

Republika ng Filipinas
(Republic of the Philippines)
KAGAWARAN NG EDUKASYON, KULTURA AT ISPORTS
(DEPARTMENT OF EDUCATION, CULTURE AND SPORTS)
Maynila

September 21, 1988

DECS O R D E R
No. 88, s. 1988

STANDARD SCIENCE, MATHEMATICS AND PRACTICAL
ARTS EQUIPMENT FOR SECONDARY SCHOOLS

To: Bureau Directors
Regional Directors
Presidents, State Colleges and Universities
Heads of Private Schools, Colleges and Universities
Vocational School Superintendents/Administrators

1. The Department of Education, Culture and Sports, cognizant of the need to set policies and standards for secondary schools with regard to high school equipment; and in order to meet the needs and standards of the 1989 Secondary Education Development Program (SEDP) has approved the inclosed policies and minimum equipment standards.
2. The list of standard high school equipment, hereto attached, has been finalized by the Bureau of Secondary Education (BSE) in consultation with the other institutions: UP-ISMED for Science and Technology, and Mathematics; and TUP for Technology and Home Economics. The final list was validated by a group of educators composed of CDD-BSE staff, consultants from UP-ISMED and subject specialists and officials from selected schools and division offices.
3. The aforementioned list is in accordance with an analysis of activities in the set of high school textbooks for Science and Technology, Mathematics, and Technology and Home Economics.
4. The equipment listed in the inclosure is supportive of the new secondary education curriculum. Prototypes of these equipment will be utilized during the mass training for teachers starting summer 1989.
5. These equipment for secondary schools may be fabricated, improvised or purchased. However, all purchases and fabrication as well as improvisation work must conform to the approved list of standard high school equipment.
6. Periodic monitoring of the proper utilization of these equipment, and school performance shall be conducted by the BSE.

7. On the provision of meeting the minimum equipment standards as prescribed in this Order, Regional Directors are enjoined to enforce the requirement on the basis of resource capabilities of the institution.

8. All public and private institutions authorized to offer the new curriculum shall be assisted in setting up their minimum requirement for laboratory facilities upon recommendation to the Bureau of Secondary Education by the Regional Offices.

9. It is desired that this Order be widely disseminated.

(SGD.) CLEDUALDO B. PEREZ
Undersecretary
Officer-in-Charge

Incl.:
As stated

Reference:

None

Allotment: 1-2-3--(M.O. 1-87)

To be indicated in the Perpetual Index
under the following subjects:

Course of Study, SECONDARY
EQUIPMENT
SCIENCE EDUCATION

(Inclosure to DECS Order No. 88, s. 1988)

LIST OF STANDARD EQUIPMENT & SUPPLIES
FOR SCIENCE & TECHNOLOGY I (General Science)
(FOR A CLASS OF 40 STUDENTS DIVIDED
INTO 8 GROUPS)

A. Equipment

No. Items	Quantity
1 Newton Scale	8 pcs.
2 Platform balance	8 pcs.
3 Standard sets of mass	4 pcs.
4 Graduated cylinder	8 (50ml)
	8 (100ml)
5 Hand lens	8 pcs.
6 Permanent magnet with demagnetizer & magnetizer	8 pcs.
7 Cubes of lead, aluminum and copper metals	(3 kinds 8 of diff. volumes)
8 Globe terrestrial	1 pc.
9 Thermometer (Mercurial - 10 °C - 110 °C)	8 pcs.
10 Relief Map of the Philippines	1 pc.
11 Philippine Mineral Map	1 pc.
12 Rock samples (from Bureau of Mines)	8 sets
13 Constellation Model with simulator	1 pc.
14 Solar/Lunar Eclipse Model	1 pc.
15 Aneroid barometer	1 pc.
16 Battery holder with selector	8 pcs.
17 Laboratory Apparatus repair kit	1 pc.
18 Stopwatch	1 pc.
19 Turbidity apparatus	1 pc.
20 Water Pollution Detection Kit	1 pc.
21 Heat conductivity apparatus	1 pc.
22 Heat transfer apparatus, convection	1 pc.
23 Heat transfer apparatus, radiation	1 pc.
24 Magnetic board indicator	1 pc.
25 Magnetic compass	8 pcs.
26 Molecular Model	1 pc.
27 Pulley	8 pcs.
28 Rain gauge	8 pcs.
29 Simplified seismograph	1 pc.
30 Alcohol burner	8 pcs.
31 Beaker	8 (250ml)
32 Tripod	8 pcs.
33 Glass funnel	8 (3"dia)
34 Glass jar	5 pcs.
35 Medicine dropper	8 pcs.
36 Meter Stick	16 pcs.
37 Set of single position support base with rod	8 pcs.
38 Soil sieve	1 pc.
39 Incline Plane	8 pcs.
40 Aquarium model	1 pc.

