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

November 4, 2026

REGIONAL MEMORANDUM
CLMD-2026- 1487

IMPLEMENTATION OF SCIENCE AND MATHEMATICS EQUIPMENT (SME) FUNDS FOR THE PROCUREMENT AND DISTRIBUTION OF SME TO ALTERNATIVE LEARNING SYSTEM (ALS) LEARNING CENTERS WITH HIGH ENROLLMENT FOR THE PAST THREE YEARS

To: Schools Division Superintendents } Biliran Division
} Calbayog City Division
} Eastern Samar Division
} Leyte Division
} Northern Samar Division
} Ormoc City Division
} Samar Division
} Southern Leyte Division

Regional Division Chiefs
All Others Concerned

1. Pursuant to DepEd Memorandum DM-OULS-2026-189, dated May 19, 2026, this Office, through the Curriculum and Learning Management Division (CLMD) directs the concerned Schools Division Offices (SDOs) to expedite the **procurement process and delivery of Science and Mathematics Equipment (SME)** targeting high-enrollment ALS Learning Centers (LCs) for the past three years.

2. The concerned SDOs must submit the list of recipient LCs to the Regional Office through the CLMD on or before **November 6, 2026**, via email at **clmd.region8@deped.gov.ph** cc **alfredo.cafe@deped.gov.ph**.

3. A virtual coordination meeting with all Division ALS Focal Persons to discuss the specifications of the items under procurement is scheduled on **November 9, 2026,** at **10:00 AM** via **Google Meet** and the link will be shared through the official ALS Focal Persons Facebook Group Chat.

4. A report on the fund utilization as well as the accomplishment of the targeted items under procurement shall be submitted to the Regional Office on or before December 31, 2026, through the aforementioned email addresses.

5. All other details are stipulated in the attached DepEd Memorandum for information and reference.

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

SALUSTIANO T. JIMENEZ JD, EdD, CESO III
Regional Director

DEPARTMENT OF EDUCATION
1487
11.9.26

DepED BAGONG PILIPINAS
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Enclosures: None
References: As stated
To be indicated in the Perpetual Index under the following subjects:
AWARDS
LITERACY
TECHNICAL ASSISTANCE

CLMD-GEC-APC

Republic of the Philippines
Department of Education
OFFICE OF THE UNDERSECRETARY FOR LEARNING SYSTEMS

MEMORANDUM
DM-OULS-2026- 189

TO : **Regional Directors**
Schools Division Superintendents
Curriculum and Learning Management Division Chiefs
Curriculum Implementation Division Chiefs
Alternative Learning System Focal Persons
All Others Concerned

FROM : **JEROME T. BUENVIAJE**
Assistant Secretary
Officer-in-Charge
Office of the Undersecretary for Learning Systems

SUBJECT : **GUIDELINES ON THE PROCUREMENT AND DISTRIBUTION OF SCIENCE AND MATHEMATICS EQUIPMENT FOR ALTERNATIVE LEARNING SYSTEM (ALS) SCHOOL-BASED LEARNING CENTERS/COMMUNITY LEARNING CENTERS**

DATE : May 19, 2026

1. In line with the Department of Education's commitment to strengthen the implementation of the Alternative Learning System (ALS), institutionalized under Republic Act No. 11510 to provide equitable access to quality basic education, this Office hereby issues the Guidelines on the Procurement and Distribution of Science and Mathematics Equipment for Alternative Learning System (ALS) School-Based Learning Centers (SBLCs)/Community Learning Centers (CLCs).

2. The implementation of the Revised ALS Curriculum emphasizes the development of 21st Century Skills, particularly Scientific and Critical Thinking Skills (Learning Strand 2) and Mathematical and Problem-Solving Skills (Learning Strand 3). These competencies require experiential and hands-on learning approaches; thus, the provision of appropriate instructional materials is crucial. Currently, many SBLCs and CLCs face significant limitations in the availability of these learning tools, which may reduce learner engagement and affect performance in the Accreditation and Equivalency (A&E) Test.

3. To address these challenges and support ALS teachers in delivering engaging learning sessions, a total budget allocation of Php 50,000,000.00 shall be utilized as Program Support Fund. This allocation will provide Php 500,000.00 per Schools Division Office (SDO) for the top 100 SDOs identified as having the highest average ALS enrollment over the last three school years (SY 2022–2023 to SY 2024–2025). Prioritizing these SDOs ensures that the intervention benefits

the largest and most active ALS learner populations. Please refer to **Attachment 1** for the budget Breakdown.

4. The funds shall be downloaded directly to the recipient SDOs. Fund utilization shall comply with DepEd Order No. 004, s. 2024 on procurement guidelines, as well as applicable budgeting and accounting laws. The procured equipment must align with the competencies of the Revised ALS Curriculum and shall include basic laboratory kits, manipulatives, science models, measuring devices, geometric tools, and calculators.

5. Any remaining balances from the allocated amount shall be used for the provision and delivery of equipment, including incidental expenses related to their distribution to recipient SBLCs/CLCs. SDOs are given the flexibility to fully utilize these balances for the purposes stated above.

6. The list of eligible Science and Mathematics Equipment, including technical specifications based on the market scoping conducted by the the Bureau of Learning Resources (BLR) and as well as inspection and testing protocol shall be strictly adhered to. These may be accessed through this link: https://tinyurl.com/LTE20242025ALS.

7. The storage, safe keeping, and management of the provided equipment shall comply with DepEd Order No. 20, s. 2022, and other applicable laws, rule and regulations.

8. To ensure proper fund utilization and monitoring of implementation activities, the Regional ALS Focal Persons shall submit a consolidated accomplishment report on the procurement and distribution of the equipment to the Bureau of Alternative Education (BAE) using the template provided in **Attachment 2**.

9. For any clarification or inquiries regarding these guidelines or the allocation of funds, please contact the BAE-Program Management and Systems Development Division (PMSDD) through email at bae.pmsdd@deped.gov.ph.

10. Immediate dissemination of and compliance with this Memorandum is desired.

Copy furnished:

MALCOLM S. GARMA
Undersecretary for Operations

Attachment No. 1 to **DM-OULS-2026-**189

SUMMARY OF FUNDS TO BE DOWNLOADED

Region	Schools Division Offices	Total SDOs	Allocation
Region I	Ilocos Norte, La Union, Pangasinan I, Pangasinan II	4	2,000,000.00
Region II	Cagayan, Isabela, Nueva Vizcaya, Quirino	4	2,000,000.00
Region III	Aurora, Bataan, Bulacan, City of San Jose Del Monte, Nueva Ecija, Pampanga, Tarlac, Tarlac City, Zambales	9	4,500,000.00
Calabarzon	Antipolo City, Bacoor City, Batangas, Cavite, Dasmarinas City, Laguna, Quezon, Rizal	8	4,000,000.00
MIMAROPA	Occidental Mindoro, Oriental Mindoro, Palawan, Romblon	4	2,000,000.00
Region V	Albay, Camarines Sur, Camarines Norte, Catanduanes, Ligao City, Masbate, Masbate City, Sorsogon, Sorsogon City	9	4,500,000.00
Region VI	Aklan, Antique, Capiz, Iloilo, Iloilo City	5	2,500,000.00
NIR	Negros Occidental, Negros Oriental	2	1,000,000.00
Region VII	Bohol, Cebu, Cebu City, Lapu-lapu City	4	2,000,000.00
Region VIII	Biliran, Calbayog City, Eastern Samar, Leyte, Northern Samar, Ormoc City, Southern Leyte, Western Samar	8	4,000,000.00
Region IX	Sulu, Zamboanga Del Norte, Zamboanga Del Sur, Zamboanga Sibugay, Zamboanga City	5	2,500,000.00
Region X	Bukidnon, Cagayan De Oro City, Iligan City, Lanao Del Norte, Malaybalay City, Misamis Occidental, Misamis Oriental, Valencia City	8	4,000,000.00
Region XI	Davao City, Davao De Oro, Davao Del Norte, Davao Del Sur, Davao Occidental, Davao Oriental, Panabo City, Digos City, Tagum City	9	4,500,000.00
Region XII	General Santos, South Cotabato, Sultan Kudarat, North Cotabato, Saranggani	5	2,500,000.00
CARAGA	Agusan Del Sur, Agusan Del Norte, Bayugan City, Butuan City, Dinagat Island, Siargao, Surigao Del Sur,	7	3,500,000.00
NCR	Caloocan City, Las Pinas City, Manila, Muntinlupa City, Paranaque City, Pasay City, Quezon City, Taguig and Pateros City, Valenzuela City	9	4,500,000.00
	TOTAL	100	**50,000,000.00**

Republic of the Philippines

Department of Education

OFFICE OF THE UNDERSECRETARY FOR LEARNING SYSTEMS

Attachment No. 2 to **DM-OULS-2026-**189

ACCOMPLISHMENT REPORT

No.	Region and Schools Division Office	Budget	Physical Accomplishment	Obligation Amount	Disbursement Amount	Unobligated Amount	Remarks

Note: Attach the list of ALS-SBLC/CLC provided with Science and Mathematics Equipment per SDO

Prepared by:

NAME
Regional ALS Focal Person

Approved by:

NAME
Regional Director

Annex A.3

Technical Specifications of LTE-SM for ALS-CLCs

General Specifications	Inspection and Documentary Proof
1.All items must be brand new.	All items including its parts, components and/or peripherals must not have signs of wear, scratches, dirt, and/or discoloration.
2.All item markings, user manuals, and electronic copies must be in English.	Must be comprehensible English and not directly word per word translated from a different language.
3.All item markings and labels especially intended for proper identification, operation, function, graduation and assembly must be permanently marked on the item.	The markings and labels must not be removable by repeated finger rubbing, fingernail scratching, or exposure to water.
4.Items requiring assembly must include an assembly manual in English and all necessary peripherals.	Assembly manuals must show a picture/drawing illustration of the assembly with proper worded instruction, labeling of parts and sequence of assembly.
5.Items with power line electrical requirements must conform to and operate on the standard electric supply in the Philippines	Must be compatible to 220V AC, 50/60 Hz, type A power sockets or type B provided that an adaptor for conversion to type A is included.
6.Items requiring consumables must include an initial quantity sufficient to conduct testing.	Must provide the initial necessary consumables to fully make the item functional for testing.
7.All items must have a brand name permanently marked on the item and/or its appropriate packaging.	The brand name marking must not be removable by repeated finger rubbing, fingernail scratching, or exposure to water.
8.Brand Owner Certification	The bidder must submit a trademark registration proving its exclusive or non-exclusive brand ownership or an authorization from the brand owner that the bidder's manufacturer or the bidder itself will manufacture the items under the brand name for the Department of Education.

9.Manufacturer's Certification	Must submit a Certification from the item Manufacturer that it will manufacture the items for the Department of Education, indicating the following: •The Bidder's company name, company address, and authorized representative(s) •The project name •The list of items In case of multiple Manufacturers, the Bidder must submit Certifications from each of the Manufacturer.
10.Manufacturer's International Standards Compliance	Must submit the following valid and unexpired following Certifications: •ISO 9001:2015 – Quality Management System •ISO 14001:2015 – Environmental Management System •ISO 45001:2018 – Occupational Health and Safety Management System In case of multiple Manufacturers, the Bidder must submit Certifications from each of the Manufacturer.
11.Business Registration	Must submit a valid BIR Certificate of Registration (COR) under the Line of Business - Sub-Class 46900 (non-specialized wholesale trade).
12.Items requiring spare parts must have parts available to DepEd for a minimum of five (5) years, using the same supplied brand.	Must submit a Certificate of Spare Parts Availability indicating the item name(s) from the item Manufacturer that spare parts shall be made available to the Department of Education for a minimum of five (5) years, using the same supplied brand. In case of multiple Manufacturers, the Bidder must submit Certificates from each of the Manufacturer.

Documentary proof for Items 8, 9, 10, 11, 12, and 13 must be submitted as part of the bid submission. Meanwhile, Items 1, 2, 3, 4, 5, 6, 7, and all other item-specific certifications or documents outlined in the detailed technical specifications shall be submitted and verified during sample evaluation at the Post-Qualification stage.

The bidder shall also execute and submit, together with its bid, a notarized undertaking affirming compliance with all the foregoing requirements.

No.	Item Name	Technical Specifications
Biology - Models of Human Anatomy, Other Biological Structures and Species		
1	Model, Animal Cell	Functional Specifications: Used as a visual representation of an animal cell.
		Performance Specifications: Must be able to illustrate structures in an animal cell.
		Design Specifications:
		1. Three-dimensional model with colorful cell structures and raised-relief organelles.
		2. Features: nucleus, nucleolus, nuclear pore, nucleoplasm, nuclear envelope, smooth endoplasmic reticulum, rough endoplasmic reticulum, mitochondrion, ribosome, Golgi apparatus, centriole, lysosome, peroxisome, cytoplasm, cell membrane and chromatin
		3. Dimensions (minimum): 30 cm L x 19 cm W x 42 cm H
		4. Made of non-toxic plastic material (Certificate of non-toxicity is required)

No.	Item Name	Technical Specifications
		5. Mounted on two post stand with stable base.
		6. The model is washable, free from any label, sharp parts and defects.
		7. Paint shall be permanent and not be removed when washed with soap and water.
		8. With name of the model: ANIMAL CELL MODEL (Font style: Arial, Font size: 40, UPPERCASE, BOLD) permanently marked on the base.
		9. Safely packed in a box
		10. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts.
		11. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout orientation: Landscape
		d. Lamination thickness: minimum 0.30 mm
		e. Title: ANIMAL CELL MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD).
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized).
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.
		12. Must be branded and brand new. The brand shall be permanently marked/printed on the base.
2	Model, Animal Meiosis	Functional Specifications: Used to visualize the different phases of animal meiosis.
		Performance Specifications: Must be able to make a comparison between meiosis and mitosis phases and their role in the cell-division cycle.
		Design Specifications:
		1. Three-dimensional relief model made of non-toxic plastic material (Certificate of non-toxicity is required)
		2. A set depicting 10 phases of meiosis namely:
		a) Interphase (G1-phase),
		b) Prophase I (leptotene),
		c) Prophase I (Zygotene and pachytene),
		d) Prophase I (diplotene),
		e) Prophase I (diakinesis),
		f) Metaphase I
		g) Anaphase I,
		h) Telophase I, Cytokinesis I,
		Interkinesis, Prophase II, and
		Metaphase II,
		j) Anaphase II,
		i)Telophase II and Cytokinesis II
		3. Labels of the phases must bear the correct spelling as stated above

No.	Item Name	Technical Specifications
		4. Shows the nucleus, centrioles, centrosome, chromatin, chromosomes, spindle fiber and aster;
		5. The color of the cell models shall be in accordance with the coloring methods of microscopy;
		6. Individual cell model is magnetic and detachable;
		7. Each model rests in a magnetic board/frame;
		8. Magnets shall not separate from the cell model;
		9. Cell models must not fall when the frame is vertically mounted
		10. Product measures (minimum): 59.8 cm long x 5.8 cm thick x 39.8 cm wide
		11. With a stable metal rod that can support the item for free standing storage or hanging up
		12. With name of the model: ANIMAL MEIOSIS MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the board/frame.
		13. Safely packed in a box
		14. With English User's manual that includes the description in each phase of meiosis and storage instructions.
		15. Manual details:
		a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm)
		Cover: Paper board, 280 gsm (minimum 0.30 mm)
		b. Size (minimum): 165 mm x 215 mm Fold
		(minimum): 330 mm x 215 mm Spread
		c. Binding: Saddle Staple
		d. Font type: Arial and Font size (minimum): 10
		e. Pictures shall be in full color
		16. Must be branded and brand new. The brand shall be permanently marked/printed on the board/frame.
3	Model, Animal Mitosis	Functional Specifications: Used to visualize the different phases of animal mitosis.
		Performance Specifications: Must be able to make a comparison between meiosis and mitosis phases and their role in the cell-division cycle.
		Design Specifications:
		1. Three-dimensional relief model made of non-toxic plastic material (Certificate of non-toxicity is required)
		2. A set depicting 9 phases of mitosis namely:
		a) Interphase,
		b) Prophase,
		c) Early Prometaphase,
		d) Late Prometaphase,
		e) Metaphase,
		f) Early Anaphase
		g) Late Anaphase,
		h) Telophase
		i) Cytokinesis
		3. Labels of the phases must bear the correct spelling as stated above

No.	Item Name	Technical Specifications
		4. Shows the nucleus, centrioles, centrosome, chromatin, chromosomes, spindle fiber and aster;
		5. The color of the cell models shall be in accordance with the coloring methods of microscopy;
		6. Individual cell model magnetic and detachable;
		7. Each model rests in a magnetic board/frame;
		8. Magnets shall not separate from the cell model;
		9. Cell models must not fall when the frame is vertically mounted
		10. Product measures (minimum): 59.8 cm long x 5.8 cm thick x 39.8 cm wide
		11. With a stable metal rod that can support the item for free standing storage or hanging up
		12. With name of the model: ANIMAL MITOSIS MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the board/frame.
		13. Safely packed in a box
		14. With English User's manual that includes the description in each phase of meiosis and storage instructions.
		15. Manual details:
		a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm)
		Cover: Paper board, 280 gsm (minimum 0.30 mm)
		b. Size (minimum): 165 mm x 215 mm Fold
		(minimum): 330 mm x 215 mm Spread
		c. Binding: Saddle Staple
		d. Font type: Arial and Font size (minimum): 10
		e. Pictures shall be in full color
		16. Must be branded and brand new. The brand shall be permanently marked/printed on the board/frame.
4	Model, Chloroplast	Functional Specifications: Used to show the complex internal structure of a chloroplast.
		Performance Specifications: Must be able to illustrate parts and the organelles involved in photosynthesis.
		Design Specifications:
		1. Colored 3D model with cut-away section to reveal internal structure.
		2. Made of non-toxic plastic material (Certificate of non-toxicity is required)
		3. Features: ribosome, DNA, starch granule, outer membrane, inner membrane, stroma, thylakoid, granum, lamellae, and lumen.
		4. The model is washable, free from any label, sharp parts and defects.
		5. Paints shall be permanent and not be removed when washed with soap and water
		6. With name of the model: CHLOROPLAST MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base.
		7. Mounted on two posts stand with a stable base.
		8. Dimensions (minimum): 20 cm H x 25 cm L x 23 cm W
		9.Safely packed in a box.

