BIOLOGY WITH VERNIER LAB BOOK

USING TEMPERATURE PROBES
Biodiversity and Ecosystems, Energy in Food, Aerobic Respiration, Dissolved Oxygen in Water, Watershed Testing, Physical Profile of a Lake
USING A GAS PRESSURE SENSOR
Testing Catalase Activity, Transpiration, Cell Respiration, Sugar Fermentation, Effect of Temperature on Fermentation, Osmosis, Lactase Action, Control of Human Respiration
USING AN EKG SENSOR
Monitoring EKG
USING A HEART RATE MONITOR
Heart Rate and Physical Fitness, Ventilation and Heart Rate
USING A CO_2 GAS SENSOR
Cell Respiration, Respiration of Sugars by Yeast, Effect of Temperature on Respiration, Temperature of Cold-Blooded Organisms, Lactase Action Photosynthesis and Respiration
USING A COLORIMETER
Photosynthesis, Alcohol & Biological Membranes, Biological Membranes, Population Dynamics
USING A RESPIRATION MONITOR BELT
Control of Human Respiration
USING AN O_2 GAS SENSOR
Photosynthesis and Respiration, Enzyme Action, Cell Respiration, Oxygen Gas and Human Respiration, Cold-Blooded Organisms
USING A CONDUCTIVITY PROBE
Limitations on Cell Size, Diffusion through Membranes, Conducting Solutions, Watershed Testing, Physical Profile of a Lake
USING A DISSOLVED OXYGEN PROBE
Interdependence of Plants and Animals, Aerobic Respiration, Dissolved Oxygen in Water, Watershed Testing, Physical Profile of a Lake, Primary Productivity
USING A pH SENSOR
Acids and Bases, Interdependence of Plants and Animals, Acid Rain Watershed Testing, Physical Profile of a Lake

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FACTORY TOUR



Entrance



Design & Development



Incoming Quality Control



CNC Machining Centre



CNC Turning Centre



Inprocess Quality Control



Paint Shop - Powder Coating



Electronic Assembly



Mechanical Assembly



Finish Goods Quality Control



Packing



Shipment Ready for Dispatch

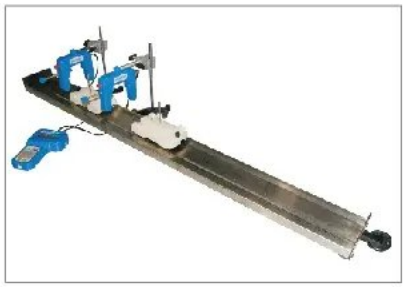
We would welcome suggestions from teachers to improve or add experiments.

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Visit us : www.indosawedu.com

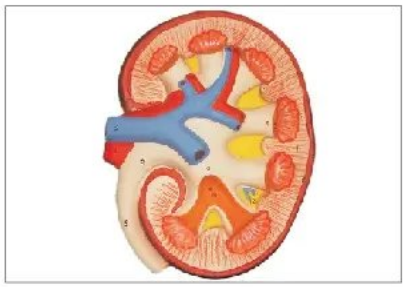


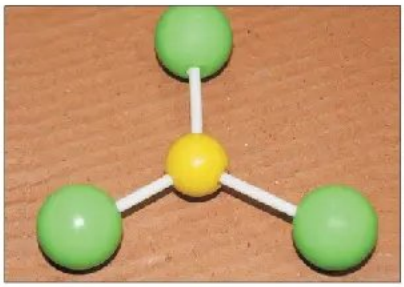












PHYSICS | CHEMISTRY | BIOLOGY

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