B. Consumables

1 Litmus paper	2 boxes (red & blue)
2 Sulfur powder	0.25 kg

LIST OF STANDARD EQUIPMENT AND SUPPLIES
FOR SCIENCE AND TECHNOLOGY II (BIOLOGY)
(FOR A CLASS OF 40 STUDENTS DIVIDED INTO 8 GROUPS)

Equipment		Quantity
No.	Items	
- A -		
1	Microscope (compound)	8 pcs.
2	Triple beam balance	1 pc.
3	Pocket magnifier	8 pcs.
4	Dissecting Set	8 pcs.
5	Circulatory system simulator	1 pc.
6	DNA model	1 pc.
7	Digestive system model	1 pc.
8	Detachable organ systems	1 pc.
9	Cover glass	2 boxes
10	Glass slides	2 boxes
11	Graduated cylinder 100ml	8 pcs.
12	Nervous system model	1 pc.
13	Skeletal system model	1 pc.
14	Muscular system model	1 pc.
15	Mercurial Thermometer (-10-150°C)	8 pcs.
16	Mitosis model	1 pc.
17	Cell model	1 pc.
18	Test Tubes (25ml)	24 pcs.
19	Hand lens	8 pcs.
20	Alcohol burner	8 pcs.
21	Erlenmayer flask (250ml)	8 pcs.
22	Evaporating dish	8 pcs.
23	Glass funnel (3" diameter)	8 pcs.
24	Meterstick	8 pcs.
25	Mortar and pestle	8 pcs.
26	Petri dish	8 pcs.
27	Test tube holder	8 pcs.
28	Sets of mass	1 set
- B -	Consummables	
1	Bromthymol Blue	0.5 L
2	Ethyl Alcohol	2.0 L
3	Filter Paper	2 boxes
4	Litmus Paper	2 boxes (red & blue)
5	Phenolphthalein	0.5 L
6	Benedict Solution	0.5 L
7	Copper Sulfate	0.5 kg
8	Carbon Tetrachloride	0.25 L
9	Nitric Acid	0.5 L
10	Phenol	0.5 L
11	Iodine Solution	0.5 L

LIST OF STANDARD EQUIPMENT & SUPPLIES
 FOR SCIENCE & TECHNOLOGY III (CHEMISTRY)
 (FOR A CLASS OF 40 STUDENTS DIVIDED INTO 8 GROUPS)

A. Equipment

No.	Item	Quantity
1	Beam balance	8 pcs.
2	Thermometer (Mercurial - 10° C - 110° C)	8 pcs.
3	Graduated cylinder	8 plastic 8 glass
4	Beaker	16 (250ml) 16 (500ml)
5	Test tube	8 doz (25ml)
6	Evaporating dish	8 (8cm)
7	Glass funnel	8 glass 8 plastic
8	Periodic table	1 pc.
9	Test tube holder	8 pcs.
10	Test tube rack	8 pcs.
11	Alcohol burner	8 pcs.
12	Erlenmeyer flask	16 pcs.
13	Iron stand with base	8 pcs.
14	Iron ring	8 pcs.
15	Electrolysis apparatus	8 pcs.
16	Conductivity Apparatus	8 pcs.
17	Calorimeter	8 pcs.
18	Wire gauze	8 pcs.
19	Glass rod	8 pcs.
20	Mortar & pestle	8 pcs.
21	Reagent bottle	10 pcs.
22	Cork stopper	40 (to fit 250ml flask)
23	Test tube brush	8 pcs.
24	pH meter	1 (per school)
25	Cork borer	1 (per school)
26	Molecular orbital model	8 pcs.
27	Molecular organic & inorganic models	8 pcs.