No.	Item Name	Technical Specifications
		10. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts.
		11. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Landscape
		d. Lamination thickness: minimum 0.30 mm
		e. Title: CHLOROPLAST MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 36, UPPERCASE, BOLD).
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized).
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.
		12. Must be branded and brand new. The brand shall be permanently marked/printed on the base.
5	Model, DNA	Functional Specifications: Used as a visual representation of the different components of a DNA structure.
		Performance Specifications: Must be able to illustrate accurately the phosphate, deoxyribose, and base pairs components of a DNA structure.
		Design Specifications:
		1. Depicts a minimum of 16 base pair section/layer DNA
		2. Pre-assembled DNA made of attractive, color-coded, non-toxic, abstract shaped plastic parts that represents each bases (Thymine, Adenine, Guanine & Cytosine), the sugar and phosphate components; (Certificate of non-toxicity is required)
		3. Stands upright with a support rod/central pillar that rotates in stable stand/base.
		4. Minimum model height : 60 cm
		5. The phosphate and deoxyribose can be disassembled along with individual base pairs
		6. Double helix structure
		7. The model can also be uncoiled and ""unzipped"" to produce two strands.
		8. Must be free from sharp parts and defects
		9. With name of the model: DNA MODEL (Font style: Arial, Font size: 24, UPPERCASE, BOLD) permanently marked on the base.
		10. Safely packed in a box
		11. With English User's manual that includes description of the product, its parts, assembly and storage instructions
		12. Manual details:
		a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm)
		Cover: Paper board, 280 gsm (minimum 0.30 mm)
		b. Size (minimum): 165 mm x 215 mm Fold
		(minimum): 330 mm x 215 mm Spread
		c. Binding: Saddle Staple

No.	Item Name	Technical Specifications
		d. Font type: Arial and Font size (minimum): 10
		e. Pictures shall be in full color
		13. Must be branded and brand new. The brand shall be permanently marked/printed on the base.
6	Model, Human Circulatory System	Functional Specifications: Used to show details of blood flow.
		Performance Specifications: Must be able to illustrate how the respiratory and circulatory systems work together to transport nutrients, gases, and other molecules to and from the different parts of the body
		Design Specifications:
		1. Life-size, colored relief model.
		2. Frontal plane is cutaway so blood circulation can be traced to the major organs and extremities.
		3. Made of non-toxic plastic material (Certificate of non-toxicity is required)
		4. With arterial system: aorta artery, brachial artery, iliac artery, renal artery, mesenteric artery, pulmonary artery, carotid artery, tibial artery, femoral artery, palmar digital artery, ulnar artery, radial artery, popliteal artery, subclavian artery
		5. With venous system: basilic vein, renal vein, iliac vein, pulmonary vein, femoral vein, popliteal vein, brachial vein, subclavian vein, palmar digital vein, tibial vein, dorsal venous arch, superior vena cava and inferior vena cava
		6. With heart, lungs, liver, spleen, kidneys, partial skeleton
		7. The model is washable and must be free from any labels.
		8. Paint shall be permanent and not be removed when washed with soap and water.
		9. With name of the model: HUMAN CIRCULATORY SYSTEM MODEL (Font style: Arial, Font size: 32, UPPERCASE, BOLD) permanently printed on the baseboard.
		10. With no sharp parts and defects.
		11. Mounted on a stable baseboard.
		12. Dimensions (minimum): 80cm H x 30cm L x 5cm W
		13. Safely packed in a box
		14. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts.
		15. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Portrait
		d. Lamination thickness: minimum 0.30mm
		e. Title: HUMAN CIRCULATORY SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 24, UPPERCASE, BOLD)
		f. The model picture in white background shall be big enough to occupy the center part of the card.

No.	Item Name	Technical Specifications
		g. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized,)
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled
		16. Must be branded and brand new. The brand shall be permanently marked/printed on the baseboard.
7	Model, Human Digestive System	Functional Specifications: Used to illustrate how food travels through the digestive tract from the mouth, esophagus, stomach, small intestine, large intestine, and excrete wastes to the anus
		Performance Specifications: Provide useful visual representations, which can be used to assist understanding of the various changes and processes that take place in the digestive system.
		Design Specifications:
		1. Made of non-toxic plastic material (Certificate of non-toxicity is required).
		2. Life size, 3-parts, colored relief model that features longitudinal section of head, bisected stomach, with removable transverse colon, full liver with gall bladder, with cutaway caecum to show the junction of small and large intestine.
		3. Mounted on a stable baseboard and can be hung.
		4. The model is washable, free from any label, sharp parts and defects..
		5. Paint shall be permanent and not be removed when washed with soap and water.
		6. With name of the model: HUMAN DIGESTIVE SYSTEM MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base.
		8. Dimensions (minimum): 82 cm H x 31cm L x 9 cm W
		9. Safely packed in a box.
		10. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts (nose, mouth, tongue, pharynx, trachea, esophagus, liver, gall bladder, stomach, spleen, pancreas, appendix, duodenum, jejunum, ileum, appendix, cecum, ascending colon, transverse colon, descending colon, rectum, anus).
		11. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Portrait
		d. Lamination thickness: minimum 0.30 mm
		e. Title: HUMAN DIGESTIVE SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD)
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized).
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.

No.	Item Name	Technical Specifications
		12.Must be branded and brand new. The brand shall be permanently marked/printed on the baseboard.
8	Model, Human Endocrine System	Functional Specifications: Used as a visual representation of the endocrine glands in a human body.
		Performance Specifications: Must be able to illustrate the hormones involved in the female and male reproductive systems; and other hormones present in the human body.
		Design Specifications:
		1. Exhibits frontal section of the human body showing all the glands in the endocrine system.
		2. Both male and female glands are present.
		3. Features: Pineal, hypothalamus, pituitary, thyroid, parathyroid, thymus, adrenal cortex, kidney, pancreas, testes, ovary, and uterus
		4. Colorful relief model made of non-toxic plastic material (Certificate of non-toxicity is required)
		5. With no sharp parts and defects.
		6. The model is washable and must be free from any labels.
		7. Paint shall be permanent and not be removed when washed with soap and water.
		8. With name of the model: HUMAN ENDOCRINE SYSTEM MODEL (Font style: Arial, Font size: 28, UPPERCASE, BOLD) permanently marked/printed on the baseboard.
		9. Mounted on a stable baseboard.
		10. Dimensions (minimum): 38cm L x 24cm W x 6cm H
		11. Safely packed in a box
		12. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts.
		13. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Landscape
		d. Lamination thickness: minimum 0.30mm
		e. Title: HUMAN ENDOCRINE SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD)
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized).
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.
		14. Must be branded and brand new. The brand shall be permanently marked/printed on the baseboard.
9	Model, Human Nervous System	Functional Specifications: Used to illustrate the schematic representation of the central and peripheral nervous system.
		Performance Specifications: Must be able to show the complex network of nerve cells and the motor nerves pathways.
		Design Specifications:

No.	Item Name	Technical Specifications
		1. One-half life-size, colored, relief model made of non-toxic plastic material (Certificate of non-toxicity is required).
		2. The model shows the structure of the nervous system (brain, cerebrum, cerebellum, spinal cord, radial nerve, ulnar nerve, median nerve, lumbar plexus, femoral nerve, sacral plexus, sciatic nerve, brachial plexus, intercostal nerve, common peroneal nerve, tibial nerve, saphenous nerve, finger nerve and toe nerve).
		3. The pathway of the main nerves is well illustrated in relation to the skeleton.
		4. The model is washable, free from any label, sharp parts and defects.
		5. Paint shall be permanent and not be removed when washed with soap and water.
		6. With name of the model: HUMAN NERVOUS SYSTEM MODEL (Font style: Arial, Font size: 30, UPPERCASE, BOLD) permanently marked/printed on the base.
		7. Mounted on a stable baseboard.
		8. Dimensions (minimum): 80cm H x 30cm L x 5 cm W
		9. Safely packed in a box.
		10. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts.
		11. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Portrait
		d. Lamination thickness: minimum 0.30 mm
		e. Title: HUMAN NERVOUS SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 20, UPPERCASE, BOLD)
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized).
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.
		12.Must be branded and brand new. The brand shall be permanently marked/printed on the baseboard.
10	Model, Human Nose (Nasal-Throat Anatomy)	Functional Specifications: Used to illustrate the anatomy of the human nose.
		Performance Specifications: Must be able to show the parts of the sense organs of the human body, specifically the human nose.
		Design Specifications:
		1. Life-size, colorful model that features nasal throat anatomy.
		2. Shows frontal sinus, sphenoid sinus, conchae, nasal vestibule, hard palate, soft palate, oral cavity, tongue, hyoid bone, epiglottis, pharynx, larynx and vocal fold.
		3. Made of non-toxic plastic material (Certificate of non-toxicity is required)

No.	Item Name	Technical Specifications
		4. The model is washable, free from any label, sharp parts and defects.
		5. Paint shall be permanent and not be removed when washed with soap and water.
		6. With name of the model: HUMAN NOSE MODEL (Font style: Arial, Font size: 26, UPPERCASE, BOLD) permanently marked/printed on the base.
		7. Mounted on a stable base.
		8. Dimensions (minimum): 12 cm x 12 cm x 21 cm (width x length x full height)
		9. Safely packed in a box.
		10. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts.
		11. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Portrait
		d. Lamination thickness: minimum 0.30 mm
		e. Title: HUMAN NOSE MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD)
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized).
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.
		12. Must be branded and brand new. The brand shall be permanently marked/printed on the base.
11	Model, Human Skeleton	Functional Specifications: Used as a visual representation of the internal framework of the body.
		Performance Specifications: Must be able to show the different types of bones.
		Design Specifications:
		1. Life-size model made of non-toxic, hard plastic material in natural bone color (Certificate of non-toxicity is required).
		2. Mounted on stable metal stand, stainless steel rod Ø minimum of 12 mm., with 5 legged unbreakable plastic with roller casters as support to the skeleton.
		3. All joints properly articulated and wired; all metal materials that interconnect the bones shall be stainless steel.
		4. Features: frontal, parietal, temporal, occipital, maxilla, mandible, hyoid bone, vertebral column, clavicle, scapula, sternum, xiphoid process, ribs, humerus, radius, ulna, carpals, metacarpals, phalanges, ilium, sacrum, coccyx, pubis, ischium, femur, patella, tibia, fibula, calcaneus, tarsals, metatarsals and phalanges
		5. The model is washable, free from any label, sharp parts and defects.
		6. Minimum height of the human skeleton: 158 cm

No.	Item Name	Technical Specifications
		7. Minimum height after mounting on the stand: 168 cm
		8. Some bones are removable for study.
		9. Enclosed in a plastic (dust cover) and packed in a sturdy box.
		10. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts.
		11. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Portrait
		d. Lamination thickness: minimum 0.30mm
		e.Title: HUMAN SKELETAL SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD)
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized).
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled
		12. Must be branded and brand new. The brand must be permanently marked/printed on the item.
12	Model, Human Torso	Functional Specifications: Used to visualize the structures/organs found in the human body.
		Performance Specifications: Must be able to illustrate how the organs are connected in a system.
		Design Specifications:
		1. Life-size, smooth-finish, plastic material mounted on a stable base.
		2. Detachable head
		3. Open back, exposed spine with 2 to 4 removable vertebra and spinal cord
		4. With interchangeable male and female reproductive organs
		5. (Minimum) 32 dissectible parts that include:
		a.) removable head (parts of mouth and nasopharynx exposed) b.) with brain exposed (1 to 8 parts) with arteries c.) eye with optic nerve d.) female breast plate with plate rib; e.) right and left lung (2 to 4 parts) f.) heart (2-parts) g.) stomach (2-parts) h.) liver with gall bladder, i.) intestinal tract with appendix flap (3 to 4 parts) j.) kidney half k.) 3-part female genital organ with removable fetus l.) 4-part male genital organ
		6. Height (minimum): 84.5 cm.
		7. True to life color and free from toxic materials (Certificate of non-toxicity is required).

No.	Item Name	Technical Specifications
		8. Will be able to stand upright with removable parts intact and not falling.
		9. The model is washable, free from any labels and sharp parts.
		10. Paint shall be permanent and not be removed when washed with soap and water.
		11. With name of the model: HUMAN TORSO MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked/printed on the base.
		12. Enclosed in a polystyrene foam and packed in a sturdy box
		13. With English User's manual that includes description of the model, diagram with labels, and guide on how to assemble/disassemble the model.
		14. Manual details:
		a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm)
		Cover: Paper board, 280 gsm (minimum 0.30 mm)
		b. Size (minimum): 165 mm x 215 mm Fold;
		(minimum): 330 mm x 215 mm Spread
		c. Binding: Saddle Staple
		d. Font type: Arial and Font size (minimum): 10
		e. Pictures shall be in full color
		15. Must be branded and brand new. The brand shall be permanently marked/printed on the base.
13	Model, Invertebrates	Functional Specifications: Used to provide information on the anatomy of invertebrate animals.
		Performance Specifications: Must be able to show the major parts of the invertebrate animals.
		Design Specifications:
		1. No sharp parts, non-toxic plastic/rubber, true-to-life color, 3D replicas of invertebrates (Certificate of non-toxicity is required)
		2. With life-like shapes
		3. The models are washable and must be free from any labels.
		4. Paint shall be permanent and not be removed when washed with soap and water.
		5. Each is packed in resealable plastic bag
		6. Invertebrate models:
		a. Soft rubber Centipede - Length (minimum): 15 cm
		b. Plastic Scorpion - Length (minimum): 15 cm
		c. Plastic Crayfish or Shrimp - Length (minimum): 12 cm
		7. Each invertebrate model comes with a plastic laminated key card that shall contain the actual-colored picture of the model labeled with the required parts
		8. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Landscape
		d. Lamination thickness: minimum 0.30mm
		e. Titles of the key card as stated below: Shall be placed at the top-center (Font style: Arial, Font Size: 28, UPPERCASE, BOLD)
		e.1 INVERTEBRATE: CENTIPEDE MODEL KEY CARD

No.	Item Name	Technical Specifications
		Features: Tail-like rear pair of legs, segmented trunk, many legs, head, eye, antennae and maxilliped with poison fang
		e.2 INVERTEBRATE: CRAYFISH or SHRIMP MODEL KEY CARD
		SHRIMP features: Eye, antennae, rostrum, carapace, abdomen, swimming legs, walking legs, telson, tail
		CRAYFISH features: Eye, antennae, rostrum, carapace, cheliped, abdomen, walking legs, telson, tail
		e.3 INVERTEBRATE: SCORPION MODEL KEY CARD
		Features: Pedipalp (pincer), eyes, legs, carapace, chelicerae, anus, telson, stinger
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized)
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled
		9. Must be brand new.
14	Model, Lung Demonstration	Functional Specifications: Used to demonstrate how the lungs work and the concept of respiration.
		Performance Specifications: Must be able to demonstrate the process of respiration.
		Design Specifications:
		1. This interactive, model consists of the following:
		a. clear plastic enclosure
		b. two (2) rubber balloons
		c. elastic rubber membrane
		d. rubber stopper (with one hole) that snugly fits the mouth of the bell jar
		e. Y-tube whose diameter fits the hole on the rubber stopper
		2. Made of non-toxic materials (Certificate of non-toxicity is required)
		3. Minimum base diameter : 18 cm
		4. Minimum height (including stopper): 32 cm
		5. Safely packed in a box
		6. With English User's manual that shall provide description of the model, it's operation and maintenance guide.
		7. Manual details:
		a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm)
		Cover: Paper board, 280 gsm (minimum 0.30 mm)
		b. Size (minimum): 165 mm x 215 mm Fold
		(minimum): 330 mm x 215 mm Spread
		c. Binding: Saddle Staple
		d. Font type: Arial and Font size (minimum): 10
		e. Pictures shall be in full color
		8. Must be branded and brand new. The brand shall be permanently marked/printed on the item.
15	Model, Mitochondrion	Functional Specifications: Used as a visual representation of the working organelles that keep the cell in full energy.

No.	Item Name	Technical Specifications
		Performance Specifications: Must be able to visually represent the structure of mitochondrion as the main organelle involved in respiration.
		Design Specifications:
		1. One-piece 3D model made of non-toxic plastic material (Certificate of non-toxicity is required)
		2. Features: Inner membrane, outer membrane, cristae, matrix, intermembrane space, DNA, ribosome and granule
		3. Shall be in cross-section longitudinal structure
		4. The model is washable, free from any label, sharp parts and defects.
		5. Paint shall be permanent and not be removed when washed with soap and water.
		6. With name of the model: MITOCHONDRION MODEL (Font style: Arial, Font size: 40, UPPERCASE, BOLD) permanently marked on the base.
		7. Mounted on a stable base
		8. Dimensions (minimum): 40 cm L x 20 cm W x 12 cm H
		9. Safely packed in a box
		10. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts.
		11. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Landscape
		d.Lamination thickness: minimum 0.30 mm
		e. Title: MITOCHONDRION MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD)
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized).
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.
		12. Must be branded and brand new. The brand shall be permanently marked/printed on the base
16	Model, Plant Cell	Functional Specifications: Used as a visual representation of a plant cell.
		Performance Specifications: Must be able to illustrate structures in a plant cell.
		Design Specifications:
		1. Two-piece plant cell 3D model
		2. Shape: Irregular
		3. With colorful cell structures and raised-relief organelles
		4. Features: cell wall, cytoplasm, ribosome, Golgi apparatus, mitochondrion, chloroplast, nucleus, nucleolus, nucelar envelope, nuclear pore, peroxisome, plasmodesma, smooth endoplasmic reticulum, rough endoplasmic reticulum and vacuole.

