



Republic of the Philippines
Department of Education
REGION VIII - EASTERN VISAYAS

October 14, 2024

REGIONAL MEMORANDUM

No. **1269** s. 2024

**DOWNLOADING OF FISCAL YEAR (FY) 2024 FUNDS TO THE SCHOOLS
DIVISION OFFICES (SDO) FOR THE PROCUREMENT OF LEARNING
TOOLS AND EQUIPMENT (LTE) FOR SCIENCE AND
MATHEMATICS**

To: Schools Division Superintendents
All Others Concerned

1. In line with the attached Memorandum DM-CT-2024-150 from the Office of the Undersecretary for Curriculum and Teaching titled "Downloading of FY 2024 Funds to the Regional Offices for the Procurement of LTE" and the Sub-Allotment Release Order OSEC-8-24-3280, this Office, through the Curriculum and Learning Management Division (CLMD) and Finance Division (FD), shall download the FY 2024 Fund to the Schools Division Offices for the Procurement of LTE for Science and Mathematics (LTE-SM), with the amount stipulated below.

Schools Division Office	Amount	Schools Division Office	Amount
Baybay City	85,608.52	Maasin City	70,983.39
Biliran	149,827.66	Northern Samar	731,629.08
Borongan City	51,879.52	Ormoc City	427,405.41
Calbayog City	458,318.69	Samar	697,490.87
Catbalogan City	158,665.38	Southern Leyte	318,671.86
Eastern Samar	541,190.66	Tacloban City	244,157.35
Leyte	1,403,527.58	TOTAL	5,339,355.97

2. The following documents could be accessed at <https://bit.ly/R8SME>: List of Eligible LTE-SM to be procured, Technical Specifications, Allocation List (List of Recipient Schools), and Inspection and Test Protocol per tools and equipment.

3. For more information, refer to the attachment or contact Joy B. Bihag, Education Program Supervisor, CLMD - Learning Resources Management Section, Ryan R. Tiu, EPS – Science, or Sarah S. Cabaluna, EPS – Mathematics, thru clmd.region8@deped.gov.ph.

4. Immediate dissemination of and compliance with this Memorandum are desired.


EVELYN R. FETALVERO, CESO III
Regional Director 

Enclosures: As stated

References: As stated

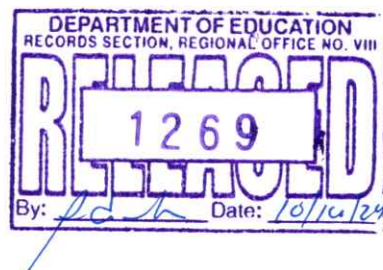
To be indicated in the Perpetual Index under the following subjects:

LEARNING TOOLS AND EQUIPMENT

MATHEMATICS

SCIENCE

CLMD-RRT





Republic of the Philippines
DEPARTMENT OF EDUCATION

Central Office

SUB-ALLOTMENT RELEASE ORDER

Fiscal Year 2024

PROGRAM/PROJECT/ACTIVITY NO./DESCRIPTION: PPA330 310200100003000 - Current Appropriations (LTE-SME) Learning Tools and Equipment		REFERENCE: FY 2024 GAAAO dated 01/02/2024	SUB-ALLOTMENT RELEASE ORDER NO. OSEC-8-24-3280
FUND CODE: 01101101		ORGANIZATION CODE: 070010100000	LEGAL BASIS: Republic Act No. 11975 - FY 2024 GAA
		DATE: 07-May-24	FISCAL YEAR: FY 2024
PURPOSE: <i>Transfer of funds to cover funding requirements for the Procurement of Science and Mathematics Equipment (SME) Packages to Public Elementary, Junior and Senior High Schools.</i>			
To: The Regional Director Regional Office - VIII Candahug, Palo, Leyte 070010300008			Region : 8
PARTICULARS		ALLOTMENT CLASS/ ACCOUNT CODE	AMOUNT AUTHORIZED
Technical and Scientific Equipment - Semi-Expendable Machinery and Equ		MOOE 5020321013	5,339,355.97
AMOUNT IN WORDS: *** Five Million Three Hundred Thirty Nine Thousand Three Hundred Fifty Five Pesos & 97/100 Only ***			Total: <u>5,339,355.97</u>
NOTE: The MOOE or CO allotment herein sub-allotted are valid for obligation until December 31, 2025.			

The above sub-allotments have been made available for expenditures of the Region/ Division/ School. It is your primary responsibility to keep expenditures within the limits of the amount sub-allotted. Pursuant to Section 41, Book VI of Executive Order No. 292, the incurrence of overdrafts is prohibited. Parties responsible for the incurrence of overdrafts shall be held personally liable therefor. It is understood that the allotments herein authorized shall be used solely for the purposes indicated and disbursements therefrom shall be made in accordance with existing budgeting, accounting and auditing rules and regulations.

CERTIFIED CORRECT:


CHOLITA V. TIONG
Chief Administrative Officer
Budget Division

APPROVED:


ANNALYN M. SEVILLA
Undersecretary for Finance




Republic of the Philippines

Department of Education

OFFICE OF THE UNDERSECRETARY FOR CURRICULUM AND TEACHING

MEMORANDUM
DM-CT-2024-150

TO : Undersecretaries
Assistant Secretaries
Bureau and Service Directors
Regional Directors
Schools Division Superintendents
Public Elementary and Secondary School Heads
All Others Concerned

FROM : 
GINA O. GONONG
Undersecretary for Curriculum and Teaching

SUBJECT : **DOWNLOADING OF FISCAL YEAR (FY) 2024 FUNDS TO THE REGIONAL OFFICES (ROs) FOR THE PROCUREMENT OF LEARNING TOOLS AND EQUIPMENT (LTE)**

DATE : **April 4, 2024**

Pursuant to DepEd Order No. 20, s. 2022, entitled "Multi-Year Guidelines on the Decentralization of the Procurement, Including the Quality Assurance, Delivery, Documentation, Storage, and Safekeeping of Learning Tools and Equipment for Science, Mathematics, and Technical Vocational Livelihood (LTE-SME and TVL) and the Downloading of the Funds Allotted Therefor", this Office reiterates the information stated therein that will serve as the basis for the downloading of the FY 2024 LTE funds.