B. Consumables

1	Benzoic acid	0.25 kg
2	Naphthalene balls	0.25 kg
3	Iron filings	0.25 kg
4	Sulfur Powder	0.25 kg
5	Sodium hydroxide (pellets)	0.5 kg
6	Magnesium ribbon	2.0 m
7	Yeast	1 bottle
8	Calcium oxide	0.5 kg
9	Ethyl alcohol	0.5 L
10	Denatured alcohol	1.0 L
11	Copper dust	0.25 kg
12	Copper sulfate (crystals)	0.5 kg
13	Calcium carbide	0.5 kg
14	Lead nitrate (crystals)	0.25 kg
15	Potassium Iodide	0.25 kg
16	Ferric Chloride	0.25 kg
17	Potassium ferricyanide	0.25 kg
18	Potassium chromate	0.25 kg
19	Potassium dichromate	0.25 kg
20	Potassium bromide	0.25 kg

23	Sodium sulfate	0.25 kg
24	Carbon tetrachloride	0.25 kg
25	Ammonium hydroxide	0.5 L
26	Hydrochloric acid	0.5 L
27	Boric Acid (cystals)	0.25 kg
28	Zinc plate 4 cm x 2 cm	8 pcs.
29	Copper plate 4 cm x 2 cm	8 pcs.
30	Calcium chloride	0.25 kg
31	Ammonium chloride	0.5 kg
32	Zinc nitrate	0.25 kg
33	Sulfuric acid	0.5 L
34	Hydrogen Peroxide	0.5 L
35	Manganese dioxide	0.25 kg
36	Acetic Acid	0.5 L
37	Nitric Acid	0.25 L
38	Sodium Bicarbonate	0.25 kg
39	Filter paper	1 doz.
40	Litmus paper	red) blue) 1 box each
41	pH paper	1 box

LIST OF STANDARD EQUIPMENT & SUPPLIES
(FOR SCIENCE AND TECHNOLOGY IV (PHYSICS))
(FOR A CLASS OF 40 STUDENTS DIVIDED
INTO 8 GROUPS)

A. Equipment

No.	Items	Quantity
1	Multitester	8 pcs.
2	Ripple Tank apparatus	8 pcs.
3	Set of 10 connecting wires with alligator clips	8 pcs.
4	Set of resistors	8 pcs.
5	Set of capacitors & inductors	8 pcs.
6	Set of diodes and transistors	8 pcs.
7	Set of logic gates	8 pcs.
8	Convex and concave mirrors	8 each
9	Demonstration lens set	1 pc.
10	Newton scale	16 pcs.
11	Platform balance	8 pcs.
12	Thermometer (Mercurial - 10°C -110°C)	8 pcs.
13	Spiral Spring	8 pcs.
14	Standard sets of mass	5 sets
15	Meter stick	8 pcs.
16	Incline Plane	8 pcs.
17	Acceleration recording timer	8 pcs.
18	Electronic digital stopwatch	8 pcs.
19	Magnetic compass	8 pcs.
20	Dynamic cart	8 pcs.
21	Set of tuning fork	2 sets
22	Resonance Apparatus	2 pcs.
23	Electroscope	2 pcs.
24	Equilateral prism	8 pcs.
25	U-shape magnets	8 pcs.
26	Alcohol Lamp	8 pcs.
27	Manometer	2 pcs.
28	Demo Pendulum	2 pcs.
29	Graduated cylinder	8 (500ml)
30	Beaker	8 (1000ml)
31	Electric motor (to be assembled)	8 pcs.
32	Electric generator (to be assembled)	8 pcs.
33	Pulley	8 pcs.
34	Free fall apparatus	8 pcs.
35	Magnetic electric generator	8 pcs.
36	Photometer	1 pc.
37	Set of lenses	8 pcs.
38	Light source for reflection & refraction experiment	1 pc.
39	Transistor radio demo set	1 pc.
40	Switch	8 pcs.