No.	Item Name	Technical Specifications
		5. Dimensions (minimum): 19.5 cm L x 11 cm W x 32.5 cm H
		6. Made of non-toxic plastic material (Certificate of non-toxicity is required)
		7. The model is free from any label, sharp parts and defects.
		8. Paint shall be permanent and not be removed when washed with soap and water.
		9. With name of the model: PLANT CELL MODEL (Font style: Arial, Font size: 20, UPPERCASE, BOLD) permanently marked on the model itself or onto the base if the model is supplied with a base.
		10. Safely packed in a box
		11. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including name and labeled with the required parts.
		12. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Landscape
		d. Lamination thickness: minimum 0.30mm
		e. Title: PLANT CELL MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 34, UPPERCASE, BOLD)
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized).
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled
		13. Must be branded and brand new. The brand shall be permanently marked/printed on the item or base whenever applicable.
17	Model, Pumping Heart	Functional Specifications: Used to simulate blood flow through the heart chambers.
		Performance Specifications: Must be able to demonstrate basic heart and pulmonary blood flow.
		Design Specifications:
		1. An interactive model that illustrates how the heart and lungs work together for oxygen exchange
		2. With heart chambers, main artery, veins and lungs labeled clearly
		3. Made of non-toxic plastic material; with a rubber pump (Certificate of non-toxicity is required)
		4. The liquid is sealed in the model
		5. Inclusion: Two (2) extra stopper screws and packs of dye
		6. Dimensions (minimum): 29 cm L x 27 cm W x 12 cm D
		7. Safely packed in a box
		8. With User's manual that shall provide guide on how it works; with heart study/activity instructions
		9. Manual details:
		a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm)
		Cover: Paper board, 280 gsm (minimum 0.30 mm)

No.	Item Name	Technical Specifications
		b. Size (minimum): 165 mm x 215 mm Fold
		(minimum): 330 mm x 215 mm Spread
		c. Binding: Saddle Staple
		d. Font type: Arial and Font size (minimum): 10
		e. Pictures shall be in full color
		10. Must be branded and brand new. The brand shall be permanently marked/printed on the item.
18	Model, Reproductive System, Female (Pelvic Anatomy)	Functional Specifications: Used to visually represent the female reproductive system.
		Performance Specifications: Must be able to show the parts of the female reproductive and genitourinary system.
		Design Specifications:
		1. Shows a longitudinal section of one-piece, life-size female pelvis.
		2. Exhibits colored internal structures of the genitourinary system: urinary bladder, urethra, vagina, cervix, uterus, ovary, fallopian tube, fimbria, rectum, labium minus and labium majus.
		3. Made of non-toxic plastic material (Certificate of non-toxicity is required)
		4. The model is washable, free from any labels and sharp parts.
		5. Paint shall be permanent and not be removed when washed with soap and water.
		6. With name of the model: FEMALE REPRODUCTIVE SYSTEM (PELVIC ANATOMY) MODEL (Font style: Arial, Font size: 16, UPPERCASE, BOLD) permanently marked/printed on the base
		7. Dimensions (minimum): 25 cm L x 18 cm W x 28 cm H
		8. Mounted on a stable base.
		9. Safely packed in a box.
		10. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts.
		11. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Landscape
		d. Lamination thickness: minimum 0.30 mm

No.	Item Name	Technical Specifications
		e.Title: FEMALE REPRODUCTIVE SYSTEM (PELVIC ANATOMY) MODEL KEY CARD shall be placed at the top- center (Font style: Arial, Font Size: 22, UPPERCASE, BOLD)
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized).
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.
		12. Must be branded and brand new. The brand shall be permanently marked/printed on the base.
19	Model, Reproductive System, Male	Functional Specifications: Used to visually represent the male reproductive system.
		Performance Specifications: Must be able to show the parts of the male urology and reproductive system.
		Design Specifications:
		1. Shows a longitudinal section of one-piece, life-size male pelvis.
		2. Exhibits bladder, prostate, rectum, seminal vesicle, testicle, epididymis, penis, vas deferens and urethra
		3. Made of non-toxic plastic material (Certificate of non-toxicity is required)
		4. The model is washable, free from any label, sharp parts and defects.
		5. Paint shall be permanent and not be removed when washed with soap and water.
		6. With name of the model: MALE REPRODUCTIVE SYSTEM MODEL (Font style: Arial, Font size: 26, UPPERCASE, BOLD) permanently marked/printed on the base.
		7. Mounted on a stable base
		8. Dimensions (minimum): 25 cm L x 18 cm W x 28 cm H
		9. Safely packed in a box
		10. Comes with a plastic laminated key card that shall contain the actual colored picture of the model including the name and labeled with the required parts.
		11. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Landscape
		d. Lamination thickness: minimum 0.30mm
		e. Title: MALE REPRODUCTIVE SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD)
		f. The model picture in white background shall be big enough to occupy the center part of the card.
		g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized)
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled

No.	Item Name	Technical Specifications
		12. Must be branded and brand new. The brand shall be permanently marked/printed on the base.
20	Model, Vertebrates	Functional Specifications: Used to provide information on the anatomy of vertebrate animals.
		Performance Specifications: Must be able to show the major parts of the vertebrate animals.
		Design Specifications:
		1. No sharp parts, non-toxic plastic/rubber, true-to-life color, 3D replicas of vertebrates (Certificate of non-toxicity is required)
		2. With life-like shapes
		3. The models are washable and must be free from any labels.
		4. Paint shall be permanent and not be removed when washed with soap and water.
		5. Each is packed in a resealable plastic bag.
		6. Vertebrate models:
		a. Soft rubber SNAKE - Length (minimum): 60 cm.
		b. Plastic balancing eagle with transparent pyramid tower
		Eagle (minimum): 12.8 cm L x 9.8 cm W x 2.0 cm H
		Pyramid Stand (minimum): 3.8 cm L x 3.8 cm W x 4.8 cm H
		c. Plastic Shark - Length (minimum): 15 cm
		7. Each vertebrate model comes with a plastic laminated key card that shall contain the actual-colored picture of the model and labeled with the required parts.
		8. Key card details:
		a. A4 size copy paper
		b. Margin of 1/2 inch on all sides; with 2 pt width border line
		c. Layout Orientation: Landscape
		d.Lamination thickness: minimum 0.30mm
		e. Titles of key cards as stated below: Shall be placed at the top-center (Font style: Arial, Font Size: 28, UPPERCASE, BOLD)
		e.1 VERTEBRATE: SHARK MODEL KEY CARD
		Features: Snout, eye, mouth, nostril, gill slit, first dorsal fin, second dorsal fin, pectoral fin, pelvic fin, and caudal fin
		e.2 VERTEBRATE: BIRD MODEL KEY CARD
		Features: Head, feather, tail, body, beak, eye, and wing
		e.3 VERTEBRATE: SNAKE MODEL KEY CARD
		Features: Head, eye, mouth, tongue, body, scales, and tail
		f. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels.
		g. Labels shall be without frame (Font style: Arial, Font size: 14, First letter of the label is capitalized).
		h. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.
		9. Must be brand new
BLR Design SMEs		
1	BLR-developed Basic Scikit: Test Tube Rack	Functional Specifications: used for resting racks for test tubes both for specimen viewing and storage

No.	Item Name	Technical Specifications
		Performance Specifications: should be able to keep test tubes in placeused for resting racks for test tubes both for specimen viewing and storage
		Design Specifications: please see Technical Drawing (https://bit.ly/48JaH1C)
2	BLR-developed Basic Scikit: Wire Gauze	Functional Specifications: used to diffuse open flame in activities that involve heating
		Performance Specifications: should be able to diffuse open flame in activities that involve heating
		Design Specifications: please see Technical Drawing (https://bit.ly/45eOAgB)
3	BLR-developed Blackboard Compass	Functional Specifications: used to aid teacher in constructing/drawing circles on board
		Performance Specifications: should be able to draw visible/large circles on board
		Design Specifications: please see Technical Drawing (https://bit.ly/3RLhhhW)
4	BLR-developed Blackboard Protractor	Functional Specifications: used to aid teacher in constructing/drawing angles, arcs, and circles on board
		Performance Specifications: should be able to draw visible/large angles, arcs, and circles on board
		Design Specifications: please see Technical Drawing (https://bit.ly/48B02pH)
5	BLR-developed SCIKIT BASIC 002: Test Tube Holder	Functional Specifications: is used for holding heated test tubes
		Performance Specifications: should be stable in holding heated test tubes
		Design Specifications: please see Technical Drawing (https://bit.ly/3rDTMN6)
6	BLR-developed: Fraction Set	Functional Specifications: used to demonstrate part-to-whole concept using shapes
		Performance Specifications: must be able to demonstrate fraction as a concept using whole and fractional part of a circle and square
		Design Specifications: please see Technical Drawing (https://bit.ly/3ZNM7sb)
7	BLR-developed: Linear Pair/Angle Demonstrator	Functional Specifications: used to demonstrate kinds of angles and some angle relationship
		Performance Specifications: must be able to demonstrate acute, obtuse, and right angle and deduct the said angles' definitions
		Design Specifications: please see Technical Drawing (https://bit.ly/3RJeZjt)
8	BLR-developed: Number Blocks	Functional Specifications: used in number recognition and fundamental operation
		Performance Specifications: must be sturdy when thrown and show specific number and/or operation; be able to perform like dice
		Design Specifications: please see Technical Drawing (https://bit.ly/48B05Sp)

No.	Item Name	Technical Specifications
9	BLR-developed: Place Value Chart with decimal pockets	Functional Specifications: used to visualize whole and decimal numbers' place value
		Performance Specifications: must be able to hold number cards and some base ten blocks
		Design Specifications: please see Technical Drawing (https://bit.ly/48EU6Ml)
Chemistry - Chemicals		
1	Benedict's Solution, 100 mL/bottle	Functional Specifications: Used to test for levels/ traces of simple reducing sugars
		Performance Specifications: Must be able to test for the presence (levels of traces) of reducing sugars such as glucose.
		A positive test with Benedict's reagent is shown by a color change from clear blue to:
		a) blue solution - 0 g % (no trace of simple reducing sugar)
		b) green precipitate- 0.5 to 1.0 g % (traces of simple reducing sugar)
		c) yellow precipitate- 1.0-1.5 g % (low simple reducing sugar)
		d) orange precipitate - 1.5 to 2.0 g % (moderate simple reducing sugar)
		e) brick-red precipitate - greater than 2.0 g % (high presence of simple reducing sugar)
		Design Specifications:
		1. Features an aqua blue liquid
		2. Chemical Formula: $CuSO_4.5H_2O + Na_2CO_3 + Na2C_6H_5O_7$
		3. Capacity: 100 mL
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		7. Expiration dates should be at least two years
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)
		9. Comes with a brand printed permanently on the product label
		10. Must be brand new
2	Boric Acid, 100 grams/bottle	Functional Specifications: Used as a substrate in Flame test to visually identify boron or its specific unknown metalloid ion based on the characteristic color it emits on the Bunsen flame.

No.	Item Name	Technical Specifications
		Performance Specifications: Must be used as a substrate in Flame test to visually identify boron, or its ion based on the characteristic color it emits on the Bunsen flame. Boric acid emits a bright green color which indicates the presence of boron or its ion
		Design Specifications:
		1. Features a colorless or white, odorless and crystalline solid
		2. Chemical formula : H3BO3
		3. Mass/bottle : 100 g
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		7. Expiration dates should be at least two years
		8. Accompanied with Certificate of Analysis and SDS(Safety Data Sheet)
		9. Comes with a brand printed permanently on the product label
		10. Must be brand new
3	Bromothymol Blue	Functional Specifications: Used as an indicator of dissolved Carbon dioxide.
		Performance Specifications: Must be able to show the effect of changes in abiotic factors on the ecosystem.
		Design Specifications:
		1. Color: Dark Blue/blue-black
		2. Concentration: 0.04% aqueous solution (as indicated in the product label)
		3. Capacity: 100 mL
		4. With Safety Data Sheet
		5. The chemical must be in original plastic bottle with threaded chemical seal cover.
		6. Properly labeled with the chemical name, concentration, name of the manufacturer, manufacturing and expiry dates. Expiration shall be at least two years.
		7. Comes with a brand printed permanently on the product label.
		8. Must be brand new
4	Calcium Chloride, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify calcium or its ion based on the characteristic color it emits on the Bunsen flame.
		Performance Specifications: Used as a substrate in Flame test to visually identify calcium element, or an unknown metalloid ion based on the characteristic color the chemical emits on the Bunsen flame. Calcium chloride emits an orange red/yellowish red color which indicates the presence of the calcium ion
		Design Specifications:
		1. Features a white powder, crystals or granules

No.	Item Name	Technical Specifications
		2. Chemical Formula : $CaCl_2$
		3. Mass per bottle : 100 grams
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		7. Expiration dates should be at least two years
		8. Accompanied with Certificate of Analysis and with SDS (Safety Data Sheet)
		9. With brand printed permanently on the product label
		10. Must be brand new
5	Copper Sulfate, $CuSO_4$, 100 grams/bottle	Functional Specifications: Used as : a) an oxidizing agent or oxidant and is reduced in a spontaneous [chemical (redox) reaction decreasing its oxidation state with metals above it, like zinc, in the Activity Series of Metals]
		b) a substrate in Flame test to visually identify copper or its ion based on the characteristic color it emits on the Bunsen flame .
		Performance Specifications: Must be able to
		a) oxidize the other reactant of a spontaneous redox reaction by gaining electrons reducing its oxidation state with metals above it, like zinc, in the Activity Series of Metals, resulting in copper in the free state and the salt of the metal being displaced.
		b) a substrate in Flame test to visually identify copper or its ion based on the characteristic color it emits on the Bunsen flame. Copper sulfate emits blue green color on the Bunsen flame.
		Design Specifications:
		1. Features a blue, odorless crystalline solid
		2. Chemical formula : $CuSO_4$
		3. Mass per bottle : 100 g
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.
		5. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		7. Expiration dates should be at least two years
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)
		9. With brand printed permanently on the product label
		10. Must be brand new

No.	Item Name	Technical Specifications
6	Gentian Violet, 100 ml / bottle	Functional Specifications: Used in microscopy as biological stain.
		Performance Specifications: Must be able to enhance animal cell image as to presence or absence of some organelles.
		Design Specifications:
		1. Capacity : 100 mL per bottle
		2. Color: Blue-violet/dark purple
		3. With Safety Data Sheet
		4. The chemical must be in original plastic bottle with threaded chemical seal cover.
		5. Properly labeled with chemical name, name of the manufacturer, manufacturing and expiry dates. Expiration shall be at least two years.
		6. Comes with a brand printed permanently on the product label.
		7. Must be brand new
7	Iodine Solution, 100 ml / bottle	Functional Specifications: Used in microscopy as biological stain.
		Performance Specifications: Must be able to enhance plant cells as to presence or absence of some organelles.
		Design Specifications:
		1. Capacity: 100 mL per bottle
		2. Color: Light orange-brown
		3. With Safety Data Sheet
		4. The chemical must be in original amber or opaque plastic bottle with threaded chemical seal cover.
		5. Properly labeled with chemical name, name of the manufacturer, manufacturing and expiry dates. Expiration shall be at least two years.
		6. Comes with a brand printed permanently on the product label.
		7. Must be brand new
8	Magnesium Ribbon, 25 grams, 1 roll	Functional Specifications: Used as a reactant and is ignited over a flame to demonstrate a highly exothermic combustion reaction
		Performance Specifications: Must be able to produce a highly exothermic combustion reaction resulting in a blinding white light and intense heat when ignited over a flame. A white powdery solid, magnesium oxide is produced
		Design Specifications:
		1. Features a relatively soft, lightweight solid metal
		2. Color : Shiny silvery gray--white
		3. Chemical formula : Mg
		4. Form : Solid (ribbon)
		5. Mass per roll : 25-27 g
		6. Number of roll : 1 roll
		7. Comes in original plastic packing
		8. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.

No.	Item Name	Technical Specifications
		9. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		10. Expiration dates should be at least two years
		11. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)
		12. Comes with a brand printed permanently on the product label
		13. Must be brand new
9	Manganese Dioxide, 50 grams / bottle	Functional Specifications: Used as a catalyst to demonstrate decomposition reaction of hydrogen peroxide and observe its effect on the rate of chemical reaction
		Performance Specifications: Must be used as a catalyst and to undergo a spontaneous chemical reaction in the decomposition of hydrogen peroxide to produce bubbles of oxygen gas and water and to demonstrate its effect on the rate of chemical reaction
		Design Specifications:
		1. Form: Solid powder
		2. Color : Brown-black solid/ blackish or brown solid
		3. Chemical formula : MnO_2
		4. Mass per bottle : 50 g
		5.Comes in original screw type plastic packing with threaded chemical seal pack bottle.
		6. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer and with appropriate hazard warning.
		7. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		8. Expiration dates should be at least two years
		9. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)
		10. Comes with a brand printed permanently on the product label
		11. Must be brand new
10	Microscope's Immersion Oil, 100mL/bot	Functional Specifications: Used to increase the resolving power of the microscope's 100x objective.
		Performance Specifications: Must be able to give a clear and very distinct image of the specimen.
		Design Specifications:
		1. Capacity: 100 mL/bottle
		2. Non-drying, clear and transparent
		3. With Refractive index range: 1.515 - 1.518 (as indicated in SDS, product label or certificate)
		4. With Safety Data Sheet
		5. The chemical must be in original plastic bottle with threaded chemical seal cover.
		6. Properly labeled with chemical name, name of the manufacturer, manufacturing and expiry date. Expiration shall be at least two years.