The strategy of decentralizing the procurement to the ROs will expedite the provision of LTE especially for small-value or semi-expendable items that are impractical to procure via Central Office procurement. To underscore the requirements in the procurement of LTE utilizing the FY 2024 LTE funds in accordance with DepEd Order No. 20, s. 2022, Section V line-item no. 4, "Documents to be Provided by BLR-Cebu," the following are the documents:

Science and Mathematics Equipment (SME)

- 4.1. List of eligible LTE-SME to be procured in a particular fiscal year with the required quantity as **Annex "A"**
- 4.2. Technical Specifications of all Goods/items to be procured as **Annex "B"**
- 4.3. Allocation list (list of recipient schools) with complete address based on the date of the updated LIS and EBEIS as **Annex "C"**
- 4.4. Inspection and Test Protocol per tools and equipment as **Annex "D"**

Technical Vocational Livelihood (TVL)

- 4.5. List of eligible LTE-TVL to be procured in a particular fiscal year with the required quantity as **Annex "E"**
- 4.6. Technical Specifications of all Goods/items to be procured as **Annex "F"**
- 4.7. Allocation list (list of recipient schools) with complete address based on the date of the updated LIS and EBEIS as **Annex "G"**
- 4.8. Inspection and Test Protocol per tools and equipment as **Annex "H"**

For further queries and/or clarification, please contact the Bureau of Learning Resources Cebu (BLRC) Office through email at blr.ceb@deped.gov.ph or telephone numbers: (032) 230-7939 and (032) 230-7948.

Immediate dissemination of this memorandum is requested.

FY2024 LTE-SM Downloading Amount Allocation by Division

Division	Key Stage 1 (Grades 1 to 3)	Key Stage 2 (Grades 4 to 6)	Key Stage 3 (Junior High School)	Key Stage 4 (Senior High School - CORE Subjects)	Key Stage 4 (Senior High School - STEM Subjects)	TOTAL
Baybay City	30,250.87	18,150.52	37,207.12			85,608.52
Biliran	48,401.40	33,275.96	55,810.68		12,339.62	149,827.66
Borongan City	18,150.52	15,125.44	18,603.56			51,879.52
Calbayog City	111,928.23	84,702.45	204,639.18	57,048.84		458,318.69
Catbalogan City	33,275.96	27,225.79	74,414.25	11,409.77	12,339.62	158,665.38
Eastern Samar	133,103.84	127,053.67	186,035.61	45,639.07	49,358.47	541,190.66
Leyte	363,010.48	605,017.47	204,639.18	57,048.84	173,811.61	1,403,527.58
Maasin City	9,075.26	9,075.26	18,603.56	34,229.30		70,983.39
Northern Samar	169,404.89	202,680.85	334,864.10		24,679.23	731,629.08
Ormoc City	90,752.62	78,652.27	223,242.73	34,229.30	528.49	427,405.41
Samar (Western Samar)	99,827.88	363,010.48	223,242.74	11,409.77		697,490.87
Southern Leyte	63,526.83	96,802.80	37,207.12	34,229.30	86,905.81	318,671.86
Tacloban City	84,702.45	57,476.66	55,810.68	45,639.07	528.49	244,157.35
TOTAL	1,255,411.25	1,718,249.61	1,674,320.52	330,883.26	360,491.33	5,339,355.97

1,255,411.25

1,718,249.62

1,674,320.51

330,883.26

360,491.34

5,339,355.97

FY2024 LTE-SM Downloading Packages List of Eligible LTE-SM

No.	Item Name	Unit of Issue	Key Stage 1 (Grades 1 to 3)	Key Stage 2 (Grades 4 to 6)	Key Stage 3 (Junior High School)	Key Stage 4 (Senior High School - CORE Subjects)	Key Stage 4 (Senior High School - STEM Subjects)	TOTAL
1	Beaker, Plastic 500 mL	pc	0	0	0	0	5	5
2	Dry Cell, 9 volts	pc	0	0	0	0	5	5
3	Musical Instrument (Miniature Guitar)	pc	0	0	5	0	5	10
4	Set of Tools	pc	0	0	1	1	0	2
5	Beaker, borosilicate, 1000 mL	pc	0	0	5	0	0	5
6	Glass Cover Slips, 100's/box	pc	0	0	10	0	0	10
7	Glass Slides, 72's/box	pc	0	0	10	0	0	10
8	Protractor, student-type	pc	40	40	40	0	0	120
9	Ruler, Plastic, 12 inches/30 cm	pc	40	40	40	0	0	120
10	Beaker, borosilicate, 100 mL	pc	5	5	10	10	10	40
11	Beaker, borosilicate, 500 mL	pc	5	5	10	5	5	30
12	Cork Borers	pc	0	0	1	1	1	3
13	Flask, Volumetric, borosilicate 250 mL	pc	0	0	5	5	5	15
14	Nichrome wire. 0.4, 100 ft (1 spool per package = 1.1 oz minimum with spool)	pc	0	0	1	1	1	3
15	pH Meter, hand-held	pc	0	0	5	5	5	15
16	Rubber Stopper # 6 for Erlenmeyer Flask (narrow-mouth) 250 mL, 1 hole	pc	0	0	5	5	5	15
17	Rubber Stopper # 6 for Erlenmeyer Flask (narrow-mouth) 250 mL, 2 holes	pc	0	0	5	5	5	15
18	Triangular File, fine, 6-inch long, with plastic handle	pc	0	0	5	5	5	15
19	Universal pH Paper, pH 0-14, 100 strips/pack	pack	0	0	5	5	5	15
Total			90	90	163	48	62	453

Annex B



Republic of the Philippines
Department of Education

Bureau of Learning Resources



Technical Specifications for LTE-SM (FY 2024 Downloading)

Project Title Mass Production and Supply of Science and Mathematics Equipment
Packages to Public Elementary Schools for Grades 1 to 3 & Grades 4 to 6,
Public Junior High Schools for Grades 7 to 10, and Public Senior High School
for Grades 11 to 12 (CORE & STEM)

General Specification

1. Must be branded.
2. Must be free from toxic materials.
3. Must be properly packed.
4. Must be accompanied by a User's Manual written in English with correct grammar, spelling, and punctuation marks.
5. "Imported products should pass international quality control product standards and have international quality control product markings such as ASQC, AFCIQ, ASQ, DGQ, EOQC, IQA, CE, ISO, ASTM, and the likes, while locally made products (Philippine-made) should pass the local quality control product standards and bear the PS mark."

