

Standard List of Science Laboratory Equipment, Glassware & Chemicals for Middle Secondary School

Equipments

Subject: Biology

Sl. #	Items	Qty.
1	Cork (5 -16 size, wooden)	5 dz.
2	Cotton absorbent (100gm)	6 pkts.
3	Dropper (assorted)	20 nos.
4	Dissecting sets	20 nos.
5	Forcep:	
	– blunt end stainless steel	40 nos.
	– pointed end stainless steel	40 nos.
6	Hand lens (bifocal)	24 nos.
7	Microscope (compound - Olympus, 10x & 15x -eye pc, objt. To total magification 10x - 675x in cabinet with lock & key, lens diaphragm, dust cover and duster)	10 nos.
8	Mounting needle	5 pkts.
9	Mortar and pestle (porcelain,4")	4 nos.
10	Plant herbarium press (wooden)	1 nos.
11	Plasticine	5 pkts
12	Retort Stand with clamp and boss head, complete with retort ring.	20 nos.
13	Rubber tubing (8mm)	20m
14	Soil testing kit	2 nos.
15	Spatula (metal, stainless steel)	10 nos.
16	Spirit lamps (brass)	20 nos.
17	Stop clocks (metal body without 0 error)	8 nos.
18	Test tube brush (small)	40 nos.
19	Test tube holder (brass)	40 nos.
20	Test tube racks (wooden with 6 pegs and holes)	20 nos.
21	Thermometer (lab,-10 C-110 C with LC 0.5 C)	20 nos.
22	Tongs	20 nos.
23	Tripod stand, superior/heavy 8" height, Iron black colour painted.	20 nos.
24	Thermoflask 1 lit.	6 nos.
25	Water bath (copper. non electric 6")	2 no.
26	Wire gauge, with asbestos centre 6" x 6"	20 nos.
27	Permanent slides:	
	– Amoeba	1 nos.
	– Dicot leaf	1 no.
	– Dicot root	1 no.
	– Dicot stem	1 no.
	– Euglena	1 no.

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	– Human bone cell	1 no.
	– Human blood cell	1 no.
	– Human muscle cell	1 no.
	– Human nerve cell	1 no.
	– Monocot leaf	1 no.
	– Monocot root	1 no.
	– Monocot stem	1 no.
	– Paramecium	1 no.
	– Plasmodium	1 no.
28	Preserved specimen:	
	– Coral	1 no.
	– Crab	1 no.
	– Flatworm	1 no.
	– Flying fish	1 no.
	– Frog	1 no.
	– Garden lizard	1 no.
	– Gold fish	1 no.
	– Hookworm	1 no.
	– Horse tail	1 no.
	– Hydra	1 no.
	– Hydrilla	1 no.
	– Leech	1 no.
	– Marchantia	1 no.
	– Millipede	1 no.
	– Obelia	1 no.
	– Octopus	1 no.
	– Pearl oyster	1 no.
	– Pinworm	1 no.
	– Planeria	1 no.
	– Sea anemone	1 no.
	– Sea cucumber	1 no.
	– Sea horse	1 no.
	– Sea lily	1 no.
	– Sea urchin	1 no.
	– Sea weed	1 no.
	– Scorpion	1 no.
	– Snail	1 no.
	– Star fish	1 no.
	– Sting ray	1 no.
	– Sycone	1 no.
	– Tapeworm	1 no.

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28	Charts:	
	*Human systems:	
	– Circulatory	1 no.
	– Digestive	1 no.
	– Endocrine	1 no.
	– Excretory	1 no.
	– Muscular	1 no.
	– Nervous	1 no.
	– Reproductive - male and female	1 no. each
	– Respiratory	1 no.
	– Skin	1 no.
	– Skeletal	1 no.
	– Fertilization	1 no.
	*Anatomy of leaf and fruits	1 no.
	*Animal cell	1 no.
	*Different seeds	1 no.
	*Digestive systems of:	
	– Cockroach	1 no.
	– Earthworm	1 no.
	– Frog	1 no.
	– Rabbit	1 no.
	*Plant cell	1 no.
	*Germination of seeds	1 no
	*Fruits	1 no
	*Stem, root and leaf modification	1 each
	*Life cycle of plants	
	*Mitosis and meiosis	1 each
	*Respiratory systems of:	
	– Cockroach	1 no.
	– Frog	1 no.
	– Rabbit	1 no.
29	Models:	
	– Mitosis & Meiosis	1 each
	– Brain	1 no.
	– Ear	1 no.
	– Eye	1 no.
	– Skull	1 no.
	– Fish (internal organs)	1 no.
30	Sealing wax	1 pkt
31	Skeleton	1 no.
32	Wash bottle (white plastic 500 ml)	6 nos.