No.	Item Name	Technical Specifications
		7. Comes with a brand printed permanently on the product label.
		8. Must be brand new.
11	Phenolphthalein, 100 grams/bottle	Functional Specifications: Used as an indicator to effect a color change to distinguish an acid from a base and in perforing acid base titration
		Performance Specifications: Must be used as an indicator to distinguish and acid from a base and in performing acidbase titration, as it indicates the change in pH by changing its color , the results vary:
		a) For a base, it gives a pink color
		b) For an acid, it is colorless
		Design Specifications:
		1. Features a white to cream, odorless solid powder
		2. Chemical formula : C20H14O4
		3. Mass per bottle : 100 g
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		7.Expiration dates should be at least two years
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)
		9. Comes with a brand printed permanently on the product label
		10. Must be brand new
12	Potassium Chloride, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify a specific element or an unknown metalloid ion based on the characteristic color it emits on the Bunsen flame.
		Performance Specifications: Must be used as :
		a) a substrate in Flame test to visually identify potassium element, or its ion based on the characteristic color it emits on the Bunsen flame.
		Potassium chloride emits a light lilac color which indicates the presence of the potassium ion
		b) as a catalyst and to undergo a spontaneous chemical reaction in the decomposition of hydrogen peroxide to produce bubbles of oxygen gas and water to demonstrate the effect of catalyst on the rate of chemical reaction
		Design Specifications:
		1. Features a white crystalline solid
		2. Chemical formula : KCl
		3. Mass per bottle: 100 g
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning

No.	Item Name	Technical Specifications
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		7. Expiration dates should be at least two years
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)
		9. Comes with a brand printed permanently on the product label
		10. Must be brand new
13	Potassium Iodide, 100 grams / bottle	Functional Specifications: Used as : a) a substrate in Flame test to visually identify potassium or its ion based on the characteristic color it emits on the Bunsen flame
		b) a catalyst to demonstrate decomposition reaction of hydrogen peroxide to form water and oxygen
		Performance Specifications: Must be : a) used as a substrate in Flame test to visually identify potassium , or its ion based on the characteristic color the chemical emits on the Bunsen flame. Potassium iodide emits a lilac color which indicates the presence of the potassium ion
		b) able to undergo a spontaneous decomposition of hydrogen peroxide into bubbles of oxygen gas and water
		Design Specifications:
		1. Features white granules and crystals solid
		2. Chemical formula: KI
		3. Mass per bottle: 100 g
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		7. Expiration dates should be at least two years
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)
		9. Comes with a brand printed permanently on the product label
		10. Must be brand new
14	Sodium Hydroxide (Lye), 250 grams/bottle	Functional Specifications: Used :
		a) to differentiate an acid from a base
		b) as a titrant added from a base burette in acid base titration
		Performance Specifications: a) Must turn pink when added with drop/s of phenolphthalein and be able to neutralize an acid to form salt and water

No.	Item Name	Technical Specifications
		b) In acid-base titration, the sodium hydroxide is used as a titrant added from an base buret to a known quantity of the analyte (the unknown solution) until the reaction is complete. Knowing the volume of titrant added allows the determination of the concentration of the unknownusing the formula : Na=NbVb/Va
		c) pH value : pH 13-14
		Design Specifications:
		1. Features a white semi-transparent odorless hygroscopic solid
		2. Chemical formula : NaOH
		3. Mass per bottle : 250 grams
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		7. Expiration dates should be at least two years
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)
		9. Comes with a brand printed permanently on the product label
		10. Must be brand new
15	Zinc Chloride, 100 grams / bottle	Functional Specifications: Used as a substrate in Flame test to visually identify zinc or its ion based on the characteristic color it emits on the Bunsen flame.
		Performance Specifications: Must be used as a substrate in Flame test to visually identify zinc element or its ion based on the characteristic color it emits on the Bunsen flame. Zinc chloride emits a blue green to pale green/colorless color which indicates the presence of the zinc ion
		Design Specifications:
		1. Features a white crystalline/granular solid powder
		2. Chemical Formula : $ZnCl_2$
		3. Mass per plastic bottle: 100 grams
		4. Comes in original screw type plastic packing with threaded chemical seal pack bottle.
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		7. Expiration dates should be at least two years
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)
		9. Comes with a brand marked permanently on the product label
		10. Must be brand new

No.	Item Name	Technical Specifications
16	Zinc metal, pellets/mossy, 100 grams / bottle	Functional Specifications: Used as a reducing agent to reduce the other reactant of a single displacement (redox reaction) with metals above it in the Activity Series of Metals
		Performance Specifications: Must be able to reduce the other reactant of a single displacement (redox) reaction with metals above it in the Activity Series of Metals, , like zinc, to produce salt and the displaced metal in its free state
		Design Specifications:
		1. Features a bluish white, or as a grey powder/pellets/mossy solid
		2. Chemical Formula : Zn
		3. Mass per plastic bottle : 100 grams
		4. Comes in original screw type plastic packing, with threaded chemical seal pack bottle.
		5. Properly labeled with full chemical name, chemical formula,the name and address of the manufacturer and with appropriate hazard warning
		6. With manufacturing and expiry date, chemical assay, and other useful information regarding the product.
		7. Expiration dates should be at least two years
		8. Accompanied with Certificate of Analysis and SDS (Safety Data Sheet)
		9. Comes with a brand printed permanently on the product label
		10. Must be brand new
Laboratory Glasswares, Tools, Equipment and Accessories		
1	Balance, Triple Beam, with tare, 2610-gram	Functional Specifications: To measure mass of solids, liquids and gases accurate up to 0.1 g readability
		Performance Specifications: Must be able to measure mass of solids and liquids accurate up to 0.1 g readability to determine mass relationship in a chemical reaction
		Design Specifications:
		1. Features three graduated-tier beam with pan
		2. Display : Easy to-read deep-notched, tiered beams and dial plates
		3. Material of weighing pan: Stainless Steel
		4. Shape of weighing pan: Circular
		5. Pan size diameter : 150-151 mm
		6. Material of base : Cast metal with corrosion resistant smooth finish
		7. With spring, loaded zero-adjust compensator
		8. With self-aligning agate bearings, precision ground steel knife edges
		9. With magnetic dampening to minimize oscillation and speed weighing
		10. With adjustment knob for taring
		11. With iron stand assembly (stand rod and C clamp) for fastening on the table and suspending the triple beam balance on air for specific gravity determination

No.	Item Name	Technical Specifications
		12. Maximum Capacity : 2610 grams
		13. Accuracy : 0.10 gram readability
		14. With three beam graduations:
		a) Rear beam : 100 g X 10 g
		b) Center beam : 500 g X 100 g
		c) Front beam : 10 g X 0.1 g
		15. Equipped with three separate masses/counterweights:
		a) 2 pc 1,000 grams counter weights
		b) 1-pc 500 grams counter weight
		16. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to standards of the country of origin
		17. With English User's manual that contains Operation guide and also indicates formula and procedure in determining specific gravity and taring.
		18. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation in a USB and shall contain the following:
		I. Training Video Contents:
		a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Sample Experiment/Activity using the equipment e. Maintenance of the equipment f. Troubleshooting g. Storage and safekeeping (include cleaning) of the equipment
		II. Training Video details:
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).
		19. Must be free from rust and dirt, breakage, cracks, chipped and sharp edges, other surface irregularities including all other defects not stated herein
		20. Enclosed in a polystyrene and packed in a sturdy box
		21. Comes with a brand marked permanently onto the item and
		22. Must be brand new
2	Beaker, borosilicate, 250 mL	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 100°C for normal, standard use service

No.	Item Name	Technical Specifications
		Performance Specifications: Must be able to contain/hold /prepare solids and liquids during chemical reaction and heats them over a Bunsen burner's flame up to more than 100°C for normal, standard use service
		Design Specifications:
		1. Features a cylindrical container with straight sides, a flat bottom, with a beaded rim and with a small spout (or "beak") to aid in pouring.
		2. Material: Borosilicate, clear, smooth, and transparent bubble-free glass with the following dimensions:
		Outside diameter: 68-70mm
		Height: 90-92 mm
		Thickness: 1.5 mm to 2.0 mm
		3. Type: Griffin, low form
		4. Features an easy-pour spout
		5. With permanent colored graduations of approximate volumes, large colored easy to read block letters, numbers and inscriptions/markings enamelled onto the glass, which includes the following:
		a) Capacity: 250 mL
		b) Manufacturer's name or trademark
		c) With large white marking spot
		d) With double graduated metric scale
		d1) With marking graduation to fill: starts at 25 mL in 25mL increments
		d2) With marking graduation to empty: starts at 0 mL in 200 mL increments
		d3) Graduation interval: 25 mL
		d4) Graduation range: 25 mL to 200 mL
		6. Must be able to stand solidly/is stable when placed on a level surface
		7. Must be free from breakage, cracks, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein
		8. Must be able to withstand heating of water up to 150 deg C
		9. Wrapped in paper, enclosed in bubble wrap and packed individually in a compartmentalized box
		10. Comes with a brand enamelled permanently onto the glass
		11. Must be brand new
3	Beaker, borosilicate, 50 mL	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 100 °C
		Performance Specifications: Must be able to contain/hold /prepare solids and liquids during chemical reaction and heats them over a Bunsen burner's flame up to more than 100 °C
		Design Specifications:

No.	Item Name	Technical Specifications
		1. Features a cylindrical container with straight sides, a flat bottom with a beaded rim and a small spout (or "beak") to aid in pouring
		2. Material: Borosilicate, clear, smooth, and transparent bubble-free glass with the following dimensions:
		Outer diameter: 40-42 mm
		Height: 55-57 mm
		Thickness: 1.5 to 2.0 mm
		3. Type: Griffin, low form
		4. Features an easy-pour spout
		5. With permanent colored graduations of approximate volumes, large colored easy to read block letters, numbers and inscriptions/ markings enamelled onto the glass, which includes the following:
		a) Capacity: 50 mL
		b) Manufacturer's name or trademark
		c) With large white marking spot
		d) With single graduated metric scale
		d1)With marking graduation to fill: starts at 10 mL in 10 mL increments
		d2) Graduation interval: 10 mL
		d3) Graduation range: 10 mL to 40 mL
		6. Must be able to stand solidly/is stable when placed on a level surface
		7. Must be free from breakage, cracks, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein
		8. Wrapped in paper, enclosed in bubble wrap and packed individually in compartmentalized box.
		9. Comes with a brand enamelled permanently onto the glass
		10. Must be brand new
4	Digital pocket thermometer	Functional Specifications: Used to measure the temperature
		Performance Specifications: Must measure the temperature , -20° to 110°C
		Design Specifications:
		1. Type : Digital pen type, pocket, compact, and easy to use
		2. Features a small sealed tube that has a probe which fits its own case
		Over all length : 203-204 mm
		Material of probe : Stainless steel
		Length of probe : 107.95-122 mm
		3. With own plastic/polycarbonate case
		4. Field calibratable at any temperature
		5. Waterproof
		6. WIth Power : one 1.5-volt battery
		7. With large, easy-to-read LCD display
		8.Includes an on/off switch
		9. F / °C switchable button
		10. With data hold button
		11.With automatic shutoff after 10 minutes

No.	Item Name	Technical Specifications
		12. Temperature Range: –50 to 200 °C / –58 to 392 °F
		13. Resolution: 0.1 °C / 0.2 °F / 0.1° C or F from –19.9 to 199.9°, otherwise 1°
		14. Accuracy: ±1 °C / ±2 °F over full range.
		15. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin
		16. Must be free from breakage , cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein.
		17. Comes with a brand printed premanently onto the item
		18. Must be brand new
5	Dish, Evaporating, 75 mL	Functional Specifications: Used to contain/hold substances and to heat chemical solutions gradually, driving off the water to leave residual chemical solute
		Performance Specifications: Must be able to contain/hold substances and to demonstrate evaporation, as one of the techniques in separating mixtures, by heating chemical solutions gradually, driving off the water to leave residual chemical solute
		Design Specifications:
		1. Features a deep form, broad, and wider at the top, with round bottom
		2. Material : Porcelain, with the following dimensions:
		a) Diameter : 80-84 mm
		b) Height/depth : 30-35 mm high
		3. Capacity: 75 mL
		4. With pouring lip/spout
		5. Must be free from breakage, cracks, chipped rims and sharp edges, other surfaceirregularities and other defects not stated herein.
		6.Must be able to contain the salt solution for an experiment on evaporation
		7. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, surface irregularities including all other defects not stated herein.
		8. Each dish is individually packed,wrapped in paper, and packed in a sturdy box
		9. Comes with a brand printed permanently in the sturdy box
		10. Must be brand new
6	Filter Paper, crepe, 580mm x 580 mm sheet, Grade 0905	Functional Specifications: Used to filter/separate mixtures solids from liquids
		Performance Specifications: Must be able to filter solids from liquids to demonstrate filtration, as one of the techniques in separating mixtures (solids from liquids)
		Design Specifications:

No.	Item Name	Technical Specifications
		1. Type: Technical use
		2. Shape of filter paper : Square
		3. Material: Cellulose with the following dimensions:
		a) Length: 580-580.5 mm
		b) Width : 580-580.5 mm
		4. Color: White to cream
		5. Surface: Creped, very coarse textured surface
		6. Grade 0905
		7. Initial Filtration Speed: 5 sec/10 mL
		8. Flow rate : High
		9. Packed in a brown filter paper tube
		10.Must be free from dirt and all other surface imperfections including all other defects not stated herein
		11. Comes with a brand marked permanently printed in the filter paper tube
		12. Must be brand new
7	Funnel, borosilicate, fluted	Functional Specifications: Used to direct the smooth flow of the liquid or fine-grained substances into another container tp prevent spills
		Performance Specifications: Must be able to direct the smooth flow of the liquid or fine-grained substances into another container to prevent spills
		Design Specifications:
		1.Type : 60 ° angle, Fluted short stem funnel
		2. Shape: A wide, inverted conical top with narrow short circular tube at the bottom, with depressed inside flutings
		3. Material: Borosilicate, clear, transparent,bubble-free glass,with the following dimensions:
		a) Top outside diameter: 75-86 mm
		b) Stem outer diameter : 8-9.5 mm
		c) Stem length : 72-76 mm
		d) Total Height : 139-140 mm
		4. With heavy beaded rim/edge and heavy uniform wall for strength.
		5. With slanted fire polished tip, filter angle (angled 60°) and depressed inside fluting help reduce filtering time

No.	Item Name	Technical Specifications
		6. Wrapped in paper, enclosed in bubble wrap, and individually packed in a sturdy box
		7. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein
		8. Comes with a brand embossed onto the glass
		9. Must be brand new
8	Gloves, Hand, super nitrile	Functional Specifications: Used to protect hands against mechanical risks, microorganisms, chemical burns and splashes
		Performance Specifications: Must be able to protect hands against mechanical risks, microrganisms, chemical burns and splashes
		Design Specifications:
		1. Features a slightly curved fingers and forward-facing thumb correspond to the natural position of the hand (hand-shaped)
		2. Material : Nitrile, reusable, with the following dimensions:
		a) Length of gloves : 330-360 mm
		b)Thickness : 15 mil/0.38 mm minimum
		The thickness must be measured from the cuff, palm and fingers
		c) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the hand gloves, is super nitrile, to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier. d) With Certification from the manufacturer that the hand gloves is reusable and not disposable
		3. Color : Green
		4. Size : 8/Medium
		5. Interior finish (liner material) : Flocklined acid/solvent resistant)
		6. Exterior finish : Embossed texture
		7. Cuff style: Straight
		8. Latex free to suit those with latex allergies
		9. Non-slip wear resistant high elasticity , waterproof
		10. Puncture resistant
		11.With detailed imprints on each glove, on the following:
		a) the glove size/s
		b) the name of manufacturer
		c) nitrile, flocklined
		d) individual manufacturing lot
		e) with pictograms for certification category requirements CE 0334 (EN 420, EN 388, EN 374) designed for protection against mechanical risks, chemical risks, and micro-organisms)
		12. Individually packed in pairs in a resealable plastic bag

No.	Item Name	Technical Specifications
		13 With a statement of conformity from the manufacturer that the gloves complies with the specifications currently published and has been subject to the strict quality conditions imposed by internal management systems.
		14.Comes with a brand printed permanently onto the gloves
		15. Must be brand new
9	Gloves, Surgical	Functional Specifications: Used to protect hands from dirt and contamination.
		Performance Specifications: Must be able to protect hands against dirt, laceration and contamination.
		Design Specifications:
		1. Sterile, latex surgical gloves
		2. Smooth, powder-free and beaded cuff
		3. Color: White or beige
		4. Size range: Medium - Large
		5. Individually sealed pack pair of gloves with brand and type of material permanently printed on it.
		6. Must be brand new.
10	Graduated Cylinder, borosilicate, 10 mL	Functional Specifications: Used to measure and to deliver the volume of liquids
		Performance Specifications: Must be able to measure and to deliver the volume of liquids up to 10 mL capacity
		Design Specifications:
		1. Features a narrow cylindrical container with a small turned-out lip
		2. Materia l: Borosilicate, clear, smooth,transparent and bubble-free glass
		a)Thickness range : 1.3-1.4 mm
		b) Outside diameter: 13-14 mm
		c) Height: 177-178 mm
		3. Features an easy-pour spout
		4. With permanent white enamel graduations of approximate volumes, large white block letters,numbers and inscriptions/markings easy to read etched/engraved onto the glass, before the first graduation, which includes the following:
		a) Manufacturer's name or trademark
		b) Capacity: 10 mL
		c) Graduations: 0.10
		d) Class: A
		e)) Tolerance : ± 0.10 - ±0.20
		f) EX/TD g) ISO/ASTM/Certification/s latest issued by the concerned institution which must conform to the standards appropriate to the goods' country of origin. institution appropriate to the goods' country of origin.
		h) 20°C-27°C
		5. Single metric scale
		a) Graduation Range : 1 to 10 mL
		b) Graduation interval : 0.1 mL

No.	Item Name	Technical Specifications
		6.With a hexagonal non-detachable glass base
		7. With a bumper guard
		8. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to standards of the country of origin
		9. Placed in bubble wrap,and packed individually in a compartmentalized box
		10. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein
		11. Comes with a brand marked permanently onto the glass
		12. Must be brand new
11	Graduated Cylinder, borosilicate, 100 mL	Functional Specifications: Used to measure and to deliver the volume of liquids
		Performance Specifications: a) Must be able to measure and to deliver the volume of liquids up to 100 mL capacity b) Used as a container to determine the volume of irregularly shaped solids by water displacement
		Design Specifications:
		1. Features a narrow cylindrical container with a small turned-out lip
		2. Material : Borosilicate, clear and transparent bubble-free glass with the following dimensions:
		a)Thickness range : 1.3-1.4 mm
		b)Outside diameter: 29-31 mm
		c) Height: 254-256 mm
		3. Features an easy-pour spout
		4. With permanent white enamel graduations of approximate volumes, large white block letters,numbers and inscriptions/markings easy to read etched/engraved onto the glass, before the first graduation, which includes the following:
		a) Manufacturer's name or trademark
		b) Capacity: 100 mL
		c) Graduations: 1 mL
		d) Class A
		e) Tolerance : ± 0.60 mL
		f) EX/TD
		g) ISO/ASTM/Certification/s latest issued by the concerned institution which must conform to the standards appropriate to the goods' country of origin.
		h) 20°C
		5. With single graduated metric scale
		a)Graduation range : 5 to 100 mL
		b) Graduation Interval : 1 mL
		6. With plastic bumper guard
		7. With a hexagonal non-detachable glass base

No.	Item Name	Technical Specifications
		8. With Statement of Accuracy (Certificate of Traceability) or Certification of Accuracy atest issued by the concerned institution which must conform to the authoritative standards lappropriate to the goods's country of origin
		9. Placed in bubble wrap,and packed individually in a compartmentalized box
		10. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein
		11. Comes with a brand marked permanently onto the item
		12. Must be brand new
12	Graduated pipette with rubber pipettor, borosilicate, 10 mL	Functional Specifications: Used to measure the amount of liquid being dispensed/delivered/transferred to another containeraccurate up to 10 mL capacity
		Performance Specifications: Must be able to measure the amount of liquid being dispensed/ delivered/transferred to another container accurate up to 10 mL capacity
		Design Specifications:
		1. Features a serological, transfer type straight tube with one constricted end
		2. Material : Borosilicate, reusable, clear, transparent bubble-free glass
		a) With Certification from the manufacturer that the graduated pipette is reusable and not disposable
		3. With permanent colored enamel graduations of approximate volumes, large white block letters, numbers and inscriptions/markings easy to read etched/engraved onto the glass, before the first graduation, which includes the following:
		a) Manufacturer's name or trademark
		b) Capacity : 10 mL
		c) Color band code for 10 mL cap :Orange
		d) Graduation interval: 0.1 mL
		e) Class A
		f) Marked "TD" /Ex
		g) Tolerance : ± 0.06
		h) ISO/ASTM/Certification/s latest issued by the concerned institution which must conforms to the authoritative standards appropriate to the goods' country of origin.
		i) 20°C