Detailed Specification

Item	DESCRIPTION	
1	Beaker, Plastic 500 mL	<p>Functional Specifications: Used to contain liquids and allow liquids to flow thru spout when overfilled</p> <p>Performance Specifications: Should be able to contain liquids and allow liquids to flow thru spout when overfilled</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Material: polypropylene plastic 2. Capacity: 500 mL Increments: 10 mL 3. Height: 12 cm 4. Diameter: 8 cm 5. Must have container box. 6. Must be free from any toxic material.
2	Dry Cell, 9 volts	<p>Functional Specifications: Used to provide 9 volts DC power to digital multimeter</p> <p>Performance Specifications: Should be able to provide 9 volts DC power to digital multi meter</p>

Detailed Specification

Item	DESCRIPTION	
3	Musical Instrument (Miniature Guitar)	<p>Design Specifications: 1. industry standard 9 volts dry cell</p> <p>Functional Specifications: Used to demonstrate musical application of standing waves</p> <p>Performance Specifications: Should be able to demonstrate musical application of standing waves</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Mini acoustic type, half-size guitar, any color, surface finish: varnish 2. Made of good quality wood without sign of warp 3. Minimum dimensions: Overall length: 33 inches, Width:12 inches, Depth: 3 1/2 inches 4. Standard guitar steel strings (Nos. 1-6), 18 fret minimum
4	SET OF TOOLS:	
	Set of Tools: Ball Peen Hammer, handle length is 11", 350g approx. weight, 1 pc/set	<p>Functional Specifications: Used to peen dent surfaces in metals</p> <p>Performance Specifications: Should be able to peen dent surfaces in metals</p> <p>Design Specifications: Ball Peen Hammer, handle length 11 inches, 350 grams gross weight approx., 1 pc. /set</p>
	Set of Tools: Long Nose Pliers, 6", 1 pair/set	<p>Functional Specifications: Used to bend tiny solid wire connectors</p> <p>Performance Specifications: Should be able to bend tiny solid wire connectors</p> <p>Design Specifications: Long Nose Pliers with side cutter, 6 inches long, chrome vanadium material, 1 pair/set</p>
	Set of Tools: Mechanical Wire Cutter and Pliers, 6.5", 1 pair/set	<p>Functional Specifications: Used to bend large wires</p> <p>Performance Specifications: Should be able to bend large wires</p> <p>Design Specifications: Mechanical-Wire Cutter and Pliers, 6 1/2 inches, chrome vanadium material, 1 pair/set</p>
	Set of Tools: Precision Screwdrivers Set, 6 pcs/set, with plastic casing, 1 set/set	<p>Functional Specifications: Used to drive precision screws</p> <p>Performance Specifications: Should be able to drive precision screws</p> <p>Design Specifications: Precision Screwdrivers Set, 6 pc. (3 phillips, 3 flats)/set, with plastic casing, 1 set</p>
		Functional Specifications: Used to drive flat head screws

Detailed Specification

Item	DESCRIPTION	
Set of Tools: Screwdriver, flat, 6", 1 pc/set	<p>Performance Specifications: Should be able to drive flat head screws</p> <p>Design Specifications: Screwdriver flat, 3/16 inches tip width x 6 inches long, chrome vanadium material, 1 pc. /set;</p>	
Set of Tools: Screwdriver, phillips, 6", 1 pc/set	<p>Functional Specifications: Used to drive phillips type screws</p> <p>Performance Specifications: Should be able to drive phillips type screws</p> <p>Design Specifications: Screwdriver, Phillips, Point size blade #3 x 6" long, chrome vanadium material, 1 pc/set;</p>	
Set of Tools: Soldering Iron, 60 watts, 1 pc/set	<p>Functional Specifications: Used to heat electrical contacts for permanent joints</p> <p>Performance Specifications: Should be able to heat electrical contacts for permanent joints</p> <p>Design Specifications: Soldering Iron, 60 watts, small type, wooden handle, 1 pc. /set;</p>	
Set of Tools: Soldering Lead, Ø1mm, Grade 60/40, Wt.: 1 lb/spool, 1 spool/set	<p>Functional Specifications: Used to provide permanent joint for different electrical components</p> <p>Performance Specifications: Used to provide permanent joint for different electrical components</p> <p>Design Specifications: Soldering Lead, Ø 1 mm, Grade 60/40, weight: 1 lb./spool, 1 spool/set</p>	
Set of Tools: Soldering Paste, 50 grams/can, 1 can/set	<p>Functional Specifications: Used to provide better adhesion of solder lead to electrical joints</p> <p>Performance Specifications: Used to provide better adhesion of solder lead to electrical joints</p> <p>Design Specifications: Soldering Paste, all purpose flux, non-corrosive, 50 grams/can, 1 can/set;</p>	
Set of Tools: Tweezers, stainless steel, with curved tips, 6.5" long, 1 pair/set	<p>Functional Specifications: Used to hold and pick tiny electronics components</p> <p>Performance Specifications: Should be able to hold and pick tiny electronics components</p> <p>Design Specifications: Tweezers, stainless steel, with curved tips, 6 1/2 inches long, 1 pair/set;</p>	
	<p>Functional Specifications: Used to serve as container for mixing and for heating liquids.</p>	

Detailed Specification

Item	DESCRIPTION	
5	Beaker, borosilicate, 1000 mL	<p>Performance Specifications: Must be able to serve as container for mixing and for heating liquids.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Griffin type, borosilicate, transparent, bubble-free glass 2. Shape: a cylindrical container with flat bottom 3. Thickness range: 1.5 mm to 2.0 mm 4. Permanent white graduations, with white enamel marking spot 5. Features an easy-pour spout 6. Capacity: 1000 mL; $\pm 10\%$ enameled onto the glass 7. Single graduated metric scale 8. Graduation starts at 200 mL in 100 mL increments 9. Height range: 140 mm to 160 mm 10. Outside diameter: 100 mm to 110 mm 11. There must be no cracks and sharp parts 12. Safely packed in a compartmentalized box
6	Glass Cover Slips, 100's/box	<p>Functional Specifications: Used to secure the wet mount sample specimen.</p> <p>Performance Specifications: Must be able to secure the wet mounted sample specimen.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Pre-cleaned cover glasses and not sticking from each other 2. Material: Transparent glass 3. Quantity: 100's/small plastic box 4. Dimension: 22 mm x 22 mm square 5. Thickness: 0.13 mm - 0.17 mm 6. There shall be no chipped edges 7. Safely packed in a plastic box
7	Glass Slides, 72's/box	<p>Functional Specifications: Used to contain the specimen for examination under the microscope.</p> <p>Performance Specifications: Must be able to accommodate the specimen subject for examination under the microscope.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Clear, flat glass; free from moisture, dirt, and film; 2. No color, no frost and no chipped edges 3. Dimension: 75 mm (± 1 mm) x 25 mm (± 1 mm); 4. Thickness: 1.1 mm (± 0.1 mm) 5. No sharp edges and pointed corners 6. Packed in a box containing 72 slides with thin paper sheets in between them
		<p>Functional Specifications: Used to measure angles in degrees.</p>