B. Consumables

1	Nichrome wire	1 roll
2	Copper wire	1 roll
3	Lead pellets	0.5 kg
4	Iron filling	0.5 kg

LIST OF STANDARD EQUIPMENT
AND SUPPLIES FOR MATHEMATICS

ITEMS	QUANTITY
1. Chalkboard compass (Teacher)	4 pcs.
2. Protractor (Teacher)	4 pcs.
3. Straight rule	4 pcs.
4. Graphing board	2 pcs.
5. Compass (Student)	40 pcs.
6. Protractor (Student)	40 pcs.
7. Calculator (Scientific)	20 pcs.
8. Geoboard (Student)	20 pcs.
9. Triangle (Teacher)	4 pcs.
10. Stopwatch	4 pcs.
11. Solid geometrical bodies	1 set
12. Dissectable Dm Cube	10 pcs.
13. Litre Set	40 pcs.
14. Area and volume explanator model	1 set

LIST OF STANDARD EQUIPMENT AND SUPPLIES
FOR TECHNOLOGY AND HOME ECONOMICS

ITEMS		QUANTITY
Industrial Arts		
1	Stock and die (set)	20
2	Pipe Wrench (set)	20
3	Pipe vise	20 pcs.
4	Back saw	20 pcs.
5	Pliers	20 pcs.
6	Screw driver	20 pcs.
7	Utility tester	20 pcs.
8	Wire Striper	10 pcs.
9	Hand drill with bit	10 pcs.
10	Cold chisel (set)	20
11	Hammer (set)	20
12	Metal rule	10 pcs.
13	Tape rule	10 pcs.
14	Tin snip	10 pcs.
15	Ball pen hammer	10 pcs.
16	Soldering rod	10 pcs.
17	Electrowelding	2 pcs.
18	Machinist vise	10 pcs.
19	Metal cutting chisel	10 pcs.
20	Center Punch (set)	10
21	Wire grip plier	10 pcs.
22	Grinder	5 pcs.
23	Hand saw (set)	10
24	Jackplane	10 pcs.
25	Handbrace	5 pcs.
26	Zigzag rule	10 pcs.
27	Wood chisel (set)	20
28	C-Clamp	10 pcs.
29	Bar clamp	10 pcs.
30	Carpenter's square	10 pcs.
31	Tri-square	10 pcs.
32	Marking gauge	10 pcs.

Agriculture and Fishery Art.

I. Crop Production

1	Mattock Pick	40
2	Grub Hoe	40
3	Rake	20
4	Hand Trowel	40
5	Spading fork	25
6	Shovel	25
7	Spade V Shape	25
8	Bolo	20
9	Warren Hoe	20
10	Post Hole Digger	10

II. Plant Propagation and Nursery Work

1	Compressed Air Sprayer	5
2	Wheel Barrow	15
3	Budding Knife	40
4	Grafting Knife	40
5	Pruning Shears	10
6	Hedge Shear	10
7	Pruning Knife	5

III. Animal Production

1	Caponizing Set	15
2	Veterinary Syringe	10
3	Ear Notcher	10
4	Artificial insemination kit	5
5	Emasculator	10

IV. Fishery Art -

1	Net making apparatus	10
2	Net mesh gauge	10
3	Twine Cutter	10

Home Economics

1	Meat Grinder	2
2	Pressure cooker	2
3	Can sealer	2
4	Weighing scale	1
5	Blender/mixer	1
6	Sewing machine with motor	10
7	Electric Iron	2
8	Gas Stove	2
9	Refrigerator	1
10	Kitchen knife	8
11	Butcher knife	2
12	Set of frying pan	2
13	Set of Dinnerware	2
14	Set of silverware	2
15	Kettle	2
16	Sewing kit	2
17	Set of basic sewing tools	2
18	Pressing stand	2
19	Glassware set	2
20	Storage cabinet	2
21	Cutting devices (set)	10
22	Electric range	1
		2