No.	Item Name	Technical Specifications
		4. Graduated to tip, zero at top
		5. Color code for 10 mL cap :Orange
		6. Top end is constricted
		7. Capacity: 10 mL
		8. Graduation interval: 0.1 mL
		9. Class A permanently marked on the glass
		Tolerance ±0.06 mL
		10. Graduations , approximate volumes, capacity, and other markings are in permanent amber stain which resists aggressive washing solutions
		11. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin
		12. With a statement of conformity from the manufacturer that the product complies with the specifications currently published and has been subject to the strict quality conditions imposed by internal management systems.
		13.Accessory :
		With Rubber pipettor
		a) Typ : Three (3) -way Safety Bulb-type Pipet Filler with S, E and A letters embossed on the rubber
		b) Material : Non-toxic natural rubber
		c) Color : Red/orange
		d) With pinch release valves that control air evacuation, liquid uptake, and liquid dispensing
		e) Fits standard size pipettes
		14. Packaging : Wrap glassware in newspaper and secure with a piece of masking tape and place in a bubble pouch, enclosed in polystyrene and packed in a sturdy box
		15. Must be free from breakage, cracks, scratches, chipped rims, sharp edges, striae, surface irregularities including all other defects not stated herein
		16.Comes with a brand printed permanently on the glass
		17. Must be brand new

No.	Item Name	Technical Specifications
13	Hand Lens, 5x magnification	Functional Specifications: Used to produce a magnified image of an object.
		Performance Specifications: Must be able to magnify the image of an object.
		Design Specifications:
		1. Five times (5x) magnification power
		2. Glass lens; diameter range: 45mm - 50 mm
		3. Mounted in a circular chrome-plated metal frame with a cylindrical handle
		4. No sharp edges and other defects
		5. Safely packed in a box
		6. Must be branded and brand new. The brand shall be permanently printed on the box.
14	Lens Paper, 50's/pack	Functional Specifications: Used to clean the microscope lenses.
		Performance Specifications: Must be able to clean the microscope lenses.
		Design Specifications:
		1. Measures (minimum): 100 mm x 150 mm
		2. Material: Fine, soft, lint-free paper
		3. Quantity: 50 sheets/booklet
		4. Must be packed in a resealable plastic
		5. Must be branded and brand new. The brand shall be permanently printed on the cover of the booklet.
15	Microscope, Compound with 4 Objectives	Functional Specifications: Used to view specimen not visible to the naked eye.
		Performance Specifications: Must be able to focus specimen not visible to the naked eye using the four objectives.
		Design Specifications:
		1. Eyepiece: Glass lens, locked-in wide field, 10X with pointer, and with own separate plastic storage case includes an extra 15X eyepiece
		2. Nosepiece: Quadruple with accurate centering and click stops; easy to turn
		3. Objectives: With metal casing, glass lens, DIN achromatic objectives: parfocal, par centered, color coded, 4x,10x; retractable 40x, and 100x (oil immersion) with own separate plastic storage case
		4. Stage: Built in flat, firmly fixed graduated mechanical stage clips and with knobs; minimum 110 mm x 110 mm ; glass slides shall not be displaced when mounted
		5. Condenser: N.A. 1.25 with iris diaphragm
		6. Focus: Dual coarse controls with slip clutch and adjustable tension ring; dual lever type fine focus controls; adjustable safety stop. Gives sharp, clear, well-lighted images
		7. Mirror range: 49mm - 51 mm, 2-sided, plane-concave
		8. No sharp metal parts and other defects
		9. With translucent plastic dust cover for the microscope
		10. With wooden storage case; and immersion oil provided

No.	Item Name	Technical Specifications
		11. With English User's Manual that shall provide the diagram of correct microscope parts; function of each part; operation guide; cleaning and troubleshooting instructions.
		12. Manual details:
		a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm)
		Cover: Paper board, 280 gsm (minimum 0.30 mm)
		b. Size: (minimum) 165 mm x 215 mm Fold
		(minimum) 330 mm x 215 mm Spread
		c. Binding: Saddle Staple
		d. Font type: Arial and Font size (minimum): 10
		13. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:
		I. Training Video Contents:
		a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Maintenance of the equipment e. Troubleshooting f. Storage and safekeeping (include cleaning) of the equipment
		II. Training Video details:
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).
		14. Warranty on parts and labor: 2 years
		15. Must be branded and brand new. The brand shall be permanently printed on the item.
16	Microscope, Digital	Functional Specifications: Used to focus specimen with the image viewed through the LCD screen.
		Performance Specifications: Must be able to show the structure of subcellular organelles.
		Design Specifications:
		1. Nosepiece: Triple with 4x, 10x, 40x achromatic objectives and click stop
		2. Magnification: 40x, 100x, and 400x (1600x with digital zoom)
		3. Has full color (minimum) 3.5" TFT LCD screen with onboard software
		4. Digital Camera: 5 MP CMOS sensor (minimum) as indicated in the manufacturer's manual

No.	Item Name	Technical Specifications
		5. With built-in top and bottom LED illumination sources
		6. 220V; 50/60 Hz power source
		7. Battery options: 4AA
		8. Stage: (minimum) 88 mm x 88 mm; fully mechanical with metal clips;
		9. Six position filter wheel
		10. With 180° rotating head LCD screen
		11. Combination of smooth-finished metal and plastic parts
		12. Supports up to 32G Memory size
		13. AC Plug (power) SD Card (32G max) Port(s) In
		14. With TV/AV output for display on large monitors for classroom or at the laboratory
		15. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:
		I. Training Video Contents:
		a. Name of the equipment b. Parts of the equipment c. Instruction on how to use the equipment d. Maintenance of the equipment e. Troubleshooting f. Storage and safekeeping (include cleaning) of the equipment
		II. Training Video details:
		a. Shall be in MP4 format. b. Shall be saved in a USB 3.0 Flash Drive. c. Shall have a High-Definition resolution of at least 1080p. d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle. e. Shall comply an aspect ratio of 4:3. f. Shall have a cover video pane containing the equipment name and a video pane for each video content. g. The video, voiceover (audio), and subtitle shall be in sync. h. The training video shall cover all the above requirement (video contents).
		16. Warranty on parts and labor: 2 years
		17. With English User's Manual that shall provide the diagram of correct microscope parts; function of each part; operation guide; cleaning and troubleshooting instructions.
		18. Manual details:
		a. Material: Inside pages: Book Paper, 80 gsm (minimum 0.08mm)
		Cover: Paper board, 280 gsm (minimum 0.30 mm)
		b. Size: (minimum) 165 mm x 215 mm Fold
		(minimum) 330 mm x 215 mm Spread
		c. Binding: Saddle Staple
		d. Font type: Arial and Font size (minimum): 10
		e. Pictures shall be in full color
		19. Accessories included:

No.	Item Name	Technical Specifications
		a. 2GB SD card / 2GB micro SD card
		b. USB 2.0 Cable (data transfer)
		c. Dust Cover
		d. Rugged canvass carrying case with shoulder strap
		e. Five (5) prepared slides
		f. 4 Plug international AC adapter
		g. AV out cable for viewing on a TV or projector
		20. Must be branded and brand new. The brand shall be permanently printed on the item.
17	Mortar and Pestle, porcelain, 150 mL.	Functional Specifications: Used to pulverize/mash/grind and to mix materials in a mortar using a pestle
		Performance Specifications: Must be able to pulverize/mash/grind and mixes materials in a mortar using a pestle to demonstrate how particle size affects solubility and the rate of chemical reaction.
		Decreasing the size of the particles increases the rate of dissolving and speeds up the rate of reaction because the surface area of the reactant has been increased.
		Design Specifications:
		A. Mortar
		1. Shape of mortar : Deep form, bowl shape, with wide mouth , and with deeply molded, smooth rounded bottom
		2. Material for mortar and pestle: Porcelain, with the following dimensions:
		a) Outside diameter : 130-132 mm
		b) Height/Depth : 65-85 mm
		3. Capacity: 150 mL
		4. With pouring lip
		5. With unglazed grinding surface (interior) and uniformly glazed exterior
		B. Pestle:
		6. Shape of pestle: Cylindrical with bulbous bottom, with the following dimensions:
		a) Length range : 133-160 mm and
		b) Diameter range: 28-40 mm diameter at its widest point.
		7. Material of pestle: A heavy bat-shaped porcelain
		8. Uniformly glazed on its handle and rough on opposite end
		9. The set is individually wrapped, enclosed in a bubble wrap and packed in a sturdy box
		10. Must be free from breakage, cracks , chipped rims, sharpedges, all surface irregularities and all other defects not stated herein
		11. Comes with a brand marked permanently on the body/box
		12. Must be brand new
18	pH meter, hand-held, digital	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
		Performance Specifications: Must be able to measure the pH of each substance/solution in 0.1 pH readability, :
		a) For an acid : pH 0- pH 6.0

No.	Item Name	Technical Specifications
		b) For basic/alkaline : pH 8.0 to pH 14.0.
		c) For neutral (distilled water) : pH 7.0
		Design Specifications:
		1. Type: Portable hand held digital pen type
		2. Material : Plastic with the following dimensions :
		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:
		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
		d) Packed in hard plastic carry case
		12. Manufacturer should be accredited by NIST standards or its equivalent to the country of origin to certify that their items are calibrated.
		13. With User's Manual in English
		14. With Student Worksheets/Teacher's Manual in English
		15. For numbers 13-14, the following technical specifications from a-e must be followed:
		a) For Contents List of materials, In Table form
		b) For User's Manual, Teacher's Guide, StudentWorksheets, Instruction Sheets/Assembly Guides, In sentences format
		i) With sentences grammatically correct and
		ii) With correct spelling and terminologies, punctuations and others
		c) In original print, not photocopied
		d) In colored pictures, drawings/illustrations
		e) In ten (10) mil laminated keycard that shall containthe actual colored picture of the model including the name: labeled with the required parts with details as follows
		i) Paper Size: A4 size , 80 gsm
		ii) Font: Times New Roman
		iii) Font size: 12
		iv) Orientation:Portrait
		v) Margins on all sides with 2 point width border line
		vi) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled
		16. Must be free from sharp edges
		17. Comes with a brand marked permanently on the body

No.	Item Name	Technical Specifications
19	Prepared Slide Set, Microscope, 25 pieces	Functional Specifications: Used to contain the readily mounted and ready to view object/specimen for examination under a microscope.
		Performance Specifications: Must be able to exhibit the specimen when viewed under a microscope.
		Design Specifications:
		1. Quantity: Set of 25 pieces glass slides
		2. Dimensions (Width x Length) minimum: 25 mm x 75 mm
		3. Thickness (minimum) : 1.0 mm
		4. Individually sealed and protected by a cover slip/glass cover;
		5. Clear, distinct and colorful slides of the following: insects (4); plants (7); animals/microbes (7); Human tissues (7)
		6. Either of the following insects: housefly wing, mosquito larvae, Drosophila melanogaster, housefly head, ant w.m., earthworm c.s.
		7. Either of the following plants: Volvox, stem of monocotyledon c.s, stem of dicotyledon c.s., monocot leaf epidermis, dicot leaf epidermis, germinated pollen, Hydrilla leaf w.m., onion epidermis w.m.
		8. Either of the following animals/microbes: Hydra budding, Euglena, diatom, Daphnia w.m., Amoeba proteus, Paramecium w.m., Mold, Planaria c.s., Influenza virus, Vorticella, lancelets w.m., Escherichia coli
		9. Either of the following human tissues: skeletal muscle c.s., small intestine c.s., human white blood cell, cardiac muscle; motor neurons cell w.m., spinal cord c.s., lung section, liver section, nerve cell w.m., meiosis of human sex cells, stomach villi
		10. Writing the scientific name with correct spelling shall be properly observed.
		11. Individually and permanently labeled for specimen identification (non glossy finish).
		12. Slides are packed in a fitted plastic storage box that contains interior padding to avoid breakage; with a numbered list that coincides with the arrangement of the specimen being stored.
		13. No finger-smudged and no chipped edges slide
		14. Includes instructions on how to clean and properly store the slide in a matte paper minimum 105 mm x 140 mm, Font style: Arial, Font size(minimum): 10, written in American English.
		15. Must be branded and brand new. The brand shall be permanently printed on the storage box.
20	Prepared Slide Set, Mitosis and Meiosis	Functional Specifications: Used to guide students through the events of cell division.
		Performance Specifications: Must be able to compare mitosis and meiosis, and their role in the cell-division cycle.
		Design Specifications:
		1. A set of 6 rectangular microscope glass slides with polished edges; with clear and distinct sample specimen.
		a. Ascaris megalocephala, mitosis in first embryonic cleavage, section of uterus.
		b. Smear from salivary gland of Chironomus giant chromosomes, carefully fixed and stained

No.	Item Name	Technical Specifications
		c. Lilium, anther t.s., microspore mother cells showing telophase of first and prophase of second (homotypic) division
		d. Meiotic and mitotic stages in sec. of Salamandra testis.
		e. Mitosis, l.s. from Allium root tips showing plant mitosis
		f. Mitotic stages in sec. of red bone marrow of mammal
		2. Dimensions (Width x Length) minimum: 25 mm x 75 mm
		3. Thickness (minimum): 1.0 mm
		4. Individually sealed and protected by a cover slip/glass cover;
		5. Each slide is permanently labeled for specimen identification; (non-glossy finish)
		6. Writing the scientific name with correct spelling shall be properly observed;
		7. Slides are packed in a fitted plastic storage box that contains interior padding to avoid breakage; with a numbered list that coincides with the arrangement of the specimens being stored.
		8. No finger-smudged and no chipped edges slide
		9. Includes instructions on how to clean and properly store the slide in a matt paper (minimum 105 mm x 140 mm), Font style: Arial, Font size(minimum): 10, written in American English.
		10. Must be branded and brand new. The brand shall be permanently printed on the storage box.
21	Safety Goggles, polycarbonate	Functional Specifications: Used to protect eyes and face against chemical burns and splashes
		Performance Specifications: Must be able to protect eyes and face against chemical burns and splashes
		Design Specifications:
		1 Features an angled vented portion that does not allow direct straight line from the exterior to the interior of the eyewear which encloses wide area surrounding the eyes
		2. Material of lens : Polycarbonate lens
		a) Submission of the original copy of the Test certificate/s issued by the testing unit, like DOST material testing facilities or at any DOST-accredited testing institution attesting that the material of the lens of the safety goggles, is polycarbonate, to validate the conformity of the material to the technical specifications. A representative of the Procuring Entity should be present during preparation and submission of the material test specimens to testing facility. All expenses for the said test shall be shouldered by the Supplier. b) With Certification from the manufacturer that the pair of hand gloves is reusable and not disposable
		3. Color of the lens: Clear
		4. Lens type : Anti-splash, anti-fog treated/anti-scratch coating
		5. With indirect ventilation channels (preventing penetration of splashes) one through each side of the frame to keep out large particles, dust, and liquids and splash hazards, improves air circulation and reduces fogging in hot/humid conditions
		6. With wrap around elasticized adjustable headband integrated with goggle frame to prevent slippage and holds the goggle more securely

No.	Item Name	Technical Specifications
		7. With pivoting headband clips to adjust strap around hard hats or hearing protection
		8. Peel-off goggle covers available to extend the life of the lens
		9. Can be worn over most prescription eyewear (OTG compatible)
		10. With firm comfortable seal around forehead, cheeks, nose and temples protects against chemicals, dust and grindings
		11. Shall bear mark ANZI Z87.1-2010 Standard for Chemical Splash and Dust Protection, Z87+D3 to indicate an impact protector type (ANSI Z87.1, CE EN 166 or CSA Z94.3 certification compliance) on the frame and the lens
		12. The manufacturer or supplier certification mark must be present on all approved safety lenses, frames (front and temple), removable side shields, and other parts of the glasses, or goggles.
		13. Individually packed in a transparent plastic bag
		14. Labeling of the primary packaging displays, product name, product reference, manufacturer name, size, type, performance testing information for particular storage conditions (temperature, pressure, light, humidity, as appropriate or harmonized symbol as applicable.
		15. With issuance of certification statement from the manufacturer as to the:
		a) Non-toxicity of the materials used
		b) Material of the lens : polycarbonate
		c) It is fog coated/scratch and impact resistant
		16. Individually packed in a sturdy box/plastic bag
		17. Must be free from cracks, sharp edges, and all other surface imperfections including all other defects not stated herein
		18. Comes with a brand marked permanently on the box
		19. Must be brand new
22	Spatula, spoon, porcelain and glazed	Functional Specifications: Used to hold/contain and transfer solids and liquids from one container to the other
		Performance Specifications: Must be able to hold/contain and transfers solids and liquids from one container to the other
		Design Specifications:
		1. Features a white, broad, flat, blade (spatula) on one end and a spoon on the other end.
		2. Material : Uniformly glazed smooth finish porcelain
		a) Capacity: 0.3 mL
		b) Over all Length : 121-142 mm
		3. Must be free from breakage, cracks,chipped edges and all other defects not stated herein
		4. Wrapped in paper, enclosed in bubble wrap and packed in a sturdy box.
		5. Must be free from cracks, sharp edges, and all other surface imperfections including all other defects not stated herein.
		6. Comes with a brand marked permanently in the box
		7. Must be brand new