Detailed Specification

Item	DESCRIPTION	
8	Protractor, student-type	<p>Performance Specifications: Must be able to draw/construct and measure angles and arcs up to 180°.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Protractor, student-type, plastic, transparent, semi-circular, 180°; 2. Ø150mm (or 75mm radius), 1mm thick (minimum); 3. Angular graduations are in degrees, from 0° to 180°. With two (2) sets of numerals, one reading clockwise and the other reading counterclockwise; 4. Linear graduations are in millimeters, from 0 to 100mm; 5. With a hole at vertex point enough for a fine string to pass through it; 6. Plastic Surface Finish: Smooth, clear, and free from scratches; 7. It must be horizontally level when laid flat on a table - no warping; 8. Comes with a plastic case; and
9	Ruler, Plastic, 12 inches/30 cm	<p>Functional Specifications: Used to measure length and draw straight lines</p> <p>Performance Specifications: Must be able to measure length of objects in flat surfaces up to 30cm in Metric and 12" in English standards of measurement.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Ruler, plastic, transparent, smooth surface, and 1 mm thick (minimum); 2. Approximate Width x Length: 28 mm x 314 mm; 3. Graduations: Metric graduations on one side while English graduations on the other side: <ul style="list-style-type: none"> *Metric graduations are in centimeters, from 0 cm to 30 cm, with every cm subdivided by 10. *English graduations are in inches, from 0 inches to 12 inches, with every inch subdivided by 16. 4. Clear, readable black, non-groove permanent prints (will not fade and cannot be scratched off); 5. Bendable up to U-shape when held at both ends; and 6. The item shall be free from toxic materials.
		<p>Functional Specifications: Used to contain/hold/prepare solids and liquids during chemical reaction and to heat them over a Bunsen burner's flame up to more than 150°C for normal, standard use service</p> <p>Performance Specifications: Must be able to contain/hold /prepare solids and liquids during chemical reaction up to 100 mL capacity and heats them over a Bunsen burner's flame up to more than 150°C for normal, standard use service</p>

Detailed Specification

Item	DESCRIPTION	
10	Beaker, borosilicate, 100 mL	<p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Type : Griffin, low form 2. Shape : Cylindrical container with straight sides, a flat bottom, and with a small spout (or "beak") to aid in pouring 3. Material: Borosilicate, clear and transparent bubble-free glass with the following dimensions: <ol style="list-style-type: none"> a) Outside diameter : 50 mm-52 mm b) Height: 70 mm-72 mm c) Thickness : 1.5 mm-2.0 mm 4. Capacity : 100 mL \pm 5% etched onto the glass;" 5. Graduation starts at : 20 mL in 10 mL increments. 6. Graduation range : 20 mL to 80 mL 7. With permanent white enamel graduations of approximate volumes, inscriptions 8. With large white marking spot 9. Features an easy-pour spout 10. With single graduated metric scale 11. Can withstand heating up to 200-230°C for normal, standard use service 12. Wrapped in paper, enclosed in bubble wrap, and packed in a compartmentalized box 13. Must be free from breakage, cracks , chipped rims and other defects 14. Comes with a brand, with five (5) years existence in the glass wares industry
11	Beaker, borosilicate, 500 mL	<p>Functional Specifications:</p> <ol style="list-style-type: none"> a)Used to contain/hold/prepare solids and liquids during chemical reaction and to heat them over a Bunsen burner's flame up to 150°C for normal, standard use service and b)to serve as a water bath when heating flammable chemicals instead of an open flame to prevent ignition. <p>Performance Specifications:</p> <ol style="list-style-type: none"> a) Must be able to contain/hold /prepare solids and liquids during chemical reaction and heats them over a Bunsen burner's flame up to 150°C for normal, standard use service and to serve as a water bath b) to serve as a water bath when heating flammable chemicals instead of an open flame to prevent ignition. <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Type: Berzellius, tall form 2. Shape: Cylindrical container with straight sides, a flat bottom, with a small spout (or "beak") to aid pouring 3. Material : Borosilicate, clear, bubble free glass , Berzellius. tall form with the following dimensions: <ol style="list-style-type: none"> a) Outside Diameter Range :75 mm- 80 mm

Detailed Specification

Item	DESCRIPTION	
		b) Height range: 136 mm -140 mm c) Thickness :1.5 mm to 2.0 mm 4. Capacity :500 mL ; \pm 5% etched/embossed onto the glass 5. With permanent white enamel graduations of approximate volumes, inscriptions and 6. With large white marking spot 7. With easy pour spout 8. Double graduated metric scale 9. Marked to fill: Graduation starts at 50 mL in 50 mL increments 10. Marked to empty: Graduation starts at 0 mL in 50 mL increments 11. Can withstand heating up to 200-230°C for normal, standard use service 12. Wrapped in paper, enclosed in bubble wrap and packed individually in a compartmentalized box 13. Must be free from breakage, cracks , chipped rims and other defects 14. Comes with a brand, with five (5) years existence in the glass wares industry
12	Cork borer	<p>Functional Specifications: Used to bore or to cut a round hole of six different diameters in a cork/rubber stopper with a steel ramrod/eject rod pushing the removed cork out of the borer</p> <p>Performance Specifications: Must be able to bore or to cut a round hole of six different diameters in a cork or rubber stopper and remove cork out of the borer by pushing it with a steel ramrod/eject rod</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Shape of cork borer : Long, hollow round rod/tube with sharpened ends 2. Material of tube/rod : Nickel-plated steel borer 3. A set of six (6) different diameter sizes:(4 mm, 4.5 mm, 6 mm, 8 mm, 9.5 mm, 11 mm) 4. Comes with a handles which are individually and permanently numbered (1-6) for easy identificationhandle <ol style="list-style-type: none"> a) Shape of handle: T-shaped b) Material of handle : Hard plastic c) Finish: Smooth d)Color of handle: Red 5. Includes a ramrod/eject rod pushing the removed cork out of the borer Material of ramrod/eject rod: Steel 6. Packaging: Resealable plastic pouch 7.Comes with a brand
		<p>Functional Specifications: Used to measure/prepare/contain a precise volume of standard solutions at a certain temperature and precise dilution of solutions up to 250 mL</p>