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Subject: Chemistry

Sl. #	Items	Qty.
1	Atomic model (stick & ball model)	2 nos.
2	Bee hive shelf	8 nos.
3	Blow pipe (small, brass NP)	12 nos.
4	Burette brush	5 nos.
5	Chemical balance in double door, brass beam, S.S. pan with weight box	2 nos.
6	Clay triangle	40 nos.
7	Cork (assorted)	
	– Rubber	4 doz.
	– Wooden	4 doz.
8	Cork borer NP set of 6	2 sets
9	Copper wire DCC	10m
10	Crucible with lid (medium)	20 nos.
11	Deflagrating Spoon, with disc & G.I. Wire	12 nos.
12	Digital balance	1 nos.
13	Dropper (2ml, glass)	20 nos.
14	Electrode: Carbon	4 nos.
	Zinc	4 nos.
	Copper	4 nos.
	Platinum	4 nos.
15	File (triangular) 6"	6 nos.
16	Gloves (hand)	2 dz
17	Hoffman's voltmeter	2 nos.
18	LPG Gas plant complete set with 40 Bunsen burner made of seamless pipe (Tata) including installation, assembling, and testing at site including 2 LPG gas cylinder	1 set
19	Lactometer	2 nos.
20	Manual Centrifuge, hand operated for 4 -Tubes	1 set
21	Mortar and pestle (porcelain,4")	4 nos.
22	Periodic Table Chart, PCV Laminated- Modern	2 no.
23	Periodic Table Chart, PCV Laminated- Mendelef	2 no.
24	Porous pot (porcelain)	1 no.
25	Retort Stand with clamp and boss head, complete with retort ring.	20 nos.
26	Rubber tubes (8mmx3mm)	2 rolls
27	Sieve - Plastic	1 no.
	Steel	1 no.
28	Spatula (small) SS 4"	15 nos.
29	Spirit lamp (brass, medium)	20 nos.
30	Test tube brush (small)	20 nos.

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31	Test tube rack (wooden, 12 holes)	20 nos.
32	Tongs (brass, NP, 20cm)	20 nos.
33	Tripod stand, superior/heavy 8" height, Iron black colour painted.	20 nos.
34	Water bottle 500ml (wash bottle)	20 nos.
35	Wire gauge, with asbestos centre 6" x 6"	20 nos.

Subject: Physics

Sl. #	Items	Qty.
1	Acid battery hydrometer	2 nos.
2	Adaptor (0-12 V)	3 no.
3	Air Thermometer Constant Volume. With 3-way stop cock for filling the dry air and zero index fused in to the top of the mercury tube, fitted on wooden polished stand supporting the brass pot in which the bulb is immersed with leveling tube.	1 no.
4	Air Thermometer Constant Pressure. With 3-way stop cock for admitting or removing air & U tube of which one limb is 25ml. Graduated for measuring the expansion of air. The base is of woodne with mercury tray and removable shelf for supporting the brass pot with leveling tube.	1 no.
5	Ammeter 0 - 3A	1 doz.
6	Aneroid barometer	1 no.
7	Archemide's Balance in Glass Case	1 nos.
8	Battery charger	1 no.
9	Bar Magnet- 2", Alinco, with keepers (11 x 5 mm) Made of cobalt steel, in pairs, half red and half blue (for N & S) spray painted, very strong with keepers	12 nos.
10	Beam balance with a set of weights (wooden & glass case with 2 doors on sides)	2 nos.
11	Bimetallic strip	3 nos.
12	Block & tackle pulley	
	– 4 pulley	6 nos.
	– 6 pulley	6 nos.
13	Boyle's law apparatus	1 set
14	Brass terminal	2 pkts.
15	Bulb (3V)	12 nos.
16	Bulb holder (torch bulb holder)	2 doz.
17	Clamp Stand Complete, set 7" x 5" x 24". Provided with nicely painted with plastic feet for stability having leveling screw, chrome plated rod, die pressed clamp & aluminium cast and boss head.	10 sets
18	Charles law apparatus	1 no.