No.	Item Name	Technical Specifications
23	Stirring Rod, Ø 6 mm x 250 mm long	Functional Specifications: Used to mix liquids and solids
		Performance Specifications: Must be able to mix liquids and solids well to speed up the dissolving process and increases the rate of reaction
		Design Specifications:
		1. Features a long, slender cylindrical solid glass, with the same thickness and slightly longer than a drinking straw and with rounded fire polished ends.
		2. Materia l: Clear, transparent bubble-free stir stick solid borosilicate glass with the following dimensions:
		a) Diameter(Ø) : 6-6.3 mm
		b) Length: 250-254 mm long
		3. With rounded and fire polished ends
		4. Wrapped in paper, enclosed in bubble wrap and packed in a sturdy box
		5. Must be free from breakage, cracks, chipped unpolished ends, all other surface imperfections icluding all other defects not stated herein
		6. Comes with a brand marked permanently in the box
		7. Must be brand new
24	Test tube brush	Functional Specifications: Used to clean test tubes and other small sized glasswares
		Performance Specifications: Must be able to clean test tubes and other small-sized glasswares with densely filled radial tip and head brush to make complete contact with walls, corners and bottom.
		Design Specifications:
		1. Features a radial tufted tip white nylon bristles and brush head lined against a rather sturdy wire handle with a looped end to make complete contact with walls, corners and bottom to clean test tubes and other small sized glasswares .
		2. Material of bristles : Medium stiff nylon with the following dimensions:
		a) Diameter of bristle section: 18-19 mm
		b) Length of bristle section : 82-102 mm
		c) Over-all length: 228 -229 mm
		3. Material of handle: Galvanized steel wire
		4. Type of wire handle : Common loop twisted wire
		5. With circular wire loop for hanging
		6. Packed in a resealable plastic bag
		7. Must be free from rust, sharp edges, all other surface irregularities including all other defects not stated herein
		8. Comes with a brand marked permanently in the box
		9. Must be brand new
25	Test Tube, borosilicate, Ø 16 mm x 150 mm long	Functional Specifications: Used to contain/hold a small chemical reaction , to mix small quantities of solids and liquids, and to heat small quantities of substances

No.	Item Name	Technical Specifications
		Performance Specifications: Must be able to contain/hold a small chemical reaction and , mixes solids and liquids, heats small quantitiy of substances up to more than 100°C over a Bunsen burner's flame
		Design Specifications:
		1. Features a finger-like length of glass tubing, open at the top, usually with a rounded lip at the top, and a rounded 'U' shaped bottom
		2. Material of test tube: Borosilicate , clear, transparent and bubble-free, reusable glass, with rim, with the following dimensions:
		a) Outside Diameter: 15.8-16.0 mm
		b) Thickness: 1.3 -1.4 mm
		c) Length: 150-152 mm
		d) Comes with a certification from the manufacturer that the test tube is reusable and not disposable
		3. Capacity: 20 mL
		4. With heavy uniform wall thickness, excellent heat resistance
		5. With large, white enamel marking spot
		6. Test tubes must be reusable (not disposable)
		7. Wrapped individually in tissue paper, enclosed in bubble wrap and packed in compartmentalized box
		8. Must be free from breakage, cracks, chipped rims, surface irregularities and all other defects not stated herein
		9. Comes with a brand enamelled permanently in the glass
		10. Must be brand new
26	Thermometer, Laboratory type, Alcohol, -20°C to 110°C	Functional Specifications: Used to measure the temperature
		Performance Specifications: Must measure the temperature , -20° to 110°C
		Design Specifications:
		1. Type : Alcohol filled, partial immersion thermometer
		2. Features a small sealed tube made of glass that has a small hollow bulb filled partly with ethanol and partly with nitrogen and ethanol vapors on one end and a thin capillary opening running through the length of its center

No.	Item Name	Technical Specifications
		3. Material : Glass
		4. Color : White/yellow
		5. Non-toxic red-filled thermometer
		6. Partial immersion type with immersion line indicator and ring top
		7. With precision red alcohol-filled, reinforced bulbs, and with expansion chamber
		8. With white back with non-roll sleeve
		9. With clear and permanent markings; scale never washes out
		10. Provided with non-roll plastic case
		11. With continuous alcohol column with no separations
		12. All graduation lines, figures, and letters should be clear-cut, distinct, and filled with a permanent pigment of suitable color with the following dimensions:
		a) Length : 200 mm (min)
		b). Accuracy: ± 1° C
		c) Range : -20°C to 110°C
		d) Division: 1°C
		e) Diameter: 5.8 to 6.2 mm f) Immersion line: 76 mm
		13. With Statement of Accuracy/ Certification of Accuracy latest issued by the concerned institution which must conform to the authoritative standards appropriate to the goods' country of origin
		14. Must be free from breakage , cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein.
		15. Comes with a brand printed premanently onto the glass
		16. Must be brand new
27	Tong, Beaker	Functional Specifications: Used to hold heated beakers.
		Performance Specifications: Must be able to secure hot beakers.
		Design Specifications:
		1. Scissor-like tool with plastic-coated jaws
		2. Made of minimum 6.0 mm smooth finish chrome-plated steel
		3. With flat riveted joint
		4. Total length (minimum) : 254 mm
		5. Holds beakers from 50mL to 1000 mL

No.	Item Name	Technical Specifications
		6. Safely packed in a box
		7. Must be branded and brand new. The brand shall be permanently printed on the box.
28	Tong, Crucible	Functional Specifications: Used to lift and hold crucibles,remove the lids from crucibles, transfer evaporating dishes or picking small objects out of a reaction container
		Performance Specifications: Must be able to lift and hold crucibles, remove the lids from crucibles, transfer evaporating dishes or picking small objects out of a reaction container.
		Design Specifications:
		1. Features a scissor-like and a long bent neck tongs, with two anti-skid pincers or pieces of metals that concave together, which allow the users to grasp a hot crucible, flasks, evaporating dishes, or even small beakers
		2. Material : Stainless steel,durable, stable, rust and heat resistant
		a) Color: Silver
		b) Finish: Smooth
		c) Overall Length: 228 -229 mm
		3. With riveted joints
		4. With serrated tips.
		5. Enclosed in resealable bag and packed in a sturdy box
		6. Must be free from rust, dirt, cracks, chipped and sharp edges and surface irregularities including all other defects not stated herein
		7. Comes with a brand marked permanently in a box
		8. Must be brand new
29	Universal pH indicator	Functional Specifications: Used as an indicator to determine/measure the pH of substances, whether it is an acid, neutral or a base
		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:
		a) For an acid : pH 0-pH 6;
		b) For a base : pH 8-pH 14.
		c) For distilled water : pH 7
		Design Specifications:
		1. Type: Test strips
		2. Shape: Rectangle
		3. Material: Cellulose/Paper based
		4. Dimension of pH strip :
		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

No.	Item Name	Technical Specifications
		11. Measures pH 0-pH 14
		12. Comes with a brand
30	Wash bottle, plastic, 250 mL	Functional Specifications: Used to store and dispense water for diluting solutions, washing precipitates and rinsing glass wares.
		Performance Specifications: Must be able to store and dispenses water in diluting, washing precipitates and rinsing activities.
		Design Specifications:
		1. Translucent and non-toxic plastic material (Certificate of non-toxicity is required)
		2. Cylindrical body shape
		3. Easy squeeze dispensing; no leaks
		4. Capacity: 250 mL.
		5. Screw type closure with its angled stem and draw tube molded in one piece
		6. Must be brand new.
31	Watch Glass, Ø 90 mm	Functional Specifications: Used to:
		a) cover glasswares like beakers
		b) evaporates solvents in a sample and
		c) holds/contains liquids and solids prior to heating.
		Performance Specifications: Must be able to:
		a) cover glasswares like beakers
		b) evaporate solvents in a sample and
		c) hold/contain liquids and solids prior to heating.
		Design Specifications:
		1.Shape : Circular concave
		2. Material : Borosilicate, clear, transparent, and bubble-free glass with the following dimensions:
		a) Diameter : 90-91 mm
		b) Thickness range : 1.5 mm to 2.0 mm
		3. Fire-polished rims/edges
		4. Individually wrapped in used newspaper, enclosed in a bubble wrap, and packed in a sturdy box
		5. Must have fire polished edges/rims, be free from breakage, cracks, chipped and sharp edges, surface irregularities including all other defects not stated herein
		6. Comes with a brand marked permanently in the box
		7. Must be brand new
Earth and Space - Models, Tools and Instruments		
1	Anemometer with Wind Vane, Cup type	Functional Specifications: Used to measure wind speed in real time and indicate the direction where the wind is coming from and where it is heading
		Performance Specifications: Should be able to measure wind speed in real time and indicate the direction where the wind is coming from and where it is heading
		Design Specifications:
		1. Anemometer and wind vane combined in 1 unit
		2. Dimension of unit : 340-350 mm x 75-80 mm x 75-80 mm (H x W x D)
		3. Powered by AA dry cells

No.	Item Name	Technical Specifications
		4. Direct digital reading of wind speed, can display wind speed in m/s and km/hr, can measure average wind speed and instantaneous wind speed by means of selector switch
		5. Wind vane should be free moving to indicate wind direction, wind vane should have arrow head on one end and arrow tail on the other end
		6. Made of corrosion resistant material
		7. All labels, inscriptions, and instructions should be in English
		8. The item should be free from toxic materials
		9. The item should be branded and permanently marked on the item
2	Barometer-Thermometer-Humidity (3-in-1 Analog Instrument)	Functional Specifications: Used to measure simultaneously the prevailing local: atmospheric pressure, air temperature, relative humidity
		Design Specifications:
		1. Main scale: Barometer scale analog:
		Dial Diameter: 98 mm - 135 mm; Depth: 20 - 30 mm
		Should have millibar (mbar) or hecto pascal (hpPa) with range of 960 to 1060 mbar or hPa, at 1 mbar or 1 hPa graduations
		Materials: Plastic or metal body casing, clear transparent cover
		With adjustment screw/knob
		2. Secondary and tertiary analog scales for temperature and humidity
		Dial diameter for temperature and humidity: 20-25 mm
		3. Temperature scale range: -30 to 60 0C, 10C graduations, analog
		4. Humidity scale range 0-100%, 1% or 2% graduations analog
3	Compass, Magnetic	Functional Specifications: Used to find direction on the earth's surface by the alignment of the compass needle with the earth's magnetic field
		Performance Specifications: Should be able to find direction on the earth's surface by the alignment of the compass needle with the earth's magnetic field
		Design Specifications:
		1. Outside Diameter: 48-50 mm
		2. Needle mounted in an Aluminum case with clear, scratch-free plastic or glass face
		3. Graduated dial marked in cardinal points (North, South, West, East, Northwest, Northeast, Southwest, and Southeast).
		4. Must be branded and permanently marked on the item

No.	Item Name	Technical Specifications
4	Globe, Celestial	Functional Specifications: Used to illustrate the relative locations of observable celestial objects with respect to the earth in the celestial sphere (celestial sphere is what we commonly called sky)
		Performance Specifications: Should be able to illustrate the relative locations of observable celestial objects with respect to the earth in the celestial sphere (celestial sphere is what we commonly called sky)
		Design Specifications:
		1. Star Globe; diameter 11-13 inches, transparent plastic
		2. Each rotates independently. The star map shows principal stars to the 5th magnitude, names of major stars and constellations, and includes the ecliptic, right ascension and declination scale.
		3. Must include Names of Months and Days Scales around the globe for easy reference of constellation
		4. All labels permanently marked on the item
		5. The horizon mounting allows the Globe to be set for any location.
		6. Globe is supported on a cradle base made of hard/tough plastic.
		7. The Nine Dash Line should not appear.
		8. With English User's Manual includes:
		a. on the Guide on Using the Model and Sample Student Activity.
		b. Guide on Using the Model
		c. Student Activity Sheet and Teacher's Guide
		9. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:
		I. Training Video Contents:
		a. Name of the equipmentb. Parts of the equipmentc. Instruction on how to use the equipmentd. Sample Experiment/Activity using the equipmente. Maintenance of the equipmentf. Troubleshootingg. Storage and safekeeping (include cleaning) of the equipment
		II. Training Video details:
		a. Shall be in MP4 format.b. Shall be saved in a USB 3.0 Flash Drive.c. Shall have a High-Definition resolution of at least 1080p.d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle.e. Shall comply an aspect ratio of 4:3.f. Shall have a cover video pane containing the equipment name and a video pane for each video content.g. The video, voiceover (audio), and subtitle shall be in sync.h. The training video shall cover all the above requirement (video contents).
		10. Brand must be permanently marked on the item.
5	Globe, Terrestrial	Functional Specifications: Used to represent the earth in three dimensions and the locations and sizes of land masses and water bodies in scale accuracy
		Performance Specifications: Should be able to represent the earth in three dimensions and the locations and sizes of land masses and water bodies in scale accuracy
		Design Specifications:

No.	Item Name	Technical Specifications
		1. Globe diameter: 11-13 inches
		2. Shows the following:
		(a) All continents, countries with their capitals, and important cities and places
		(b) Updated with newly established countries, or re-named countries and cities.
		(c) Illustrates the flow and directions of ocean currents
		(d) Lines of Latitudes (0°to 90°), graduated both in Northern and Southern Latitudes and Longitudes (0° to 180°), graduated both in Eastern and Western Longitudes
		(e) International Date Line, Arctic Circle, Tropic of Cancer, Tropic of Capricorn and Antarctic Circle
		(f) Lines of Equator and Prime Meridian
		(g) Names of mountain, mountain ranges, volcano, ocean floors, gulfs, seas and lakes
		(h) Names of continents, seas and country boundaries should be according to international standard.
		(i) Philippine territory emphasizing the "West Philippine Sea" as one of the Philippine territorial sea boundaries.
		(j) The Nine Dashed Line should not appear.
		3. The globe which is made of plastic is mounted on a plastic meridian ring (C-shape) with movable magnifier.
		4. The base stand is made of hard/tough plastic.
		5. Brand must be permanently marked on the item.
6	Hand Lens, 10x magnification	Functional Specifications: Used for enlarging the appearance of objects 10 times its actual size
		Performance Specifications: Should be able to enlarge the appearance of objects 10 times its actual size
		Design Specifications:
		1. Magnification: x 10
		2. Diameter (viewable area) 18-20 mm
		3. Body: Stainless steel;
7	Landform Demonstration Kit	Functional Specifications: Used to represent the different landforms on the earth's surface in three-dimensions
		Performance Specifications: Should be able to to represent the different landforms on the earth's surface in three-dimensions
		Design Specifications:
		1. Watertight demonstration tray 19.875-20.125 inches x 4.125-4.375 inches x 1.875-2.125inches
		2. Three pieces of flexible colored foam
		3. Three pieces fault structures
		a. Made of 6 colored layer of rubber or plastic
		b. Dimension: 12.875-13.125 inches x 4.625-4.875 inches x 3.375-3.625 inches
		c. can demonstrates normal, reverse and slide slip fault
		4. Erupting 5.0inches x 5.0inches volcano for demonstration
		5. With English User's Manual that includes Guide on how to assemble and use the model.
		6. For geological study

No.	Item Name	Technical Specifications
		7. Must be branded and must be permanently marked on the item
8	Model, Earth Internal Structure, 1/4 part detachable	Functional Specifications: Used to illustrate the external and internal parts of the earth in three dimensions
		Performance Specifications: Should be able to illustrate the external and internal parts of the earth in three dimensions
		Design Specifications:
		1. Globe diameter: 11.875-12.125 inches inches
		2. Shows the countries and ocean
		3. 1/4 part detachable and shows the different layer
		4. Must have correct permanent makings of the following parts as follows:
		a. Crust
		b. Mantle
		c. Outer Core
		d. Lower Core
		5. Made of plastic
		6. The base stand is made of hard/tough plastic.
		7. The removable parts must be intact and not falling.
		8. The Nine Dash Line should not appear.
		9. Must be branded and permanently marked in the item.
8	Model, Sun-Earth-Moon	Functional Specifications: Used to show the relative locations of the sun, the earth and the moon three dimensions, and the synchrous revolutions of the moon around the earth and the earth's revolution around the sun
		Performance Specifications: Should be able to show the relative locations of the sun, the earth and the moon three dimensions, and the synchrous revolutions of the moon around the earth and the earth's revolution around the sun
		Design Specifications:

No.	Item Name	Technical Specifications
		1. Hand-operated gear drive that moves the Earth and moon in relation to the Sun. Shows the Earth's rotation, revolution, day and night, tilt of its axis, phases and eclipses of the Moon. Supported by a sturdy base and chrome-plated steel parts
		2. Sun's sphere is illuminated with hole to focus a beam of light always to the globe; also indicates the month and phase of the moon in relation to the sun.
		3. All spheres (Sun, Earth, Moon) made of plastic; sizes must reflect relative differences of sizes between Sun, Moon, and Earth. Sun's diameter 5.875-6 inches.
		4. The Nine Dash Line should not appear.
		5. With English User's Manual that includes operation guide and guide on how to replace the bulb in the model
9	Model, Tectonics Demonstrator	Functional Specifications: Used to simulate tectonic processes
		Performance Specifications: Should be able to simulate tectonic processes
		Design Specifications:
		1. Tectonic container dimensions: Length Range: 10 range -13 inches
		Width Range: 6 range -8 inches
		Height Range: 3 range - 5 inches
		Shape: Rectangular
		2. The model contains the following:
		a. Two pieces L-shaped plastic plates with screw type long push handles
		b. One piece Rectangular / Square plastic plates with screw type short push handle used to flatten the sand inside the tectonic container.
		c. 12 pieces of washers
		d. 12 pieces of nuts
		e. Includes 1 kilogram yellow sand and 1 kilogram green sand.
		3. With English User's Manual that includes
		a. Operation Guide
		b. Guide on how to assemble the model.
		c. Guide on how to use the model with pictures
		d. Student Activity Sheets
		6. Must be branded and must be permanently marked on the item
10	Model, Volcano, cross section	Functional Specifications: Used to illustrate the major external and internal parts of a volcano in three dimensions
		Performance Specifications: Should be able to represent the major external and internal parts of a volcano in three dimensions
		Design Specifications:
		1. Dimensions: 10-12 inches diameter x 10-12 inches height
		2. The parts of the volcano correctly named: Sill, Strata, Dike, Crust, Magma Chamber, Upper Mantle, Lower Mantle, and Vent; permanently marked on the item
		3. Detailed cross-section shows the inside of the volcano
		4. With removable red tube