Detailed Specification

Item	DESCRIPTION	
13	Flask, Volumetric, borosilicate 250 mL	<p>Performance Specifications: Must be able to measure/prepare/contain a precise volume of standard solutions at a certain temperature and precise dilution of solutions up to 250 mL</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Type: Class A 2. Shape : A round or pear-shaped bulb, a long thin neck topped by a snap cap and with flat bottom 3. Material of body: Borosilicate , clear, transparent and bubble-free, glass with the following dimensions: <ol style="list-style-type: none"> a) Height: 225 mm b) Outside diameter : 78 mm (approx.) c) Size: 250 mL d) Tolerance: ± 0.12 mL 4. With heavy duty rim 5. Comes with snap cap <ol style="list-style-type: none"> a) Material of snap cap :High density plastic (polyethylene) b) With octagonal grip c) Snap-cap : No. 250 d) Color of snap cap: Blue 6. Must meet ASTM E- 694 for volumetric ware, ASTM E-542 for calibration of volumetric ware and ASTM E-288 for volumetric flasks. 7. Calibrated "to contain" (marked "TC" or "IN") 8. Manufacturer should be accredited by NIST standards or its equivalent to the country of origin to certify that their items are calibrated. 9. Must be free from breakage, cracks, sharp rims and other defects 10. Packaging : Roll up glassware in newspaper and secure with a piece of masking tape and place in a bubble pouch and individually packed in a sturdy box 11. Comes with a brand, with five (5) years existence in the glasswares industry
		<p>Functional Specifications: Used as a wire loop and heating element on which a metal salt or solid ionic compound is made to adhere into it and is heated to emit a characteristic color on the Bunsen flame to identify the particular metal present in the compound</p> <p>Performance Specifications: Must be used as a wire loop on which a metal salt or solid ionic compound is made to adhere to, and is heated to emit a characteristic color on the Bunsen flame to identify the particular metal present in the compound in a laboratory activity, the Flame test</p>

Detailed Specification

Item	DESCRIPTION	
14	Nichrome wire. 0.4, 100 ft	<p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Shape: Round wire 2. Material of wire: Nichrome-Alloy of nickel and chromium, Ni80 Cr20 with the following dimensions: <ol style="list-style-type: none"> a) AWG size: 26 b) Diameter: 0.4 mm c) Length : 100 ft 3. Form: Soft, rust-free wire 4. Color: Silvery grey 5. Resistance : 2.57 ohms/foot 6. Annealed soft 7. Perfectly tensioned. Zero elongation, scratches, or other flaws. 8. Comes in a spool 9. Packed in a resealable plastic pouch 10. Comes with a brand
15	pH Meter, hand-held	<p>Functional Specifications: To measure the pH of a substance or solution indicating its acidity , being neutral, or its basicity/alkalinity in 0.1 pH readability</p> <p>Performance Specifications: Must be able to measure the pH of each substance/solution in 0.1 pH readability, :</p> <ol style="list-style-type: none"> a) For an acid : pH 0- pH 6.0 b) For basic/alkaline : pH 8.0 to pH 14.0. c) For neutral (distilled water) : pH 7.0 <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Type: Portable hand held digital pen type 2. Material : Plastic with the following dimensions : <ol style="list-style-type: none"> a) Length : 6.2 in (155.45 mm) (min) b) Width : 1.5 in (38.1 mm) (min) c) Height : 1.3 in (33.02 mm) (min) 3. With retractable electrode 4. Comes with one (1) pc protective cap 5. Electrodes extend up to 3.15" (80.01 mm) (min) 6. Waterproof 7. pH range: pH 0 to pH 14 8. Accuracy: ± 0.2 pH 9. Features a bold LCD display of pH 10. With automatic temperature compensation 11. Supplied with accessories: <ol style="list-style-type: none"> a) One (1) bottle pH 7.0 buffer solution Capacity of pH 7.0 buffer solution : 50 mL b) With one (1) pc calibration screwdriver c) One (1) pc 9V battery

Detailed Specification

Item	DESCRIPTION
	<p>d) Packed in hard plastic carry case</p> <p>12. Manufacturer should be accredited by NIST standards or its equivalent to the country of origin to certify that their items are calibrated.</p> <p>13. With User's Manual in English</p> <p>14. With Student Worksheets/Teacher's Manual in English</p> <p>15. For numbers 13-14, the following technical specifications from a-e must be followed:</p> <p>a) For Contents List of materials, In Table form</p> <p>b) For User's Manual, Teacher's Guide, StudentWorksheets, Instruction Sheets/Assembly Guides, In sentences format</p> <p>i) With sentences grammatically correct and</p> <p>ii) With correct spelling and terminologies, punctuations and others</p> <p>c) In original print, not photocopied</p> <p>d) In colored pictures, drawings/illustrations</p> <p>e) In ten (10) mil laminated keycard that shall contain the actual colored picture of the model including the name: labeled with the required parts with details as follows</p> <p>i) Paper Size: A4 size , 80 gsm</p> <p>ii) Font: Times New Roman</p> <p>iii) Font size: 12</p> <p>iv) Orientation:Portrait</p> <p>v) Margins on all sides with 2 point width border line</p> <p>vi) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled</p> <p>16. Must be free from sharp edges</p> <p>17. Must have a brand</p>
16	<p>Rubber Stopper # 6 for Erlenmeyer Flask (narrow-mouth) 250 mL , 1 hole</p> <p>Functional Specifications: Used to seal the openings of narrow mouth 250 mL Erlenmeyer flasks and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance with one 1) hole opening for insertion of a thermometer, glass tubing or stirrer for use during chemical reaction .to prevent leaks, hazards and contamination.</p> <p>Performance Specifications: Must be able to seal the openings of narrow mouth 250 mL Erlenmeyer flasks and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance .with one (1) hole opening for insertion of a thermometer, glass tubing or stirrer for use during chemical reaction to prevent leaks, hazards and contamination.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> Shape: Cylindrical with a tapered bottom end Material : Premium grade SBR black rubber compound with the following dimensions:

Detailed Specification

Item	DESCRIPTION	
		a) Height: 25 mm b) Top Ø: 32 mm c) Bottom Ø : 26 mm d) Hole Ø: 5 mm 3. Number of holes :With one (1) hole 4. Dimension tolerance on height, top and bottom diameter : ± 0.5 mm 5. Hardness : 40 ± 5 Duro 6. Packed in resealable plastic bag 7. Comes with a brand
17	Rubber Stopper # 6 for Erlenmeyer Flask (narrow-mouth) 250 mL , 2 holes	<p>Functional Specifications: Used to seal the openings of narrow mouth 250 mL Erlenmeyer flasks and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance with two (2) holes opening for insertion of a thermometer, glass tubing or stirrer for use during chemical reaction to prevent leaks, hazards and contamination.</p> <p>Performance Specifications: Must be able to seal the openings of narrow mouth 250 mL Erlenmeyer flasks and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance with two (2) holes opening for insertion of a thermometer, glass tubing or stirrer for use during chemical reaction to prevent leaks, hazards and contamination.</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Shape: Cylindrical with a tapered bottom end 2. Material : Premium grade SBR black rubber compound with the following dimensions: <ol style="list-style-type: none"> a) Height: 25 mm b) Top Ø: 32 mm c) Bottom Ø : 26 mm d) Hole Ø: 5 mm 3. Number of holes : Two (2) holes 4. Dimension tolerance on height, top and bottom diameter : ± 0.5 mm 5. Hardness : 40 ± 5 Duro 6. Packed in resealable plastic bag 7. Comes with a brand
18	Triangular File, fine, 6" long, with plastic handle	<p>Functional Specifications: Used to cut the glass tubing</p> <p>Performance Specifications: Must be able to cut the glass tubing</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Type of file: Triangular 2. Shape: Triangular 3. Material: High carbon steel