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19	Clinical thermometer	4 nos.
20	Colour filters (RGB)	3 each
21	Compass needle with stand	6 nos.
22	Copper Calorimeter with stirrer 3" x 4"	8 nos.
23	Copper Voltmeter with jar. It demonstrates the principle of electroplating. It consists of three copper plates suspended from a moulded Bakelite cover either in a glass jar or plastic jar. The two outer plates called "LOSS PLATES" are connected to one binding post on top and the inner "GAIN PLATE" is connected to the other binding post. All plates are firmly held in position when clamped and are easily inserted or removed, Chemicals are not included.	1 nos.
24	Crocodile clips	50 nos.
25	Danicell Cell Complete, Jointless. This cell is steady & reliable and may be used as open or close circuit works. It consists of zinc rod immersed in a very dilute solution of sulphuric acid in an empty porous pot which in turn is immersed in copper sulphate solution. This cell consists of copper sulphate solution. This cell consists of copper pot of approximate size 5 1/2" x 3 1/2" Chemicals are not included. (Only copper pot for daniel cell of size 5 1/2" x 3 1/2" empty porous pot and zinc rod is provided)	1 nos.
26	Drawing Board Softwood, 12" x 18", Superior Quality, Softwood	15 nos.
27	Deflection Magnetometer. 1 meter long plywood board sunmica pasted fitted with meter scale complete with Deflection Box.	5 nos.
28	Ebonite rod 12" long	6 nos.
29	Electrodes:	
	– copper	2 nos.
	– zinc	2 nos.
30	Electric Bell Demonstration Model	2 nos.
31	Electromagnet (U shaped)	6 nos.
32	Electric motor ((6v, DC)	2 nos.
33	Flannel cloth	2m
34	Flexible wire	20m
35	Fortin's Barometer in Glass Case without mercury	1 no.
36	Fuse wire:	
	– 5A	1 coil
	– 15A	1 coil
37	Glass slab 6"x4"	10 nos.
38	Gold leaf electroscope	1 no.
39	Hand lens	10 nos.
40	Hydrometer	3 nos.
41	Head pin	5 pkts

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42	Helical spring	8 nos
43	Hope's apparatus	1 no.
44	Horseshoe magnet with keepers, 2". Made of steel, (for N & S) spray painted, with keeper.	2 nos.
45	Hydraulic pump model	1 no.
46	Inclined Plain with Roller and Pan 60 x 7 1/2 cm, Aluminium Arc. For experiments on sliding friction. Comprises inclined wood plane, 600 x 75 x 20 mm with 22 mm diameter pulley, hinged to wood base, 450 x 75 x 20 mm. Linear scale fixed to base with clamp, shaped for use as index. With one each wood blocks, 200 x 75 mm and 100 x 75 mm, steel block 100 x 75 mm. scale pan 75 mm diameter, cord and hooks.	2 nos.
47	Induction Coil. The primaries are wound with thicker copper enamelled covered wire on letherite pipe in two layers. The secondary coils are divided into two parts and are given heavy insulation, each layer is wound in the cover into hot wax, so that each layer is sealed against moisture effect. The coil are housed in a teakwood base, voltage tested condensers are fitted inside the woodne polished base. Handles to get the spark are on it the make and break points are of silver. One point is adjustable to get any cycle. On off reversing switch commutator, working on 6-12 V d.c. spark in air.	6 nos.
48	Lab thermometer -10 to 110 degree celcius, 300 mm length	12 nos.
49	Lactometer, superior with jar	2 nos.
50	Lead acid accumulator (2V)	1 nos.
51	Lead shots	3 pkts.
52	Lachlanche cell in poly pot. Because of it's higher e.m.f. 1.5 v and lower eternal internal resistance this cell will deliver a stronger current for short period of time than the daniel cell. It consists of either galss or plastic container 95 x 95 x 150 mm length x width x height. The rim is shaped to accomodate the cathode, a zinc rod with terminal. (A carbon anode with terminal is sealed in a porous pot containing the depolarizer). We provide filled porous pot for anode. Requires approximately 500ml ammonium chloride electrolyte with zinc rod and filled porous pot but supplied without electrolyte.	1 nos.
53	Lens: Concave: 5 cm F	6 nos.
	10 cm F	6 nos.
	15 cm F	6 nos.
	20 cm F	6 nos.
54	Lens: Convex: 5 cm F	6 nos.
	10 cm F	1 doz.
	15 cm F	24 nos.
	20 cm F	24 nos.
55	Lens holder for optical bench	8 nos.