No.	Item Name	Technical Specifications
		5. With 12.5-13 inches clear, circular, plastic tray which fit in the entire model
		6. It simulates the volcanlic eruption
		7. Easy to clean and reusable.
		8. With English Users' Manual that includes operation guide with easy-to prepare lava recipe
		9. Must be branded and permanently marked on the item
11	Rain Gauge	Functional Specifications: Used to measure the amount of rainfall at a certain period
		Performance Specifications: Should be able to measure the amount of rainfall at a certain period
		1. Made of clear and transparent plastic; thickness: 2-3 mm
		2. Permanently marked accurate scale at 1 mm or 2 mm graduations
		3. Maximum measuring graduation at least 150 mm
		4. Straight or tapered type design
		5. Comes with mounting bracket for mounting onto post
		6. Must have packaging
12	Rock Samples, 24 pcs/set, (minerals of 3 rock types)	Functional Specifications: Used to show actual samples of most common rocks found on the earth's crust
		Performance Specifications: Should be able to show actual samples of most common rocks found on the earth's crust
		Design Specifications:
		1. Samples/references for in identifying and classifying rocks
		2. Boxed mineral and rock collection. Should have at least 24 samples comprising minerals: 8 types igneous, 8 types sedimentary, and 8 types metamorphic rocks. There should be colored pictures of the rocks for reference.
		3. Rock size: 8 cm3 -20cm3 (8 mL - 20mL by water displacement)
		4. Rock should be placed in a plastic packing and properly labelled with its name.
		5. Samples are individually bagged in appropriate size transparent plastic and numbered and correspond to the description in the lid of the box. Each rock name should be accompanied with rock type, Example: "Basalt" (igneous)
		6. The box is made of sturdy plastic, compartmentalized for each sample
		7. Made up of non-toxic material, free from any sharp edges.
		8. Brand permanently marked on the container box
14	Telescope, Astronomical (Reflecting)	Functional Specifications: Used to enhance the appearance of details of celestial objects not visible to the unaided eye

No.	Item Name	Technical Specifications
		Performance Specifications: Should be able to enhance the appearance of details of celestial objects not visible to the unaided eye
		Design Specifications:
		1. Equatorial Reflector Telescope Features
		a) 112-114mm Aperture
		b) Focal Length: 900-1000 mm
		c) Rack-and-Pinion Focuser
		d) Equatorial Mount with manual control cables
		e) Setting Circles
		f) Latitude Control with Scale
		g) Two Eyepieces - 8.5-9.5mm and 23-27mm diameter each, multi coated
		h) Tripod i. Maximum Height: 125 cm ii. Adjustable-height iii. Aluminum-alloy legs iv. Tray to hold eyepieces, lights, and accessories v. Spiked feet add stability on uneven/soft ground
		2. With English User's Manual that includes Operation Guide and Guide on how to assemble the model.
		3. With permanent marking at the bottom of each eyepiece stating the model, focal length, and diameter.
		4. Comes with a training video that shows the actual equipment submitted and approved during the sample evaluation and shall contain the following:
		I. Training Video Contents:
		a. Name of the equipmentb. Parts of the equipmentc. Instruction on how to use the equipmentd. Sample Experiment/Activity using the equipmente. Maintenance of the equipmentf. Troubleshootingg. Storage and safekeeping (include cleaning) of the equipment
		II. Training Video details:
		a. Shall be in MP4 format.b. Shall be saved in a USB 3.0 Flash Drive.c. Shall have a High-Definition resolution of at least 1080p.d. Shall have a readable subtitle (font style & size: Arial, 22 Bold) in English that is grammatically error-free and with correct spelling and punctuation marks and in sync with a voiceover/narration. There is an ON/OFF option for subtitle.e. Shall comply an aspect ratio of 4:3.f. Shall have a cover video pane containing the equipment name and a video pane for each video content.g. The video, voiceover (audio), and subtitle shall be in sync.h. The training video shall cover all the above requirement (video contents).
		5. Must be branded and permanently marked on the item
Mathematics - Manipulatives		
1	Algebra Tile Set, plastic	Functional Specifications: Used to demonstrate algebraic concept up to second degree polynomial.
		Performance Specifications: Must be able to represent mathematical expressions and equations to introduce and foster algebraic concepts, including adding and subtracting polynomials, factoring trinomials, and the Zero Principle.
		Design Specifications:

No.	Item Name	Technical Specifications
		1). Algebra Tiles should come in a set of 30 that includes the following:
		a. 4 pcs of Square Tile (Squared Variable Tile) about 50mm x 50mm x 1mm (minimum) in size and color blue
		b. 8 pcs of Long Tile (Variable Tile) about 10mm x 50mm x 1mm (minimum) in size and color green
		c. 20 pcs of Ones Tile (Constant Tile) about 10mm x 10mm x 1mm (minimum) in size and color yellow
		Note: Each kind of tile should have RED back color to denote the Negative side of the tiles.
		2). Made of plastic and has no sharp edges.
		3). Must be stored in a plastic box that safely accomodates 30setd of atleast 960 pcs of Algebra Tiles.
		4). Shall be free from toxic materials.(Certificate of Non-Toxicity).
		5). Brand must be permanently marked on the plastic storage.
2	Base Ten Blocks	Functional Specifications: Used to demonstrate abstract mathematical concept of the number system such as one-to-one correspondence, place value, and basic addition and subtraction
		Performance Specifications: Must be able to demonstrate a number's value and place value and vice versa.
		Design Specifications:
		1). Made of plastic, smooth surface and edges, and free from toxic materials
		2). The set includes 100 units (1 cm x 1 cm x 1 cm [minimum]), 10 rods (1 cm x 1 cm x 10 cm [minimum]), 10 flats (1 cm x 10 cm x 10 cm [minimum]), and 1 cube (10 cm x 10 cm x 10 cm [minimum]).
		Note: Each block should have distinct color from each other (e.g.: Unit - Red, Rod - Yellow, Flat - Green, Cube - Blue).
		3). Comes with a plastic container with cover to accommodate all the items.
		4). Shall be free from toxic materials. (Certificate of Non-Toxicity)
		5). Brand must be permanently marked on the plastic container.
3	Beads	Functional Specifications: Used to reinforce counting, sorting, patterning and sequencing.
		Performance Specifications: Must be able to scaffold learners in counting and grouping of numbers, colors, patterns, etc.
		Design Specifications:
		1) Comprises 5 sets of beads. A set is composed of 100 beads of 10 different colors, pre-inserted in color group array in a cord that can be easy to be moved within. Cord knotted on ends to prevent loose but can be untied for easy change of grouping and patterns.
		2) Beads hole passes through the center.
		3) Bead diameter: 9.5 mm to 16 mm
		4) Cord length: at least 25% longer than the total length of the 100 beads.
		5) Comes with a plastic transparent storage container with cover.
		6). The items shall be free from toxic materials. (Certificate of Non-Toxicity)

No.	Item Name	Technical Specifications
		7). Comes with nylon string of 5-6 meters long that fit loosely to beads hole
4	Circle Area Demonstrator	Functional Specifications: Used to demonstrate area of a circle.
		Performance Specifications: Performance: Must be able to show/demonstrate derivation of circle's area and how dimensions of a parallelogram is related to it.
		Design Specifications:
		1). Material: Plastic
		2). Circle Diameter: 196 mm (minimum) - Each half comes in different colors or all sectors come in one color to cater item availability.
		3). Thickness: 5 mm (minimum)
		4). Dissectible into at least 16 sectors
		5). Comes with base for mounting the circle and the sectors.
		6). Shall be free from toxic materials. (Certificate of Non-Toxicity)
5	Compass, Drawing, student type	Functional Specifications: Used to draw/construct arcs, semi-circles and circles.
		Performance Specifications: Must be able to draw/construct arcs, semi-circles and circles.
		Design Specifications:
		1). Compass, two legs, solid metal,rigid (not bending); corrosion resistant and smooth
		2). Length: 150mm - 200mm;
		3). With pencil adaptor attached at or integrated on one end of one of the legs. The said adaptor must be able to adapt, also, to any kind of pencil available in the local market;
		4). Solid metal, rigid (not bending);
		5). Comes with transparent plastic case or box; and
		6). Brand must be permanently printed on the item/case.
6	Cuisenaire Rods, set of 5	Functional Specifications: Used to provide an interactive, hands-on way to explore mathematics and learn mathematical concepts, such as the four basic arithmetical operations, working with fractions and finding divisors.
		Performance Specifications: Must be able to demonstrate four fundamental operations, part-to-whole concept, decimals and other concepts related to number sense and measurement.
		Design Specifications:
		1). Made of hard, smooth finish plastic materials.
		2). One (1) set is composed of 74 cuisenaire rods of different colors.
		3). Each color represents a specific rod length.
		4). Rod Lengths are: 1cm -white, 2cm - red, 3cm - yellow green, 4cm - purple, 5cm - yellow, 6cm - green, 7cm - black, 8cm - brown, 9cm - blue, and 10cm - orange.
		5). Comes in a plastic storage container with cover that accomodates 5 sets of cuisenaire rods.
		6). The item shall be free from toxic materials. (Certificate of Non-Toxicity)
		7). Brand must be permanently printed on the case.

No.	Item Name	Technical Specifications
7	Elapsed Time (Clock) Set	Functional Specifications: Used to demonstrate time and other related concepts.
		Performance Specifications: Must be able to represent and demonstrate time using hour hand and minute hand.
		Design Specifications:
		1). A set includes:
		a. Two Twelve (12) hour demonstration clock, magnetic
		b. Segmented timeline, 24-hour timeline (AM and PM) which makes up of 4 segments
		c. Removable guide numbers
		d. Start and End arrows
		2). Dial diameter measures 24-26 cm
		3). The hour number must be printed in Hindu Arabic numeral and with corresponding minute(s) number in the same numeral format.
		4). The item shall be free from toxic materials. (Certificate of Non-Toxicity)
		5). Brand must be permanently printed on the case.
8	Geoboard, 11 x 11	Functional Specifications: Used to explore basic concepts in plane geometry such as perimeter, area and the characteristics of triangles and other polygons.
		Performance Specifications: Must be able to demonstrate or visually represent different kinds of polygons and circles and how to compute their respective area, perimeter, and circumference.
		Design Specifications:
		1). Double sided geoboard - square pattern on one side (11 x 11), circle on the other;
		2). Made of plastic material and comes in any color;
		3). The surfaces and edges must be smooth, no warps, must sits flat when laid on the table;
		4). Board Dimensions (W x L): 229 mm x 229 mm (minimum);
		5). Edging Height (all sides): 6 mm from the board (minimum);
		6). Board and Edging Thickness: 3 mm (minimum);
		7). Array Pin Diameter: 3 mm (Minimum);
		8). Array Pin Height: 5 mm (Minimum);
		9). Comes with a transparent plastic case;
		10). Comes with Instruction Manual in English with illustrations;
		11). Comes with assorted size and color rubber bands (25 pcs); and
		12). Brand must be permanently printed on the case
		13). Shall be free from toxic materials. (Certificate of Non-Toxicity)
9	Geoboard, 5 x 5	Functional Specifications: Used to explore basic concepts in plane geometry such as perimeter, area and the characteristics of triangles and other polygons
		Performance Specifications: Must be able to demonstrate or visually represent different kinds of polygons and circles and how to compute their respective area, perimeter, and circumference.
		Design Specifications:
		1). Enables the students to perform different kinds of shapes (like square, triangle, circle, etc.) using rubber bands.

No.	Item Name	Technical Specifications
		2). On the top surface is the Square Geoboard with 25 guiding posts arranged 5 x 5 (forming a square) at 40mm distance apart between centers.
		3). On the bottom surface is the Circle Geoboard with 13 guiding posts. Twelve (12) of these guiding posts are arranged at 30° apart on a circle of 150mm diameter while the remaining one (1) guiding post is on the center of the said circle.
		4). Made of plastic, color blue.
		5). Board Dimensions (W x L): 200mm x 200mm (minimum)
		6). Guiding post approximate Diameter: 6mm (minimum)
		7). Guiding post approximate Height: 20mm (minimum)
		8). Approximate Height of the Base (Edging Height): 25mm (minimum)
		9). Board Thickness: 3-5mm
		10). Comes with a plastic case with content description on its cover.
		11). The surfaces and edges of the Geoboard and its Case must be smooth.
		12). Comes with Instruction Manual in English.
		13). Brand must be permanently printed on the case.
		14). Shall be free from toxic materials. (Certificate of Non-Toxicity)
		Note: There must be no warping of the board and base. The Geoboard must be flat when laid on a table.
10	Geostrips	Functional Specifications: Used to make and represent different shapes.
		Performance Specifications: Must be able to show/demonstrate different kinds of angles and shapes.
		Design Specifications:
		1). The strips are made of plastic minimum of 1.8 mm thickness and minimum of 18 mm wide in assorted colors with rounded ends;
		2). Comes in various lengths ranging from 50 mm to 350 mm. Example: Red: a) Shortest: 93-94mm b) Shorter: 169-170mm c) Longest: 323-324mm Blue: a) Shortest: 124-125mm b) Longest: 233-234mm Yellow: a) Shortest: 150-151mm b) Longest: 283-284mm White: a) Shortest: 175-176mm b) Longest: 233-234mm
		3). They are designed to be fastened together with a plastic coated brads or plastic coated round head fasteners to form plane geometric figures.
		4). One (1) set consists of 68 strips, a minimum of 100 pieces plastic coated brads and a protractor.
		5). The set comes in a transparent plastic case for proper storage.
		6). The items shall be free from toxic materials.
		7). Brand must be permanently marked on the plastic case.
		8). Shall be free from toxic materials. (Certificate of Non-Toxicity)

No.	Item Name	Technical Specifications
11	Ghost Grid Whiteboard, Mobile Magnetic	Functional Specifications: Used to aid classroom instructions especially in graphical representations such as linear, quadratic, polynomial, histogram, normal curve, etc.
		Performance Specifications: Must be able to move from one place to another and to clearly show illustrations that do not exceed from 1 meter vertically and 1.2m horizontally guided with lines with 20mm spacing (horizontally and vertically).
		Design Specifications:
		1). Mobile Magnetic Ghost Grid Whiteboard; plain white on the other side
		2). Material: Painted Steel
		3). Frame: Aluminum, 1" edging;
		4). Surface Material: Magnetic Painted Steel;
		5). Grid Pattern: 2" x 2", ghots grid;
		6). Full Dimensions: 74-75"W x 23-24"D x 69-70"H;
		7). Board Dimensions: 72-73"W x 40-41"H;
		8). Base Dimensions: 74-75"W x 23-24"D;
		9). Tray Style: Full length
		10). Casters: 4 pieces, 2-inch casters, two with locking brakes;
		11). Must be properly packed using shipping carton.
12	Linking Cubes	Functional Specifications: Used to assist with the understanding of mathematical concepts
		Performance Specifications: Must be able to interlock together to build various shapes and structures
		Design Specifications:
		1). Linking Plastic Cubes: 100pcs in 10 different colors (10 pcs per color).
		a. Dimension: 1 cm x 1 cm x 1 cm (minimum)
		c. With interlocking feature for connecting the cubes.
		2). Comes with plastic transparent storage bucket with cover.
		3). Fitting is push fit which can be assembled or disassembled without extra effort.
		4). Shall be free from toxic materials. (Certificate of Non-Toxicity)
		5). Brand must be permanently marked on the storage.
		Functional: Used to demonstrate relational geometric concepts between polygons and polyhedrons; aid derivation of formula (surface area and volume) of polyhedrons.
		Performance: Must be able to demonstrate geometrical relationships between polygons (2D) and polyhedrons (3D) in terms of deriving formula on surface area and volume.
		Design Specifications:
		1). Set includes 12 solids made of clear plastic with rounded corners and edges, and 12 folding nets in 5 or 6 colors made from soft plastic to fit inside the corresponding solids:
		2). Base size of solids: 7.8 to 10.5cm
		Height of solids: 9.5 to 10.5 cm
		3). Pairs of solid prism and pyramid shall of the same base and height the following:
		a,b) Cube and Square pyramid

No.	Item Name	Technical Specifications
		c,d) Cylinder and Cone
		e,f) Triangular prism and Triangular pyramid
		g,h) Rectangular prism and Rectangular pyramid
		i,j) Pentagonal prism and Pentagonal pyramid
		k.l) Hexagonal prism and Hexagonal pyramid
		4). With activity guide.
		5). Comes with a plastic transparent storage container with cover that can accomodate all the solids and the activity guide.
		6). Shall be free from toxic materials. (Certificate of Non-Toxicity)
13	Model, Basic 3D Geometrical Collapsible	Functional: Used to demonstrate relational geometric concepts between polygons and polyhedrons; aid derivation of formula (surface area and volume) of polyhedrons.
		Performance: Must be able to demonstrate geometrical relationships between polygons (2D) and polyhedrons (3D) in terms of deriving formula on surface area and volume.
		Design Specifications:
		1). Set includes 12 solids made of clear plastic with rounded corners and edges, and 12 folding nets in 5 or 6 colors made from soft plastic to fit inside the corresponding solids:
		2). Base size of solids: 7.8 to 10.5cm
		Height of solids: 9.5 to 10.5 cm
		3). Pairs of solid prism and pyramid shall of the same base and height the following:
		a,b) Cube and Square pyramid
		c,d) Cylinder and Cone
		e,f) Triangular prism and Triangular pyramid
		g,h) Rectangular prism and Rectangular pyramid
		i,j) Pentagonal prism and Pentagonal pyramid
		k.l) Hexagonal prism and Hexagonal pyramid
		4). With activity guide.
		5). Comes with a plastic transparent storage container with cover that can accomodate all the solids and the activity guide.
		6). Shall be free from toxic materials. (Certificate of Non-Toxicity)
14	Model, Basic 3D Geometrical Solids	Functional Specifications: Used to represent basic three-dimensional figures.
		Performance Specifications: Must be able to demonstrate geometrical concepts related to properties of geometrical solids.
		Design Specifications:
		1). At least 17 types of Hollow Geometrical 3D Solids Shapes that includes:
		a) Cube: 9.5-10.5cm x 9.5-10.5cm x 9.5-10.5cm
		b) Cone: Height = 9.5-10.5cm; Base diameter = 9.5-10.5cm
		c) Cylinder: Height = 9.5-10.5cm; Base diameter = 9.5-10.5cm
		d) Hexagonal prism: Height = 9.5-10.5cm; Length of sides (Base) = 5-6cm
		e) Hexagonal pyramid: Height = 9.5-10.5cm; Length of sides (Base) = 5-6cm
		f) Pentagonal prism: Height = 9.5-10.5cm; Length of sides (Base) = 6-7cm

No.	Item Name	Technical Specifications
		g) Pentagonal pyramid: Height = 9.5-10.5cm; Length of sides (Base) = 6-7cm
		h) Rectangular prism: 9.5-10.5cm x 5-6cm x 9.5-10.5cm
		i) Square pyramid: Height = 9.5-10.5cm; Base diameter = 9.5-10.5cm
		j) Triangular prism: Height = 9.5-10.5cm; Length of sides (Base) = 9.5-10.5cm;and
		h) Triangular pyramid: Height = 9.5-10.5cm; Length of sides (Base) = 9.5-10.5cm
		i) Sphere: Diameter of Great Circle = 9.5-10.5cm
		j) Semisphere: Diameter of Great Circle = 9.5-10.5cm
		k) Square prism: 9.5-10.5cm x 5-5.5cm x 5-5.5cm
		l) Small cube: 5-5.5cm x 5-5.5cm x 5-5.5cm
		m) Small Triangular Prism: Height = 9.5-10.5cm; Length of sides (Base) = 5-6cm
		n) Small Cylinder: Height = 9.5-10.5cm; Base diameter = 5-6cm
		2). Made of hard plastic
		3). Comes in a transparent plastic container with cover to accommodate the 17 or more types of geometric solids.
		4). Surface finish is smooth on all items.
		5). Brand must be permanently printed on the case.
		6). Shall be free from toxic materials. (Certificate of Non-Toxicity)
15	Pattern Blocks, 250 pcs/set	Functional Specifications: Used to explore mathematical concpets, including congruence, similarity, symmetry, area, perimeter, patterns, functions, fractions, and graphing
		Performance Specifications: Used to demonstrate different kinds of polygons.
		Design Specifications:
		1). One (1) set of pattern blocks contains a total of 250 pieces of six geometrical shapes and six colors - 25 each of hexagons and squares; 50 each of trapezoids, triangles, parallelograms, and rhombi.
		2). Made of smooth surface plastic material.
		3). Minimum thickness: 5 mm
		4). Comes with a plastic transparent storage container with cover.
		5). Brand must be permanently marked on the storage container.
		6). Shall be free from toxic materials. (Certificate of Non-Toxicity)
16	Pentominoes	Functional Specifications: Used to develop spatial thinking
		Performance Specifications: Must be able to demonstrate concepts pertaining to perimeter and area using the 12 kinds of 5-squared geometric shape.
		Design Specifications:
		1). Geometry puzzle consists of 12 pentominoes, each are made up of 5 equal-sided squares connected edge-to-edge. Dimension of square is 2.54cm x 2.54cm (minimum).
		2). Twelve (12) pentominoes are classified as the letters F, I, L, N, P, T, U, V, W, X, Y, and Z; each are made up of sturdy plastic. Comes in assorted colors that are free from toxic materials.