Detailed Specification

Item	DESCRIPTION	
		4. Kind of file: Fine, smooth 5. Length of file: 6" (150-152.4 mm) long 6. Material of handle: Plastic 7. Packed in a resealable pouch 8. Comes with a brand
19	Universal pH Paper, pH 0-14, 100 strips/pack	<p>Functional Specifications: Used as an indicator to determine/measure the pH of substances, whether it is an acid, neutral or a base</p> <p>Performance Specifications: Must be used as an indicator to effect a color change when it is dipped into the different substances to determine/measure the pH of each, through comparison with the pH color chart provided, which corresponds to:</p> <p>a) For an acid : pH 0-pH 6; b) For a base : pH 8-pH 14. c) For distilled water : pH 7</p> <p>Design Specifications:</p> <ol style="list-style-type: none"> 1. Type: Test strips 2. Shape: Rectangle 3. Material: Cellulose/Paper based 4. Dimension of pH strip : <ol style="list-style-type: none"> a) Length : 69 mm x 6 mm 5. Number of colors in indicator test strip: In four colors to test pH values 6. Number of test strips : 100 pc strips 7. Packaging: Clear, transparent box 8. Shape of box: Square 9. With complete color chart for comparison with the color change to get the pH reading of the sample being tested 10. No sharp edges on box 11. Measures pH 0-pH 14 12. Comes with a brand



Republic of the Philippines
Department of Education

Bureau of Learning Resources



**INSPECTION AND TEST PROTOCOL LTE-SM
(FY 2024 Downloading)**

Project

Title: Mass Production and Supply of Science and Mathematics Equipment
Packages to Public Elementary Schools for Grades 1 to 3 & Grades 4 to 6,
Public Junior High Schools for Grades 7 to 10, and Public Senior High Schools
for Grades 11 to 12 (CORE & STEM)

A. General Inspection Protocol. **This general protocol shall serve as guide in the conduct of the Evaluation Samples/predelivery inspection for all market items (where the following statement is applicable).**

- a.) verify/evaluate the parameters of the goods or product as indicated in the specifications e.g. material, dimensions, capacity, power rating, etc.;
- b.) check the goods for any evidence of defects visually as follows:
 - i) rust formation
 - ii) cracked/broken parts
 - iii) warps/dents
 - iv) loose parts
 - v) discoloration
- c.) look into the completeness of parts/accessories;
- d.) all goods powered by dry cell (AA, AAA, etc.) shall be included with corresponding batteries ready for use;
- e.) the bidder shall unbox, set up (if applicable), and manipulate the goods to be evaluated and shall perform corresponding performance and/or functionality tests.
- f.) Resistor Tolerance. The resistor shall be $\pm 10\%$, unless otherwise specified.
- g.) Linear Tolerance. The DIN ISO 2768 (General Tolerances) very coarse under linear, external radius and chamfer heights and angular dimensions shall be applied, unless otherwise specified.
- h.) Markings and Labels shall be in English, with correct spelling, permanent (pass the 3M 610 Tape
- i.) Refer to the key card to identify the structures.
- j.) The bidder/supplier shall provide the materials and consumables.

Detailed Test and Inspection Protocol

ITEM NO.	ITEM DESCRIPTION	INSPECTION and TEST PROCEDURES
		A. (Refer to General Inspection Protocol) B. Volumetric Test:

Detailed Test and Inspection Protocol

ITEM NO.	ITEM DESCRIPTION	INSPECTION and TEST PROCEDURES
1	Beaker, Plastic 500 mL	<p>Measure 500 mL of water using a standard 100 mL graduated cylinder, and pour into it to check the accuracy and preciseness of the printed graduations and verify whether the required minimum/maximum volumetric capacity of the glass, as stipulated in the technical specifications, is met. The capacity must be 500 mL; $\pm 10\%$</p> <p>C. Materials</p> <ol style="list-style-type: none"> 1. Tap Water 2. 100 mL graduated cylinder
2	Dry Cell, 9 volts	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Functionality Test:</p> <ol style="list-style-type: none"> 1. Set the BLR reference digital multimeter to 20VDC <ol style="list-style-type: none"> a) Insert the black test probe to the "COM" terminal of the digital multi meter and the red test probe to the "VΩHz" terminal of the digital multimeter b) Switch ON the digital multi meter Connect the black test lead of the BLR reference digital multimeter to the negative terminal of the dry cell and the red test lead to the positive terminal of the dry cell <ol style="list-style-type: none"> c) The BLR reference digital multi meter should register a reading of at least 9.0 volts DC <p>C. Materials Needed to Perform Inspection and Tests:</p> <ol style="list-style-type: none"> 1. 1 steel rule/meter tape 2. 1 BLR reference digital multimeter
3	Musical Instrument (Miniature Guitar)	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Functionality Test:</p> <ol style="list-style-type: none"> 1. Turn the tuning peg clockwise. The string shall be tightened and without any sign of obstruction or getting stuck or loosen up. <p>C. Materials Needed to Perform Inspection and Tests:</p> <ol style="list-style-type: none"> 1. 1 steel rule/meter tape 2. 1 vernier caliper

Detailed Test and Inspection Protocol

ITEM NO.	ITEM DESCRIPTION	INSPECTION and TEST PROCEDURES
4	Set of Tools: 1. Ball Peen Hammer, handle length is 11", 350g approx. weight, 1 pc/set 2. Long Nose Pliers, 6", 1 pair/set 3. Mechanical Wire Cutter and Pliers, 6.5", 1 pair/set 4. Precision Screwdrivers Set, 6 pcs/set, with plastic casing, 1 set/set 5. Screwdriver, flat, 6", 1 pc/set 6. Screwdriver, phillips, 6", 1 pc/set 7. Soldering Iron, 60 watts, 1 pc/set 8. Soldering Lead, Ø1mm, Grade 60/40, Wt.: 1 lb/spool, 1 spool/set 9. Soldering Paste, 50 grams/can, 1 can/set 10. Tweezers, stainless steel, with curved tips, 6.5" long, 1 pair/set	A. (Refer to General Inspection Protocol) B. Functionality Test: 1. Screw driver, flat: a) drive the flat test screw into the piece of wood; flat screw should get into the wood b) detach the buried screw from the wood 2. Screw driver, phillips: a) drive the phillips test screw into the piece of wood; phillips screw should get into the wood b) detach the buried phillips screw from the wood 3. Long nose pliers: a) open and close the long nose pliers continuously at least 10 times b) the pliers should be firm and not loose c) get a piece of #20 magnet wire d) bend one end of the wire then form a loop 4. Mechanical wire cutter: a) open and close the mechanical wire cutter continuously at least 10 times b) the mechanical wire cutter should be firm, not loose, and should not stuck up c) get hold of a AWG 20 stranded wire and cut a portion 1 cm from one end using the wire cutter d) the wire should be snap off unimpeded 5. Soldering iron: a) insert the plug of the soldering iron into the wall outlet and pull out after 2 seconds b) touch the tip of the soldering iron with the tip of your forefinger; it should feel warm 6. Ball peen hammer a) visual and specifications only 7. Precision screw drivers: a) visual and specifications only 8. Tweezers: a) test tweezers to pick up tiny objects that are too small for your finger to pick 9. Solder lead: a) to be tested with the soldering iron b) plug soldering iron into the wall outlet for 3 minutes c) bring the solder lead in contact with the tip of the soldering iron; the lead should melt 10. Solder paste: a) strip off of insulation 2 ends of magnet wire b) plug the solder iron into the wall outlet for 3 minutes c) bring the two ends of the bare ends of the magnet wire together using long nose pliers and hold in place by the pliers d) apply small amount of solder paste on the joined bare ends of the magnet wire