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56	Magnetic compass (1" diameter)	10 nos.
57	Meter scale : 100cm (stainless steel)	10 nos.
58	Meter scale: 50 cm (stainless steel)	10 nos.
59	Meter Bridge 4 gap, brass parts, Sunmica top. 4 gap, single wire, 1 meter long plywood base, Sunmica pasted with meter scale fitted, stout brass contact, strip with brass terminals, complete with pencil jockey.	3 nos.
60	Moving coil galvanometer in Bakelite case	15 nos.
61	Multimeter	1 no.
62	Newton Colour Disc, superior quality	2 nos.
63	Nichrome wire	2m
64	Optical Bench with accessories complete. Double rod, one meter long nicely chrome plated complete with metal for uprights 2 lens holders and 2 pins holders.	8 nos.
65	Optical pin (for light experiment - tall with coloured bead heads)	2 doz.
66	Overflow can (overflow can)	8 nos.
67	Pascal's syringe	2 nos.
68	Parabolic Mirror (Reflector) 20cm on stand	6 nos.
69	Pendulum bobs (brass, 1")	10 nos.
70	Pith Ball Pendulum on base (Electroscope)	4 nos.
71	Plane mirror with support	15 nos.
72	Pliers - heavy duty	3 nos.
73	Plug & key	15 nos.
74	Prism (50mm, glass, isosceles)	10 nos.
75	Ray Box, Complete	1 no.
76	Regnault's Apparatus, Regnault's Specific Heat Apparatus: It consists of a copper calorimeter placed inside a large copper vessel with felt between the two. Outside of the small vessel & inner side of the large vessel are polished to reduce loss of heat by radiation. The large vessel is surrounded by felt & placed in a wooden box which is attached to a double walled steam heater C.P. provided with sliding screen, water-cooled jacket below the steam heater to prevent radiation.	2 no.
77	Resistance wires:	
	Nichrome SWG24,26,28,30	1 coil
	Constantans SWG24,26,28,30	1 coil
	Manganin SWG24,26,28,30	1 coil
78	Rheostat: Brass rod, superior, 1 Amp. 6". 0 - 1000 ohms. Comprising a layer of resistance wire wound on an insulating heat resistance tube (Porcelain) which is supported by case metal feet. A sliding contact and three 4mm socket terminals are provided, one terminals being connected to the sliding contact and the other two to the ends of the winding, enabling the unit to be used as rheostat of potentiometer.	10 nos.

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79	Scale pan	2 nos.
80	Scratched glass screen with stand	1 doz.
81	Screw driver with tester with 6 pcs for different functions	1 set
82	Screw gauge (20mm)	10 nos.
83	Single movable pulley	12 nos.
84	Single way switch	12 nos.
85	Six's maximum and minimum thermometer	2 nos.
86	Spirit lamps (brass, medium)	1 doz.
87	Slotted weights with hanger:	
	– 20g	6 nos.
	– 50g	6 nos.
88	Socket cylinder	6 nos.
89	Soft iron bar	6 nos.
90	Soldering rod	1 no.
91	Soldering wire	4 pkts.
92	Sonometer, Teak Wood, Brass Fittings. Comparasing a hollow wooden box 1140 x 125 x 100 mm length x width x height with 2 metre, rules, 1 metre long divided in mm. Two wire of brass and steel attached to fixed bridge and tensioned by fine adjustment pegs, rwo movable bridges, pulleys and fixed screw to enable a third wire to be fixed for tensioning by masses. Complete with 2 bridges.	1 no.
93	Spherical mirror - concave	
	– F=10cm	10 nos.
	– F=15cm	10 nos.
	– F=20cm	10 nos.
94	Spherical mirror - convex	
	– F=10cm	10 nos.
	– F=15cm	10 nos.
	– F=20cm	10 nos.
95	Spirit level 6"	1 no.
96	Spring balances (N) steel body	
	– 0-100g, LC=1g	10 nos.
	– 0-200g, LC=2g	10 nos.
	– 0-500g, LC=5g	10 nos.
97	Steel bar	6 nos.
98	Stop clocks (metal body without 0 error)	15 nos.
99	Tap key (single)	15 nos.
100	Telescope (reflecting)	1 nos.
101	Three core flexible wire	2m
102	Tripod stand, superior/heavy 8" height, Iron black colour painted.	10 nos.
103	Tuning fork Ragg's type set of 8	2 sets

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104	Twine thread	3 balls
105	Two way switch	12 nos.
106	Vernier Calliper, Wheel Type C.P. Steel chrome plated, one side graduated in inches & other side in cms, with adjusting wheel & depth gauge, individually packed in cardbox box.	15 nos.
107	Voltmeter (LC=0.2)	
	– 0-3v	2 doz.
	– 0-6v	1 doz.
	– 0-12v	6 nos.
108	Wet and dry bulb thermometer	1 nos.
109	Anemometer	1 no.