No.	Item Name	Technical Specifications
		3). Comes in set of 6 equivalent to 72 pieces (minimum) contained in a plastic storage box.
		4). Shall be free from toxic materials. (Certificate of Non-Toxicity)
		5). Brand must be permanently marked on the storage.
17	Plastic Two-colored Counters, 1-inch diameter, 200 pcs/set	Functional Specifications: Used to represent integers and demonstrate fundamental operations on integers.
		Performance Specifications: Must be able to demonstrate/represent set of numbers, skip counting and integers; perform fundamental operations on integers.
		Design Specifications:
		1). Material: Hard Plastic
		2). Minimum of 200 pieces per set (double-sided color)
		3). Must have smooth surface and edges
		4). Chip's diameter: 22mm (minimum)
		5). Chip's thickness: 1mm (minimum)
		6). Comes with a transparent plastic container with cover
		7). Shall be free from toxic materials. (Certificate of Non-Toxicity)
		8). Brand must be permanently marked on the item.
18	Probability Kit	Functional Specifications: A set of mathematical manipulative used to demonstrate different concept-formation activities in probability.
		Performance Specifications: Must be able to demonstrate probability concepts using cards, counters, dice, spinners, coins, bills and/or combination of these mathematical manipulatives.
		Design Specifications:
		1). Demonstrate probability, random and selective sampling.
		2). Class kit, at least 180 pcs in a box for large group or individual learning.
		Consist of the following:
		a. 30 combination of activities and teacher demonstration on cards
		b. 52 pcs (1 set) playing cards
		c. 9 pcs different spinners;
		d. 50 pcs coins;
		e. 5 pcs polyhedral number dice;
		f. 3 pcs dot dice;
		g. 30 two-color (back-to-back) counters or red and yellow chips;
		h. 2 pcs coin dice
		i. 6 pcs number dice
		3). Comes with transparent plastic container with cover.
		4). Shall be free from toxic materials. (Certificate of Non-Toxicity)

No.	Item Name	Technical Specifications
		5). Brand must be permanently marked on the container.
19	Square Units/Tiles, plastic	Functional Specifications: Used basically to illustrate and estimate the area of a square or rectangle.
		Performance Specifications: Able to illustrate, estimate and leads in the derivation of formulas for the squares and rectangles.
		Design Specifications:
		1. Made of plastic.
		1. Set of 400 pcs plastic square tiles in four (4) different colors.
		2. Size: 24 to 30 mm, Thickness: 3.8 mm to 6 mm.
		3. Must have smooth edges and surfaces.
		4. Shall be free from toxic materials. (Certificate of Non-Toxicity)
		5. Activity guide included.
		6. Comes in a transparent storage container with lid.
		7. Brand permanently mark on the container.
20	Tangrams, set of 30	Functional Specifications: Used to introduce spatial relationships
		Performance Specifications: Must be able to use as an aid in developing mathematical concepts such as area, perimeter and patterns.
		Design Specifications:
		1). Tangram includes seven geometric shapes made up of five triangles (two small triangles, one medium triangle, and two large triangles), a square, and a parallelogram that are in 6 distinct colors.
		2). The three different-size Tangram triangles are all similar, right isosceles triangles. Thus, the triangles all have angles of 45°, 45°, and 90°, and the corresponding sides of these triangles are proportional.
		3). All the angles of the Tangram pieces are multiples of 45—that is, 45°, 90°, or 135°, and that the small Tangram triangle is the unit of measure that can be used to compare the areas of the Tangram pieces.
		4). Material: Plastic that are free from toxic materials.
		5). The size of the largest square that the 7 tangram pieces can form is 114 x 114 mm (minimum) with thickness of 7mm (minimum).
		6). Includes an Activity Guide.
		7). Comes with a sturdy plastic that stores set of 30 tangram (210 pieces) and free from toxic materials.
		8). Shall be free from toxic materials.(Certificate of Non-Toxicity)
		9). Brand must be permanently marked on the plastic storage.
Mathematics - Tools and Instruments		
1	Balance, Double-pan	Functional Specifications: Used to compare object masses.
2	Blackboard Triangle, 30^0 x 60^0 and 45^0 x 45^0	Functional Specifications: Used to demonstrate special traingles.
		Performance Specifications: Must be able to show relationship among sides and angles of special right triangles.
		Design Specifications:
		1). Material: Plastic, smooth, not flexible and with handle
		2). Permanent graduation markings in cm in all sides
		3). For 30° x 60°:

No.	Item Name	Technical Specifications
		Base: 50 cm minimum
		Thickness: 4 mm minimum
		4). For 45° x 45°:
		Base: 50 cm minimum
		Thickness: 4 mm minimum
		5). Individually packed in a sturdy plastic bag with zipper
		6). The items shall be free from toxic materials. (Certificate of Non-Toxicity)
		7). Brand must be permanently marked on the item.
3	Calculator, Graphing, non-projectable	Functional Specifications: Used to calculate, graph, and analyze mathematical concepts that has been programmed to it as one of its built in functions.
		Performance Specifications: Must be able to store, calculate, display, graph, input, analyze and interpret data, simple and complex equations/formula, graphs and/or charts using easy access function menus/keys.
		Design Specifications:
		1. Non-projectable Graphing Calculator;
		2. Stores/calculates/displays input data, complex equations and formulas, graph and or chart;
		3. Upgradeable operating system. Softwares are accessible via internet and may be downloaded upon receipt of the unit and thereafter;
		4. Memory: 26 KB-RAM (minimum) and 450 KB-ROM (minimum);
		5. Display size: at least 8 lines x 16 characters per line;
		6. Seven (7) different graph styles for differentiating the look of each graph drawn;
		7. Easy access function menus;
		8. Readily connectable to Personal Computers (comes with connection accessories);
		9. Operates on dry cells. Comes with dry cells and ready to use;
		10. Comes with user's manual in English containing operation guide of the featured functions and in replacing the battery;
		11. Must operate as stated above and in the manual; and
		12. Brand must be permanently printed on the item.
4	Calculator, Scientific	Functional Specifications: Used to show mathematical computations.
		Performance Specifications: Must be able to show correct mathematical calculations using its built-in functions/formula.
		Design Specifications:
		1. Display: LCD, 2 line(s) X 10 characters (minimum), stably shows input expressions/equation, calculation result, and various indicators;
		2. Built-in functions not less than 240 inclusion of the following:
		a) Basic Calculations: arithmetic, fraction, percentage, degrees, minutes, seconds, radian (including conversion of the mentioned Basic Calculations);
		b) Memory calculation, Logarithm and Hyperbolic functions;
		c) Statistical functions (e.g.: Statistical relationships, standard deviation, Permutation, Combination, etc.); and

No.	Item Name	Technical Specifications
		d) Trigonometric functions: sin, cos, tan, sin-1, cos-1, tan-1;
		3. Basic keys and function keys are labeled permanently (resistant to finger rub and light acid (vinegar) contamination) and operates as such correspondingly;
		4. Power requirement: two way dual (battery, built-in solar system), the unit consistently operational after replacing the battery for three trials, its solar system powers the unit normally in a well lit room without the battery;
		5. Brand must be permanently printed on the case.
5	Digital Clock, tabletop	Functional Specifications: Used to show/display the time in numerals.
		Performance Specifications: Must be able to display hh:mm format.
		Design Specifications:
		1. Font Height: 30mm to 40mm;
		2. Dry Cell Battery operated
		3. LCD display; With or wihout On/Off switch
		4. Minimum Display: Time (hour, minutes & seconds);
		5. Two display format, can be set to 12-hr and 24-hr.
		6. The item shall be free from toxic materials; (Certificate of Non-Toxicity)
		7. Ready to use and comes with a new battery.
6	Measuring Kit (Volume)	Functional Specifications: Used primarily to measure the volume of liquid or bulk solid
		Performance Specifications: Must be able to measure volume of liquid using different types of measuring tools
		Design Specifications:
		1) Material: Plastic, translucent so that liquid inside can be seen easily
		2) Kit includes the following measuring tools:
		a. Set of Measuring Jars:
		i) 1 gallon/4000 mL
		ii) 1/2 gallon/2000 mL
		iii) 1 quart/1000 mL
		iv) 1 pint/500 mL
		v) 1 cup/250 mL
		b. Set of measuring pitchers:
		i) 1 quart = 32 oz/1000 mL
		ii) 1 pint = 16 oz/500 mL
		iii) 1 cup = 8 oz/250 mL
		c. Set of measuring cups:
		i) 1 cup/236 mL
		ii) 1/2 cup/118 mL
		iii) 1/3 cup/79 mL
		iv) 1/4 cup/59 mL
		v) 1/8 cup/29.5 mL
		d. Set of measuring spoons:
		i) 1 Tbsp (15mL)
		ii) 1/2 Tbsp (7.5mL)
		iii) 1 tsp (5mL)

No.	Item Name	Technical Specifications
		iv) 1/2 tsp (2.5mL)
		v) 1/4 tsp (1.25mL)
		3) Features include both customary and metric measurement showing appropriate graduations in each kind of measuring tools.
		4) Permanent graduations and labels.
		5) Materials used shall be free from toxic materials. (Certificate of Non-Toxicity)
		6) Brand must be permanently printed on the case.
7	Meterstick, plastic	Functional Specifications: Used to measure length.
		Performance Specifications: Must be able to measure length of objects in flat surfaces up to 1000mm in Metric and 39.37" in English standards of measurement.
		Design Specifications:
		1. Material: Plastic;
		2. Thickness: 6 mm (minimum);
		3. Width: 24 mm (minimum);
		4. Length: 1,005 mm (minimum);
		5. The front is scaled in centimeters, numbered in every centimeter with 0.1 cm (or 1 mm) divisions;
		6. The back is scaled in inches, numbered in every inch with 1/8 inch divisions;
		7. The numbers and division lines are in dark color;
		8. Must be straight and flat; and free from toxic materials; (Certificate of Non-Toxicity)
		9. Edges and Surfaces should be smooth and even;
		10. Comes with plastic jacket;
		11. Standard abbreviation of the measurement unit/s must be followed.
8	Protractor (for student)	Functional Specifications: Used to measure angles in degrees.
		Performance Specifications: Must be able to draw/construct and measure angles and arcs up to 180°.
		Design Specifications:
		1. Protractor, student-type, plastic, transparent, semi-circular, 180^0;
		2. Ø150mm (or 75mm radius), 1mm thick (minimum);
		3. Angular graduations are in degrees, from 0^0 to 180^0. With two (2) sets of numerals, one reading clockwise and the other reading counterclockwise;
		4. Linear graduations are in milimeters, 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 shall be free from toxic materials. (Certificate of Non-Toxicity)
9	Ruler, Plastic, 12 inches or 30 cm	Functional Specifications: Used to measure length and draw straight lines
		Performance Specifications: Must be able to measure length of objects in metric units up to 30cm or 300 mm.

No.	Item Name	Technical Specifications
		Design Specifications:
		1. 30cm/300mm Ruler, plastic, flexible shatter resistant, transparent, smooth surface;
		2. Width x Length: 28 mm x 314 mm (minimum); 1mm thick (minimum);
		3. Metric graduations only, one side is numbered in centimeters (cm) x 1mm division and the other side numbered in millimeters (mm) x 1mm division.
		*Metric graduations are in centimeters, from 0 cm to 30 cm, with every cm subdivided by 1mm graduation.
		*English graduations are in inches, from 0 inches to 12 inches, with every inch subdivided by 1/16 graduation.
		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 comes with plastic jacket;
		6. The item shall be free from toxic materials. (Certificate of Non-Toxicity)
10	Scale, Spring, Hanging type	Functional Specifications: Used to measure weight or force by hanging objects
		Performance Specifications: Must be able to measure mass of an object up to 25,000 grams.
		Design Specifications:
		1. Capacity 25kg, 100g division, starting from zero (0) to 25kg mark. Note: 0 and 25kg should at different point on the dial's scale.
		2. Metric unit of measure only.
		3. Mechnanical spring type; With zero (0) adjust knob.
		4. With 2 pieces S-hook.
		5. Rust resistant metal body.
		6. Face/Dial Diameter: 165mm (minimum)
		7. Manufacturer of the country of origin should issue certificate of calibration for every item.
		8. Labels of Brand, Capacity, Division or Graduation are permanently printed on the dial.
11	Scale, Weighing, analog, 10 kg. capacity	Functional Specifications: Used to measure weight and/or mass of an object
		Performance Specifications: Must be able to measure mass of an object up to 10 kilograms.
		Design Specifications:
		1. 10kg Capacity, 50g division, starting from zero "0" to "10kg". Note: 0 and 10kg should at different point on the dial's scale.
		2. Metric unit of measure only.
		3. Mechnanical spring type; With zero (0) adjust knob.
		4. Removable stainless bowl, dishwasher safe.
		5. Metal body, coated.
		6. Face/Dial Diameter: (W) 165mm (minimum)
		7. Manufacturer of the country of origin should issue certificate of calibration for every item.

No.	Item Name	Technical Specifications
		8. Labels of Brand, Capacity, Division or Graduation are permanently printed on the dial.
12	Scale, Weighing, bathroom-type	Functional Specifications: Used to measure a person's weight
		Performance Specifications: Must be able to measure weight from 0 to 120 kg
		Design Specifications:
		1. Capacity 120kg or13kg, 1kg division starting from zero (0) to capacity.
		2. Metric unit of measure only.
		3. Mechanical type; rotating dial. With zero (0) adjust knob.
		4. Metal bod, anti-rust coated. With textured platform non-slip.
		5. Should be made of metal and plastic combination with powder coating finish for metal parts.
		6. Scale size: (W) 250mm (minimum) x (L) 250mm (minimum)
		7. Manufacturer of the country of origin should issue certificate of calibration for every item.
		8. Free from toxic materials. (Certificate of Non-Toxicity)
		9. Labels of Brand permanently printed on the item/dial.
		Performance Specifications: Must be able to measure mass of an object up to 2000 grams. 2. Pre-adjusted i.e., as the Balance is on a level and stable surface with the main rider and supplementary rider are zero "0" and the taring poise/weight at utmost left end, the Balance can be set to equilibrium zero "0" by turning the fine tuning knob.
		Design Specifications:
		1). Used for comparative weighing to determine the difference in mass between two (2) objects, the double-platform beam balance comes equipped with built-in sliding masses taring poise.
		2). Capacity: 2,000 grams
		3). Readability: 2 grams
		4). Weigh Beam Capacity x Readability: 10 g x 0.1 g, 200 g x 10 g
		5). NTEP Resolution: 1 : 5,000
		6). Platform size: Ø15-16 cm
		7). Platform type: Plate (metal)
		8). Dimensions (w x d x h): 35-37 cm x 24-26 cm x 17-19 cm
		9). Comes with four (4) Weights as follows:
		a. 1 pc. 1,000-gram Weight
		b. 1 pc. 500-gram Weight
		c. 1 pc. 200-gram Weight
		d. 1 pc. 100-gram Weight
		10). Comes with an Instruction Manual in English.
		11). Comes with a storage plastic case.
		12). Manufacturer of the country of origin shall issue certificate of calibration for every item.
		13). Brand/Model must be permanently marked on the item.
13	Tape Measure, 1.5 meters	Functional Specifications: Used to quantify the size of an object or the distance between objects

No.	Item Name	Technical Specifications
		Performance Specifications: Must be able to measure size/distance of an object up to 1.5 meters.
		Design Specifications:
		1. Tape Measure, 12 mm width x 1.5 meter long (minimum)
		2. Made of flexible fiberglass fabric with metal end pieces
		3. Any color with dark color graduation markings.
		4. Graduation: in cm on one side and inches on the other side, smallest graduation in mm, on the opposite side in 1/16 of an inch.
		5. Comes with a plastic case.
14	Template, shapes	Functional Specifications: Used to scaffold drawing of basic geometrical shapes.
		Performance Specifications: Must be able to aid drawing different geometrical shapes.
		Design Specifications:
		1. A transparent plastic template; minimum of 24 geometric shapes *Note: The kinds of geometric shapes approved during post qualification shall be the same shapes to be approved during the pre-delivery inspection.*
		2. Ideal for drawing geometric shapes.
		3. Minimum dimensions: 14 cm x 20 cm
		4. Minimum thickness: 2 mm
		5. The items shall be free from toxic materials. (Certificate of Non-Toxicity)
BLR Design Storage Cabinet		
1	BLR-developed Storage Cabinet	Functional Specifications: Used for storage of science and mathematics equipment
		Performance Specifications:
		Design Specifications: please see Technical Drawing (https://bit.ly/45nazBX)