Detailed Test and Inspection Protocol

ITEM NO.	ITEM DESCRIPTION	INSPECTION and TEST PROCEDURES
		<p>e) bring the tip of the hot solder iron into the joined bare wires</p> <p>f) place the solder lead underneath the tip of the soldering iron; you will see the lead melts and envelopes the joined bare wires</p> <p>g) you will see dark stains on the paste</p> <p>h) release the joined wires from the pliers</p> <p>i) the ends are now soldered in place</p> <p>C. Materials Needed to Perform Inspection and Tests:</p> <ol style="list-style-type: none"> 1. 1 steel rule/meter tape 2. 1 Vernier caliper 3. 220 volts outlet 4. 1-flat screw 5. 1-phillips screw 6. 1-wood block, 2" x 2" x 2"
5	Beaker, borosilicate, 1000 mL	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Tests:</p> <ol style="list-style-type: none"> 1. Heat Test: <ol style="list-style-type: none"> (a) Heat the item filled with 200 mL water using Hotplate/Bunsen Burner. (b) Let it boil for three (3) minutes. (c) Repeat (b) for three (3) trials. (d) After then, it should not break/crack. 2. Permanent Marking Test <ol style="list-style-type: none"> 2.1 Scratch test: <p>Scratch the white graduations and white enamel marking spot using your thumb nail to test for the peel and adhesion properties of embossed brand and permanency of graduations, and other marking. It must not peel-off.</p> 2.2 3M (610) Tape Test: <p>Apply and remove the tape over the product marking. The mark must not stick on the tape.</p> 3. Refractive Index Test: <p>Submerge the glass into vegetable oil or glycerine to determine whether the glass material is borosilicate. Borosilicate glass is identified by its refractive index, 1.474. Immersing the glass in a container of liquid of similar refractive index, makes the glass not visible or will disappear. (Vegetable oil, 1.47 and glycerine, 1.473 are some liquids with similar refractive index as to borosilicate glass).</p> 4. Volumetric Test:

Detailed Test and Inspection Protocol

ITEM NO.	ITEM DESCRIPTION	INSPECTION and TEST PROCEDURES
		<p>Measure 1000 mL of water using a standard 100 mL graduated cylinder, and pour into it to check the accuracy and preciseness of the printed graduations and verify whether the required minimum/maximum volumetric capacity of the glass, as stipulated in the technical specifications, is met. The capacity must be 1000 mL; $\pm 10\%$</p> <p>C. Materials Needed to Perform Inspection and Tests:</p> <ol style="list-style-type: none"> 1. Vernier Caliper 2. Steel tape rule 3. Graduated Cylinder, 100 mL 4. Glycerine or vegetable oil (1 liter) 5. Hotplate/Bunsen Burner-LPG-Wire Gauze 6. 3M (610) Tape
6	Glass Cover Slips, 100's/box	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Material Needed to Perform Inspection:</p> <ol style="list-style-type: none"> 1. Vernier caliper
7	Glass Slides, 72's/box	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Material Needed to Perform Inspection:</p> <ol style="list-style-type: none"> 1. Vernier caliper
8	Protractor (for student)	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Materials to be used to perform the Tests and Inspection Procedures:</p> <ol style="list-style-type: none"> 1. <i>Tape rule</i>
9	Ruler, Plastic, 12 inches or 30 cm	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Materials to be used to perform the Tests and Inspection Procedures:</p> <ol style="list-style-type: none"> 1. Tape Rule
		<p>A. (Refer to General Inspection Protocol)</p> <p>B. Tests</p> <ol style="list-style-type: none"> 1. Scratch test Scratch using your nails the brand and white graduations inscriptions and other markings of the thermometer; to test for the peel and adhesion properties of embossed brand and permanency of graduations, and other markings 2. Refractive-index test Submerge the glass into vegetable oil or glycerin to determine whether the glass material is borosilicate. Borosilicate glass is identified by its refractive index, 1.474. Immersing the glass in a container of liquid of similar refractive index, makes the glass not visible or will disappear. (Vegetable oil, 1.47 and glycerin, 1.473 are some liquids with similar refractive index as to borosilicate glass). 3. Volumetric Test

Detailed Test and Inspection Protocol

ITEM NO.	ITEM DESCRIPTION	INSPECTION and TEST PROCEDURES
10	Beaker, borosilicate, 100 mL	<p>Measure 100 mL of water using a standard 100 mL graduated cylinder, and pour into it, to check the accuracy and preciseness of the printed graduations and verify whether the required minimum/maximum volumetric capacity of the glass, as stipulated in the technical specifications, is met. The capacity must be 250 mL: $\pm 5\%$</p> <p>4. Functionality test</p> <ol style="list-style-type: none"> 1. Place half full water in a beaker 2. Heat the beaker up to its boiling point of 100°C <p>C. Needed Equipment and Material:</p> <ol style="list-style-type: none"> 1. Digital Vernier caliper 2. Steel tape measure 3. Graduated cylinder, 100 mL 4. Funnel, glass 5. Denatured alcohol 6. Rag/tissue paper 7. Glycerine (1 liter) 8. Tripod 9. Lighter 10. Wire gauze 11. Thermometer, partial immersion 12. Bunsen/alcohol burner 13. Hand gloves 14. Face mask 15. Safety goggles 16. Timer
		<p>A. (Refer to General Inspection Protocol)</p> <p>B. Tests</p> <ol style="list-style-type: none"> a) Do scratch test: scratch using your nails the brand and white graduations and inscriptions and other markings of the thermometer; to test for the peel and adhesion properties of embossed brand and permanency of graduations, and other markings b) Do the refractive-index test (by submerging the glass into vegetable oil or glycerine) to determine whether the glass material is borosilicate. Borosilicate glass is identified by its refractive index, 1.474. Immersing the glass in a container of liquid of similar refractive index, the glass can no longer be seen or will disappear. (Vegetable oil, 1.47 and glycerine, 1.473 are some liquids with similar refractive index as to borosilicate glass

Detailed Test and Inspection Protocol

ITEM NO.	ITEM DESCRIPTION	INSPECTION and TEST PROCEDURES
11	Beaker, borosilicate, 500 mL	<p>c) Do volumetric test, by measuring 500 mL of water using a standard 100 mL graduated cylinder, and pour into it; to check the accuracy and preciseness of the printed graduations and verify whether the required minimum/maximum volumetric capacity of the glass, as stipulated in the technical specifications, is met. The capacity must be 500 mL, $\pm 5\%$</p> <p>d) Perform functionality test by heating the beaker with water up to its boiling point of 100°C</p> <p>B. Materials needed to perform inspection and test Measuring tape, ruler Graduated cylinder, 10 mL Denatured alcohol, 1 bottle Heater Pail Water Lighter Rag/tissue paper</p>
12	Cork Borers	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Test Functionality Test. Bore a hole in a rubber/cork stopper</p> <p>C. Materials needed to perform inspection and test protocol Measuring tape/ruler</p>
13	Flask, Volumetric, borosilicate 250 mL	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Tests</p> <p>1. Volumetric test OPTION 1 Measure 250 mL of water using a standard 100 mL graduated cylinder, to check the accuracy and preciseness of the printed graduations and verify whether the required minimum/maximum volumetric capacity of the glass, as stipulated in the technical specifications, is met.</p> <p>OPTION 2</p> <p>a. Weigh the empty volumetric flask using the toploading balance and record the reading. b. While the volumetric flask is on the scale, pour distilled water until the reading reaches to (weight of empty flask + 250 grams) ± 0.12 grams. c. The reading on the lower meniscus of the water shall lie on the 250 mL mark of the volumetric flask.</p> <p>2. Scratch test</p>

Detailed Test and Inspection Protocol

ITEM NO.	ITEM DESCRIPTION	INSPECTION and TEST PROCEDURES
		Scratch using your nails the single ground-in graduation circular line to test for the peel and adhesion properties of embossed/enamelled brand and permanency of white, circular line graduations, and other markings. If the white graduation circular line, and brand name and other markings are peeled off, the item is rejected.
14	Nichrome wire. 0.4, 100 ft (1 spool per package = 1.1 oz minimum with spool)	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Test Function test</p> <ol style="list-style-type: none"> 1. Make a loop out of the nichrome wire 2. Clean it by immersing it in hydrochloric acid 3. Heat it in the tip of the bluish part of the flame heating 4. An orange color is produced 5. Place a small sample of ionic compound, an acid, like boric acid 6. Observe and record your results <p>Nichrome wire is used as a heating element because it is inert or does not react with the samples, making sure that the colors emitted are from the specific elements/ions that emit them This test is done to check the accuracy and preciseness of the item, as stipulated in the technical specifications, is met</p> <p>C. Materials needed to perform inspection and test Triple beam/top loading electronic balance Alcohol/Bunsen burner Hand gloves Safety goggles Face mask Denatured alcohol Lighter Hydrochloric acid Nichrome wire</p>
		<p>A. (Refer to General Inspection Protocol)</p> <p>B Test Function test Standardize the pH meter first.</p> <ol style="list-style-type: none"> 1. Place the 9V battery in the battery holder at the back of the pH meter. 2. Turn it on. Do not place the pH probe into the stock buffer solutions. 3. Always pour the stock solution into a smaller beaker.

Detailed Test and Inspection Protocol

ITEM NO.	ITEM DESCRIPTION	INSPECTION and TEST PROCEDURES
15	pH Meter, hand-held	<p>4. Immerse the tip of the electrode in the pH 7 buffer solution.</p> <p>5. Adjust the pH reading in the LCD display using the calibration screw driver/ trimmer to pH 7.0.</p> <p>6. Rinse in distilled water before proceeding to measure the pH of the sample solutions.</p> <p>After every test, rinse the electrode in between the tests. Standardize again, using the pH 7 buffer solution, only after twenty samples had been taken.</p> <p>7. Immerse in an acid, base and then distilled water, one at a time</p> <p>If the sample is :</p> <p>A) an acid, the pH meter reading is from pH 0-6.9; B) a base, the pH meter reading is pH 7.1- pH14.0. C) distilled water, pH 7.0</p>
16	Rubber Stopper # 6 for Erlenmeyer Flask (narrow-mouth) 250 mL , 1 hole	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Tests</p> <p>1. Hardness test by using the durometer. Hardness: 40 ± 5 Duro</p> <p>2. Fitting test to validate the level of performance and accuracy of the item by placing the bottom part of the rubber stopper into the mouth of narrow mouth 250 mL Erlenmeyer flask and see if it fits well. The thermometer, stirrer or the glass tubing must be able to fit the hole provided.</p> <p>C. Materials needed to perform inspection and test Steel tape/ ruler Digital vernier caliper Durometer</p>
17	Rubber Stopper # 6 for Erlenmeyer Flask (narrow-mouth) 250 mL , 2 holes	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Tests</p> <p>1. Hardness test by using the durometer. Hardness: 40 ± 5 Duro</p> <p>2. Fitting test to validate the level of performance and accuracy of the item by placing the bottom part of the rubber stopper into the narrow mouth, 250 mL Erlenmeyer flask, and see if it fits well.</p> <p>C. Materials needed to perform inspection and test Steel tape/ ruler</p>

Detailed Test and Inspection Protocol

ITEM NO.	ITEM DESCRIPTION	INSPECTION and TEST PROCEDURES
		Digital vernier caliper Durometer
18	Triangular File, fine, 6" long, with plastic handle	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Test Functionality test to validate the level of performance and accuracy of the item Cut a glass tubing</p> <p>C. Materials needed to perform inspection and test Steel tape/ ruler Glass tubing Water</p>
19	Universal pH Paper, pH 0-14, 100 strips/pack	<p>A. (Refer to General Inspection Protocol)</p> <p>B. Test Functionality test: Dip a strip of universal pH to any of these substances, and the pH reading must be: : Acid : pH 0 to pH 6 Base : p pH 8-pH 14 Neutral : pH 7:</p> <p>C. Materials needed to perform inspection and test Steel tape/ ruler Acid Base Distilled water Beaker Watch glass</p>